



**MUSEUM
PROFESSIONALS
IN THE
DIGITAL ERA**

**Agents of change
and innovation**

ERASMUS+

SECTOR SKILLS ALLIANCES

Mu.SA: Museum Sector Alliance

575907-EEP-1-2016-1-EL-EPPKA2-SSA

www.project-musa.eu



MuSA
museum sector alliance

MUSEUM PROFESSIONALS IN THE DIGITAL ERA.

AGENTS OF CHANGE AND INNOVATION



Co-funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Work package:	WP2 - Identification of emerging roles of museum professionals
Type:	Report /R.2.1
Dissemination level:	Public
Version:	Final version
Delivery date:	10/09/2017
Keywords:	Museum sector, new emerging job profiles, digital technologies, e-competences, transferable skills, professional training development, museology, museum leadership.
Abstract:	<p>This report summarises the key findings of the research activities carried out in Greece, Portugal and Italy within the Mu.SA "Museum Sector Alliance" project in order to investigate the supply and demand regarding digital competences in the Museum sector.</p> <p>Mu.SA attempted to determine the necessary skills and know-how for supporting museum professionals in order to thrive in a digital environment.</p> <p>Based on the results of the previous eCult Skills¹ project, the research findings highlighted four emerging role-profiles which have been update in light of the research results: Digital Strategy Manager, Digital Collections Curator, Digital Interactive Experience Developer and Online</p>

1 eCult Skills Project <http://groupspaces.com/eCult/>



	<p>Community Manager.</p> <p>The research results will form the building of a training programme that will include the development of a MOOC (Massive Open Online Course), e-learning platform, face-to-face training and workplace learning so as to avoid a mismatch between the job market and professional needs.</p> <p>The Mu.SA training programme aims at developing both digital and transferable skills for ICT related jobs for museum professionals with the view of creating a network between museums. The research highlighted digital and transferable competences common to the four role-profiles and others that are more specific, such as: strategic and business planning; user needs identification/analysis, product service planning, technology and trend monitoring, innovating, user support, forecast development, relationship management, ICT quality management, audience development, communication, storytelling, time management and creativity, leadership, active listening, team working and fact-driven. These role profiles should have an in-depth knowledge of how a museum works. Moreover, many of the skills and competences attributed to the job profiles should be embedded in the context of a team work.</p>
Authors:	<p>Editor Antonia Silvaggi, Melting Pro Learning</p> <p>Reviewer Federica Pesce, Melting Pro Learning</p> <p>Italian Research Team Melting Pro Learning</p>



	<p>Antonia Silvaggi Federica Pesce Laura Bove Symbola Foundation for Italian Qualities Romina Surace Domenico Sturabotti Sabina Rosso Link Campus University Claudia Matera Valentina Re</p> <p>Greek Research Team Hellenic Open University Achilles Kameas Panagiota Polymeropoulou AKMI Ilektra Simitsi ICOM - International Council of Museums Greece Alexandra Bounia Artemis Stamatelou</p> <p>Portuguese Research Team ICOM – International Council of Museums Portugal Alexandre Matos Ana Carvalho Manuel Pizarro Mapa das Ideias Ivo Oosterbeek University of Porto Paula Menino Homem Patrícia Remelgado Susana Medina</p>
--	--



Table of Contents

1. List of tables	9
2. Preface	10
3. The research conducted by the Mu.SA project	14
3.1 Research aim and description of activities.....	14
3.2 Methodology, tools and limitations.....	18
3.3 Data collected.....	21
4. Establishing the context: the museum sector in Greece, Portugal and Italy.....	24
4.1 The museum scenario	24
4.2 The museum organisation and administration.....	25
4.3 Technologies and infrastructures	27
4.4 The need for on-going professional development for museum professionals.....	28
5. Overview of key findings overview from the Mu.SA research.....	31
6. Key findings from the mapping of competences for museum professionals in Portugal, Greece and Italy	35
6.1 Desiderata	40
7. Key findings from the mapping of training provisions for museum professionals in Portugal, Greece and Italy	42
7.1 Relation to the eCult Skills role-profiles	46
7.2 Benchmarking of MOOC	48
7.3 Summary of the mapping training provisions key findings.	51
8. Emerging job profiles in the museum sector: a complex scenario	55
9. E-competences, digital and transferable skills.....	61
9.1.1 Digital Strategy Manager e-competences.....	62
9.1.2 Digital Strategy Manager Transferable competences	63
9.1.3 Digital Collections Curator e-competences	64

9.1.4	Digital Collections Curator transferable competences	65
9.1.5	Digital Interactive Experience Developer e-competences ..	66
9.1.6	Digital Interactive Experience Developer transferable competences	68
9.1.7	Online Community Manager e-competences.....	69
9.1.8	Online Community Manager transferable competences	70
9.1.9	The most important e-Competences (e-CF 3.0) to develop across the 4 MU.SA profiles	71
9.1.10	The most important transferable competences to develop across the 4 profiles	72
10.	Other interesting role profiles	76
11.	Conclusions.....	77
12.	Description of the Digital Strategy Manager role-profile.....	81
13.	Description of the Digital Collections Curator role-profile	86
14.	Description of the Digital Interactive Experience Developer role-profile	90
15.	Description of the Online Community Manager role-profile.....	94
16.	References.....	99
16.1	Websites	101
17.	List of contributors	104
17.1	List of interviewees from Greece.....	104
17.2	Focus group contributors from Greece	105
17.3	List of interviewees from Italy	106
17.4	List of focus group contributors from Italy.....	107
17.5	List of interviewees from Portugal	108
17.6	List of focus group contributors from Portugal.....	108
17.7	List of interviewees for the report "Report Museum of the future"	109
18.	Mu.SA project Consortium.....	110



19. Authors profiles	113
20. Annexes	122
20.1 Annex 1 Job-Role Profile template adapted from the e-Competence Framework	122
20.2 Annex 2 Interview template	124
20.3 Annex 3 Mapping educational and training provisions – Desk research template	131
20.4 Annex 5 Online Survey template.....	132



Fig. 1 Competence consists of the intersection between knowledge, skills and attitudes17

Fig. 2 Illustration of the Mu.SA project activities.....17

Fig. 3 The Mu.SA job role-profiles updated in light of the research findings18

Fig. 4 Graphic describing the Mu.SA research framework and Key Performance Indicators (KPIs)23

Fig. 5 Museum digital strategy museum must be in line with its vision, have competent staff and allocated resources to thrive in the digital environment.....37

Fig. 6 Graphic showing the relation between museums, people and technologies39

Fig. 7 Graphic illustrating Current situation and Desired situation in light of the Mu.SA research findings.....41

Fig. 8 Word cloud illustrating the most common topics covered in training programmes for museum professionals mentioned by respondents44

Fig. 9 Graphic summarising the current situation regarding the training course for museum professionals compared to the desired situation..53

Fig. 10 Graphic summarising key findings in order to develop Mu.SA training54

Fig. 11 Most emergent topics preferred selected by respondents to invest in training73

1. List of tables

Tab 1 Describes compared detailed data of preferences what museum professionals want to know based on the online survey	40
Tab 2 - Job profiles – equivalence in eCult Skill and Mu.Sa.....	59
Tab 3 - Job profiles – Mu.SA.....	60



2. Preface

“Digital teams and leaders need to help identify, create and encourage colleagues to use digital tools as part of their everyday work and enable them to think digitally.”

Kati Price, Head of Digital Media and Publishing V&A

This report² summarises the key findings of the initial stage of the research activities (from December 2016 to March 2017) carried out in Greece, Portugal and Italy by the partners who are involved in the European project Mu.SA “Museum Sector Alliance”, funded by the Erasmus+ Programme Sector Skills Alliances.

The consortium attempted to determine and individuate the fundamental e-competences³/digital and transferable competences and know-how for supporting museum professionals in their efforts to make museums thrive within a digital environment, by capitalising on and revising the results of the eCult Skills⁴ project. The eCult Skills project investigated the knowledge, digital skills and competences needed for professionals in the museum sector to become proficient in the use of digital technologies in the field of culture adopting the **European Framework for e-Competence (e-CF)**⁵.

Mu.SA investigated whether the previously identified five role profiles for the museum sector within eCult Skills project, namely Cultural ICT Consultant, Cultural ICT Guide, Digital Cultural Asset Manager, Interactive Cultural Experience Developer, Online Cultural Community Manager, were still relevant and applicable. Thus, in light of the

² This report should be read in conjunction with the “**Emerging Job Profiles for museum professionals**” available on the Mu.SA project website in the section <http://www.project-musa.eu/results/>

³ In this report the term digital and e-competences are interchangeable according to the **European Framework for e-Competence (e-CF)**

⁴ eCult Skills Project: <http://groupspaces.com/eCult/>

⁵ The European Framework for e – competences is described in the following pages.



Mu.SA research findings, the most relevant emerging role-profiles have been updated and renamed:

Digital Strategy Manager, Digital Collections Curator, Digital Interactive Experience Developer and Online Community Manager.

The first part of this report is an introduction to the rationale of the project. It is followed by a description of the research activities carried out within Mu.SA. At the very outset of this project, the partners shared a common research framework in order to collect comparable data across the three countries involved. Given the research aim a qualitative approach was seen as the most appropriate in order to provide useful insights into which role profiles and e-competences/digital and transferable competences needed to be developed for museum professionals. It follows a brief introduction to the museum scenario in Greece, Portugal and Italy in order to contextualize the findings⁶.

Nevertheless, although some general considerations may be applied to the museum sector in Europe, one should be cautious when attempting to generalize the findings of the research, on the one hand because they refer to the specific contexts of the three different countries analysed, and on the other hand because technologies in museums and generally are constantly changing and as a consequence training needs are altering too.

The second part of the report illustrates the key findings of the research, listed in ten points⁷. This is followed by more detailed findings based on the mapping of professional competences, and a consideration of the current training situation that illustrates the demand and supply of training in Greece, Italy and Portugal.

The section "Emerging job profiles in the museum sector: a complex scenario" describes the results related to the role-profiles examined. For each role profile identified in the previous eCult skills project e-

⁶ see pg. 26

⁷ see pg. 33



competences and transferable competences have been listed in a decreasing order of importance.

The results of the research show that there are e-competences and transferable competences that should be developed across all job role-profiles and that should be considered as an essential starting point for up skilling⁸.

It shows also that, although it is important to develop and integrate the profiles described in eCult Skills and revised in Mu.SA into the museum system, given the national contexts, there is still some resistance to instituting towards this process. Across the three countries involved **a fragmented experience of the digital shift is clear, due to the different contexts, governance, competences and resources invested.** On one hand, **all three countries claim that the present levels of investment in infrastructure and resources are inadequate, which represents a tangible limitation** in the sector. Thus, although not exclusive, the limited level in digital competences can be a consequence of that. On the other hand, from the research it appears that there is a lack of leadership, most of the times, unable to seize the opportunities given by digital technologies to support museums thrive in the role and a lack of a national digital strategy in the sector.

Based on the research findings, many of the experts recognised the need to develop useful skills to create meaningful experiences for visitors **by enhancing digital skills, and therefore help to achieve the museums' role in a more integrated way and with more effective results.**

The report ends with separate descriptions of the four emerging role-profiles by using the e-Competences Framework template⁹ that describes their relative functions inside the organisation, their levels of specialisation (autonomy in delivering a task according to the European Qualifications Framework)¹⁰ and their tasks/key responsibilities. It

⁸ see pg 72 -73

⁹ <http://www.ecompetences.eu/> (Downloaded April 2017)

¹⁰ **European qualifications Framework for Lifelong Learning (EQF)**, a reference tool for describing and comparing qualification levels qualifications systems developed at national, international or sectorial levels. The EQF's main components are a set of eight reference levels described in terms of learning outcomes (a combination of



details, also, the knowledge, e-competences, and digital and transferable skills concerned.

In the second phase of the project the research findings will be used in order to develop training programmes in different formats such as MOOC (Massive Open Online Course), e-learning, face-to-face and workplace learning, in line with the specific needs of the museum professionals in respect of the need to update digital competences.

knowledge, skills and/or competences) and mechanisms and principles for voluntary cooperation. The eight levels cover the entire span of qualifications from those recognising basic vocational education and training. EQF is a translation device for qualification systems.



3. The research conducted by the Mu.SA project

"My ideal member of staff should know how to use a computer writing code such as HTML and other specific applications, but also must have a degree in art subjects, because we need people who know how to produce content."

Javier Pantoja Chief Digital Officer, Head of technology, Prado National Museum.

3.1 Research aim and description of activities

The Mu.SA research activities aimed to identify what are the necessary e-competences/digital and transferable competences to support museum professionals to thrive in the digital environment by capitalising on the results of the eCult skills project¹¹.

The eCult Skills project investigated the knowledge, digital skills and competences needed for professionals in the museum sector to become proficient in the use of digital technologies in the field of culture. The project outlined five job role-profiles as a response to help museums through their digital journey:

- Cultural ICT consultant
- Cultural ICT Guide
- Digital Cultural Assets Manager
- Interactive Cultural Experience Developer
- Online Cultural Community Manager

At this stage, Mu.SA research aimed to understand whether the five job role-profiles identified in the eCult Skills project were still relevant and which digital and transferable competences needed to be updated and then, based on the findings, select the most important ones.

The specific objectives of the Mu.SA research were as follows:

¹¹ eCult Skills Project: <http://groupspaces.com/eCult/>



- to understand the relevance of the eCult Skills five job role-profiles within the museum context of the three countries;
- to identify any mismatch between the current reality and the results of the previous analysis;
- to identify which digital/e-competences (20) and transferable competences (21) are most in need of being developed;
- to update the five eCult Skills job role-profiles in the light of the latest research findings.

The eCult Skills adopted the e-Competences Framework in the specific field of e-Culture. This is a framework to improve the mobility and transparency of ICT professionals across Europe developed by the working group of the European Standardization organization on ICT Skills, according to the EQF - European Qualification Framework. In order to fulfil this aim, i.e. to encourage greater job mobility for museum professionals, the same framework has been adopted in the Mu.SA project.

Digital or e-competence (e-CF) means using ICT skills according to the following definition: "*Competence is the ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development (Fig. 1).*"¹²

This is a holistic concept directly related to workplace activities and incorporating complex human behaviours that are expressed as deeply rooted or embedded attitudes.

Instead, transferable competences are those hard and soft skills that relate to many occupations, i.e., creative thinking and communication

¹² Source: Terminology of European education and training policy SECOND EDITION A selection of 130 key terms." CEDEFOP, Luxembourg: Publications office of the European Union, 2014 (Downloaded December 2016)

skills with MS Office Suite applications, or time management by using applications such as Outlook, etc¹³.

Another European Framework that the Mu.SA project considered is the DigComp (Digital Competence Framework for citizens)¹⁴, a European framework for developing and applying basic digital competences, which is addressed to all European citizens as users of digital technologies. DigComp with a detailed range of proficiency levels supports the development of learning and training materials while it identifies the key components of digital competence in 5 areas such as: Information and data literacy, Communication and collaboration, Digital content creation, Safety and Problem solving. It also helps in the design of instruments for assessing the development of citizens' competence, career guidance and promotion at work.

¹³ According to the Online Cambridge dictionary transferable skills are used in one [job](#) or [career](#) that can also be used in another: *Leadership is a highly transferable skill.*

¹⁴ <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>
(Consulted April 2017)



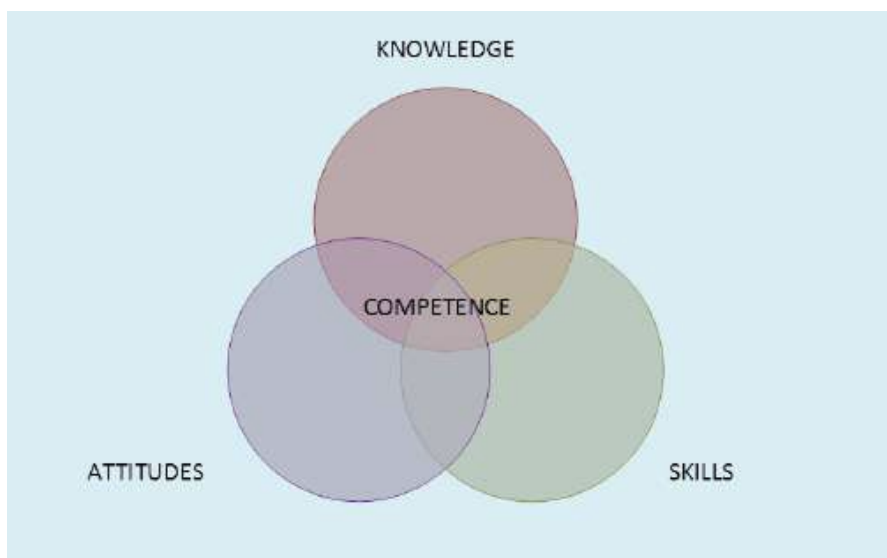


Fig. 1 Competence consists of the intersection between knowledge, skills and attitudes

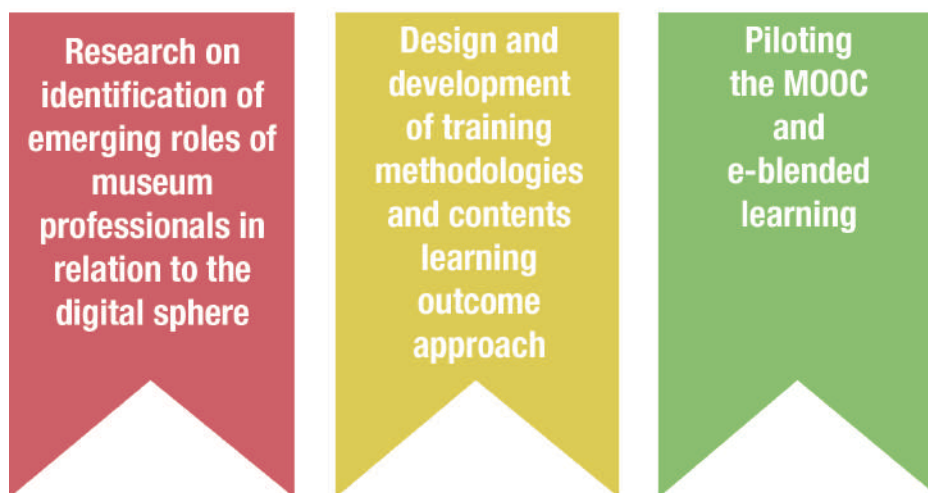


Fig. 2 Illustration of the Mu.SA project activities

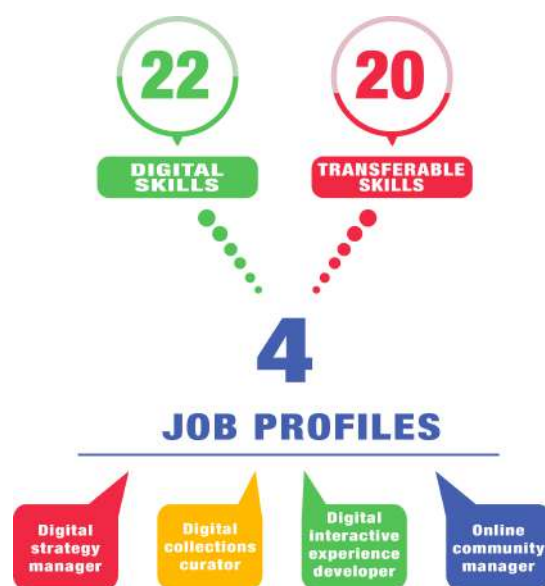


Fig. 3 The Mu.SA job role-profiles updated in light of the research findings

3.2 Methodology, tools and limitations

From the outset of the project, the partners shared a common research framework in order to collect comparable data across the three countries. Given this fact, a qualitative approach was seen as the most appropriate in order to provide useful insights into which role-profiles related digital and transferable competences need to be developed for museum professionals.

Nevertheless, although some general considerations may be applied to the museum sector in Europe, one should be cautious when attempting to generalize the findings of the research, on the one hand because they refer to the specific contexts of the three different countries analysed, and, on the other, because the technologies involved are constantly changing, which leads to ever-new training needs.

The research tasks have been allocated according to the different competences of the organisations involved.

From December 2016 to March 2017 Melting Pro and Symbola in Italy, International Council of Museums (ICOM) Portugal and Mapa das Ideias in Portugal, and ICOM GR in Greece carried out a mapping activity of the needs of museum professionals to identify those that are related to digital skills (or e-competences) and transferable skills, by means of interviews¹⁵ and a focus group in each country.

The interviews started with more general questions, followed by more in-depth ones. At least every two experts in each country were assigned with an eCult Skills job role profile to be analysed. Each expert independently rated each e-competence, giving it a score on a scale from one to five, with five being ranked as most important. The experts were provided with a list of transferable competences drawn up on the basis of previous European projects such as Arts¹⁶, ADESTE¹⁷ and CREA.M¹⁸. The focus group applied also the same methodology.

Since the research was mainly qualitative, the goal was to ensure a balance between various different points of views, ranging from directors and the employees of national and regional museums of all sizes, as well as the viewpoints of people working in the areas of research, education and policy-making.

For both the interviews and the focus group the partners selected participants applying the following criteria:

- Professionals and external collaborators recognised as experts in the museum sector also from the fields of research, policy and ICT;
- Directors of big and small, urban and rural museums, as well as regional or national museum networks;

¹⁵ Annex 2 The interview template developed

¹⁶ ARTS – SKILLS FOR THE CREATIVE ECONOMY – COMPETENZE PER UNA ECONOMIA CREATIVA <http://arts-project.eu/> (Downloaded April 2017)

¹⁷ ADESTE, Audience DEveloper: Skills and Training in Europe <http://www.adesteproject.eu/about> (Downloaded April 2017)

¹⁸ The CREA.M project (2011 – 2013) <https://www.encatc.org/en/projects/transnational-cultural-projects/> (Downloaded April 2017)

- Professionals with other roles in the context of museums, such as communication strategists, exhibition management experts, and educational experts;

Meanwhile, Link Campus University in Italy, Hellenic Open University and AKMI in Greece, and University of Porto (U.Porto) carried out a mapping of training provisions for museum professionals, conducting desk research and an online survey. This mapping aimed to present the current situation concerning the global approach and the rate of diffusion of training programmes offered (formal, informal and non formal¹⁹) related to digital competences and transferable competences in the museum sector.

The data that was gathered regarding formal education consisted in graduate and postgraduate programmes (Master and PhD) provided by Higher Education Institutions, as presented in their websites. It was analysed on the basis of specific indicators such as:

- Information about the provider (name of university/ department, course/ module, description, type of training, methodology, subjects, target group, prerequisites, duration, assessment methods etc.)
- Identification of the specific e-competences of the five job role-profiles (developed in the eCult Skills project) that the programme/ course/ module provides.

In all three countries, it was a very challenging task to retrieve this information, considering the highly specialized role-profiles that needed to be identified and the lack of specification in the academic curricula

19 **Formal learning** can be defined as learning in an organised and structured environment (such as in an educational or training institution or in a professional context) and is explicitly designated as learning (in terms of its objectives, time or resources). Formal learning is intentional on the learner's behalf and it typically leads to a qualification. **Non formal learning** may or may not lead to a qualification. **Informal learning** is learning connected with daily activities related to work, family or leisure which is not organised or structured in terms of its objectives, time or learning support. It may even be unintentional on the learner's behalf.

provided in that sense on-line. The risk of misinterpretation should therefore be taken into account.

As regards non-formal and informal training programmes, in the three countries involved there are no lists, either official or non-official, of the relevant education providers, nor is there a database that specifically focuses on the museum sector. The research therefore focused on those training activities for the museum sector provided by relevant national associations, which the organisations conducting the research already knew about.

The online survey²⁰ was brought to the attention of museum professionals, external collaborators and people seeking to work in the sector through a number of different channels such as direct e-mailing, newsletters, social networks, national museum associations and other relevant networks.

Moreover, in order to gain an international overview of the digital competences needed in the museum sector, Symbola and Melting Pro carried out ten interviews with experts in the museum sector. These are included in the report "*The Museum of the Future: Insights and reflections from 10 international museums*"²¹.

3.3 Data collected

From December 2016 to March 2017 the research activities carried out in order to map museum professional needs in Portugal, Greece and Italy involved 81 museum experts (from European policy makers to freelancers, researchers and museum professionals, etc.):

Methodology:

²⁰ See Annex 5

²¹ <http://www.project-musa.eu/wp-content/uploads/2017/03/MuSA-Museum-of-the-future.pdf>



Italy – 1 Focus group and 14 interviews.

The focus group with sixteen participants was carried out in Rome, Italy, on 05/12/2016 organised by Symbola and Melting Pro, in collaboration with Link University, Artribune, Maxxi – Museo Nazionale delle Arti del XXI Secolo, Istituto dei Beni Culturali ed Artistici dell'Emilia Romagna.

Greece – 1 Focus group and 11 interviews

The focus group with nine participants was carried out in Athens, on 04/03/2017 organised by ICOM Greece.

Portugal – 1 Focus group and 12 interviews

The focus group with seven participants was carried out in Oeiras, on 22/03/2017 organised by ICOM Portugal in collaboration with Mapa des Ideas

Twelve international experts from around Europe interviewed as seen in the report "*The Museum of the Future: Insights and reflections from 10 international museums*"²².

The desk research for mapping museum training provisions analysed 130 formal and informal educational training programmes in all three countries, focussing on their relation with the e-competences of the five role-profiles defined within the European Project eCult Skills.

The online survey collected 275 complete responses. The survey was open for 23 days (06 – 28.02.2017).

The short opening period, together with the lack of knowledge and public discussion related to the five role-profiles under focus and respective e-competences, not recognised by professionals as having application in the national context, may justify the level of participation. However in terms of impact the number was much higher recording 980 people opening the survey.



The profile of the highest majority of participants belongs to a museum staff, working full time (36,7%), in small national (34,31%) or private (23,2%) museum (staff 1 - 20) with archaeological, ethnographic and historical artefacts, with more than 5 years museum working experience with the main departments of Education, Conservation, Communication; Library and Research as the most selected.

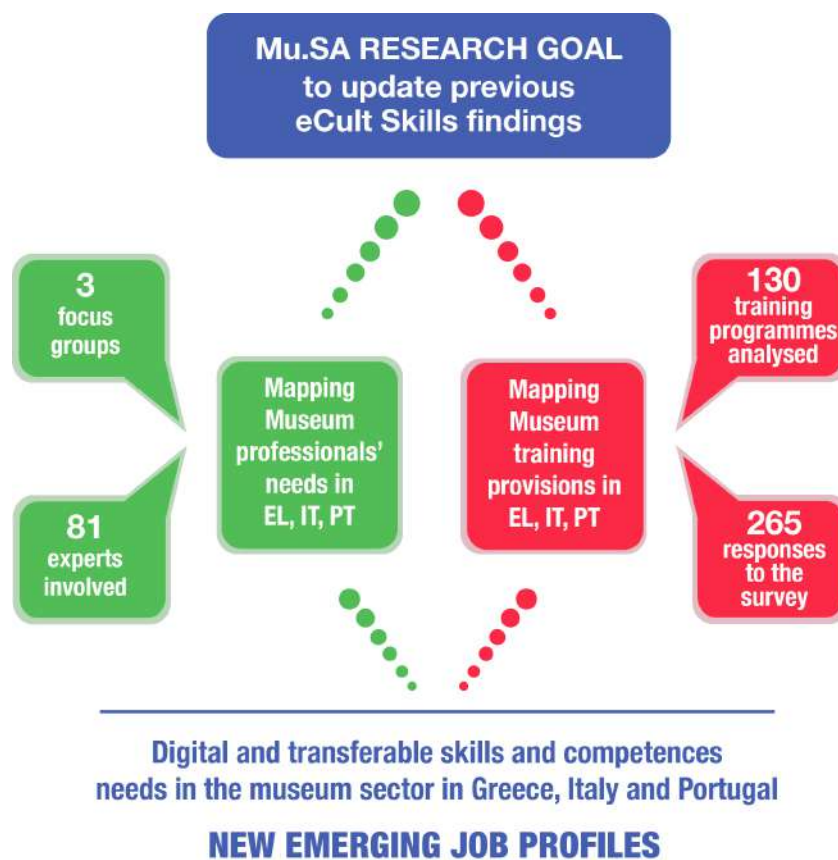


Fig. 4 Graphic describing the Mu.SA research framework and Key Performance Indicators (KPIs)

4. Establishing the context: the museum sector in Greece, Portugal and Italy

"Technologies are undervalued because the communication role of museums is undervalued. Before creating a digital culture, we need to create a communication culture".

Maurizio Felicori, Director Reggia di Caserta, Italy

4.1 The museum scenario

In Portugal, Greece and Italy the general context of the museum sector has many characteristics in common. Museums are mainly managed by the state, and national, regional or local authorities are in charge of their management. In these three countries privately-owned museums are minority. One of the peculiarities of the museum scenario in all three countries is that there are many local museums, which are directly linked to local authorities.

In Portugal there are 1223 museums, with a growth of 68% regarding the data collected in 2000 (Neves, Santos and Lima, 2013). In Portugal the post-2008 economic crisis had a strong impact on the budget set aside for museums, leading in some cases to the loss of qualified human resources, as it was stated in some of the interviews conducted for the Mu.SA project.

In 2015, the Official National Statistical Institute in Italy published a report stating that Italy has 4158²³ museums, galleries and collections, as well as 282 archaeological sites and 536 monuments, both public

²³ Official National Statistical Institute in Italy (Istat) Report "I musei, le aree archeologiche e i monumenti in Italia" 2015 <https://www.istat.it/it/archivio/194402> (Last consulted July 2017)

and private²⁴. Generally, both Italy and Portugal museums often have very small teams, and therefore are multitasking.

The Greek museum scenario is very rich and although most museums are located in the two largest Greek cities, Athens and Thessaloniki, there are many museums of various sizes all over mainland Greece and the Greek islands. There are now over 300 professionally run museums in Greece, more than 200 of which are archaeological museums owned and run by the Hellenic Ministry of Culture and Sports.

4.2 The museum organisation and administration

In Portugal, the main organisation currently responsible for developing a national policy and strategy for museums is the Directorate-General for Cultural Heritage (DGPC)²⁵. Working at a central administration level, this organisation also supervises and manages 15 national museums.²⁶ The Portuguese Network of Museums (RPM), founded in 2000, also belongs to the DGPC. This network, which aggregates 146 museums²⁷ (of various different types with several different administrations and management), promotes certification and cooperation between Portuguese museums, with training (informal learning) as one of its key activities, thanks to an annual program targeted at museum professionals.

In Greece, following the recent reforms that took place in the public administration (in 2014), there are now five General Directorates within the Hellenic Ministry of Culture and Sports: 1) the Directorate of

²⁴ The policy document of the Italian Ministry of Culture, inspired by the international ICOM policies, specifies another area "*relationship with the landscape*" for the development of specific standards.

²⁵ The DGPC was created in 2012 after a process of restructuration and fusion at central administration level that lead to the centralization of many areas of expertise within the same organization, including museums. This tendency was also observed in many other European countries after 2009 (see Camacho 2015).

²⁶ <http://www.patrimoniocultural.gov.pt/pt/museus-e-monumentos/dgpc/> (consulted April 2017)

²⁷ <http://www.patrimoniocultural.gov.pt/pt/museus-e-monumentos/rede-portuguesa/> (consulted April 2017)

Antiquities and Cultural Heritage; 2) the Directorate for the Restoration, Museums and Technical Works; 3) the Directorate of Contemporary Culture; 4) the Directorate of Financial Services, and 5) the Directorate of Administrative Support and e-Governance. Issues relevant to museums mainly fall under the responsibility of the General Directorate of Antiquities and Cultural Heritage, which consists of Central, Regional, and Special Regional Services, as well as eight major public museums.

In 2014 the Italian Ministry of Cultural Heritage, Cultural Activities and Tourism initiated a process of extensive transformation (in accordance with the law issued by the so-called *Commissione Franceschini*) aimed at establishing a long-term national museum system. The reform has had a huge impact on the Italian museum sector at both national and local level. One of the measures requires 20 national museums²⁸ to become “autonomous” in terms of their administration and organisation, and managed by a specially appointed director. All Italian state museums must draw up a mission statement, manage an independent budget, and they must employ a minimum number of professional staff, in accordance with the ICOM's international standards. The law also requires a General Directorate to be developed like the case of Portugal, which will be responsible for developing a national strategy for museums. In future, museums are expected to invest more in communication, social media, and technology with a focus on tourism. Those firms and enterprises that invest their own resources in improving the digital assets of museums (websites, social media, online marketing, Wi-Fi installation and so on) will be granted a lower tax burden. The public will be allowed to take photographs free of charge, which represents another major change.

²⁸ During the writing of this report another 10 museums were added.

4.3 Technologies and infrastructures

All three countries claim that the present levels of investment in infrastructure and resources are inadequate, which represents a tangible limitation. In Greece very few museums have IT departments, with the exception of a few large private institutions (the same applies in Italy). The most widespread practice is to rely on collaborations with external firms in order to develop technological resources inside museums. A majority of respondents, especially in Italy and Portugal, underlined that the lack of basic knowledge of ICT among museum professionals sometimes leads them to engage in inadequate technological solutions that may, in several cases, not be suited to the museum or the needs of its visitors.

According to the Greek report, the majority of Greek museums embarked on the digital shift after 2000, digitizing a significant portion of their collections and going online through web sites, digital exhibitions and apps, with the support of the EU co-funded Operational Programmes “Information Society 2000-2006” and “Digital Convergence 2007-2013”. Nevertheless the lack of a national digital strategy for museums is stressed as one of the biggest problems. Across the three countries difficulties in embracing the digital world are not exclusive to the museum sector, but are shared by many other organisations (not only cultural) in the public and private sectors. Many organisations tend to be rather slow to react to the on-going changes and developments in the field of digital technologies. This data is reflected also by the DESI (Digital Economy and Society Index)²⁹, a European report that keeps track of the current state of progress in the area of digitalisation. The report states that the greatest challenge in the three countries participating in the Mu.SA project, is the raising of the levels of digital skills of their citizens. The limited digital competences of museum professionals in these three countries are a consequence of a generalized lack of infrastructures and national resources (but not exclusively).

²⁹ <https://ec.europa.eu/digital-single-market/en/desi> (Consulted April 2017)

Compared to the sector of libraries and archives, the museum sector is lagging behind in embracing the digital challenge. Therefore, it is imperative for upper management personnel to start to envision a digital approach as vital for developing meaningful relationships with new and existing audiences, in line with their museums' existing mission and strategy. A national digital strategy should not be conceived only for one museum, but it should have a shared perspective of networking that emphasises resources held in common, favouring the conservation and digitization of collections and the development of professional digital skills, while also leaving space for small-scale local initiatives. ***Not only should museums be technologically equipped, but they should also be encouraged to build bridges and establish meaningful relationships, in the context of a shared vision, which moves them towards a common goal.***

4.4 The need for on-going professional development for museum professionals

On-going professional training for museum professionals in all areas is perceived as a necessity. According to the Portuguese report, the interviews clarified that there is a need for digital skills training among museum professionals. The report also highlighted the results from a recent survey in the area of information and documentation systems in Portuguese museums that revealed that in a sample of 222 museums a small percentage (2,7%) of professionals have a specific ICT background (university degree) (Santos, Serôdio and Ferreira 2017). Furthermore, the Portuguese report remarked that neither museum studies courses (post-graduation level) nor the existing training short courses (non formal) available for the museum sector are approaching digital competencies in a sufficient manner, which confirms the need identified by many of the interviewees of on-going and updated professional training in this area.



Although in Italy there is the same perceived need, the 2015 data³⁰ shows that only 43.9% of the museums/institutions interviewed declared that they had organized on-going professional training programmes for their employees over the last five years. In the same report only 0.8% of them declared that, if they received a 10% budget increase, they would use the sum to provide on-going professional training. This is despite the fact that “*The national museum professional chart (2006)*”³¹ underlined the importance of continued professional training as a vital factor for the life of a museum.

Recently in Greece, a preliminary study to identify the learning needs and skills gaps in the Greek museum sector was conducted by the British Council³². This confirmed the fact that the average employee in a Greek museum “*holds qualifications more closely related to the collections, such as archaeology and art history, rather than the museum itself, and that a strong knowledge of the collections across the whole museum staff is considered invaluable to the organisation*”. The respondents to this research also claim that young graduates are “*under-qualified for business support roles and technical roles compared to more academic roles, such as curatorial or archive related roles*”, and that they lack competences in areas such as marketing, project management, general museum management, business and management skills, entrepreneurship, finance and audience development. It is also widely felt that museum professionals need to be specially trained in order to understand electronic storage systems.

³⁰ Istat 2015, op.cit. pg. 23

³¹ SEMINARIO DI LAVORO DEL CONSIGLIO DIRETTIVO E DEL GRUPPO DIRIGENTE DI ICOM ITALIA 26 gennaio 2013, Villa Emo (Castelfranco Veneto) “Temi in discussione in preparazione dell’assemblea di fine mandato 2010 – 2012 - Carta delle Professioni museali e riconoscimento delle Professioni museali” (Downloaded April 2017)

³² British Council, “Cultural Skills Unit Research. Preliminary research for the museum sector in Greece”, British Council, 2016.

The ICOM International Curricula Guidelines ³³ underlines the importance of transferable competences, new competences and cross-disciplinary competences, alongside more specific ones. These competences are: self-expression, active learning, understanding, adaptability, writing skills, analysis, active listening, critical thinking, problem solving, decision making, service related management skills and time management.

It is important to highlight that in the three countries analysed recruitment for state-owned museums is carried out through public open examinations and the majority of staff members working in state museums have a subject-focused degree, mainly in archaeology, art history, conservation, architecture etc. In Italy, for example, due to the recent reform (2014), public museums are now advised to employ professionals according to the ICOM standards. Nevertheless, in Italy and Greece the most recent call to open examinations tested candidates only on their disciplinary knowledge and not on other their other competences or working experiences in museums (nor on museology, as requested by the International ICOM standards³⁴), and let aside their digital skills.

³³ <http://museumstudies.si.edu/ICOM-ICTOP/comp.htm> (Downloaded April 2017)

³⁴ A. Ruge, Ed., Museum Professions. A European Frame of Reference, ICOM-ICTOP, 2008.

5. Overview of key findings overview from the Mu.SA research

“One of the biggest challenges of the sector is seeing digital as an integral way of working. Regardless of where you may fit in the museum range of disciplines and areas of work, there will be a requirement for a set of digital skills and competencies that are taken for granted.”

Janice Lane, National Museum of Wales, United Kingdom

This chapter describes the key findings from the research activities carried out across the three countries and highlights some recommendations.

It is necessary to **build up what can be defined as “digital cultural awareness” and “digital confidence”**. This means **developing digital skills for the whole staff of a museum, regardless of their role**, from the most basic to the upper levels according to their specific functions and tasks. However, **the whole museum staff should be encouraged to increase their digital confidence**. This will help them to identify opportunities, and ensure they are economically and professionally viable. One of the barriers that were identified is the lack of personal motivation. Getting all the employees members on board and allocation of their responsibilities in relation to digital technology will motivate teams.

It is necessary to foster a mental shift/cultural change in terms of the planning and visioning of services, so that the digital element can become an integral part of the thinking and planning process from the outset. The existing processes also need to be re-examined and re-proposed in ways that are relevant in today's digital world. Furthermore, **digital tools or technological solutions should not be ends in themselves, but a means to an end**.

It is necessary to rethink the role of the museum in relation to audiences and society at large. Rethinking the opportunities offered by digital technology means developing meaningful relationships with new and existing audiences. Museums should work towards more open approaches whenever possible.



It is necessary to develop leadership, strategic and business planning skills as well as specific digital skills. **Leadership at an institutional and political level must take every opportunity to invest in digital infrastructures.** It is important to emphasize the importance of digital investment.

Leadership has been identified as an important factor, which could strengthen or weaken a digital strategy. Upper management should allocate appropriate resources for staff training, in order to develop digital skills.

It is necessary to understand the needs of audiences/visitors (user needs) and therefore to conduct audience research as the basis for implementing meaningful experiences. The kind of experience that museums can offer their visitors, on-site and on-line, can thus become the core of their cultural services. It is important also to acknowledge that some audiences might feel alienated and excluded by an overuse of technological tools. Technologies should enhance visitors' experiences and not be a barrier. Therefore, they should be developed according to the needs of different target groups.

It is necessary to understand that the role of the audience is becoming more and more important. There is still a widespread perception of museums as inward-looking and elitist organizations that exist more for the benefit of scholars than for the wider public. In fact, the traditional approach was to manage museums as closed systems of knowledge that only professionals could understand.

It is imperative to support on-going professional development regarding digital technology. Technologies evolve much faster than most museums can keep track of or cope with. These problems need to be addressed, especially as many museum professionals are now required to deal with a range of different tasks, also because they are more likely to work in small teams.

It is necessary to recognize the risks implied when there is an inadequate use of the digital technologies or the risk of not engaging at all. Not encompass the digital shift might means for museums to become out of date, and at some point irrelevant by

missing the opportunities and challenges that come along with new technologies. Digital tools or technological solutions should not be an end in itself but seen as a mean. It should be clear the goal behind each solution, but sometimes the risk is its application only because it's fashionable to have this or that technology, becoming merely accessories in the exhibition or visual technological panels/decors.

It is necessary to develop hard/technical and transferable skills equally. Based on the previous eCult Skills five role-profiles, four emerging role-profiles have been acknowledged in the following order of priority:

1. **Digital Strategy Manager** ³⁵
2. **Digital Collections Curator**
3. **Digital Interactive Experience Developer**
4. **Online Community Manager**

The Mu.SA research highlighted digital and transferable competences that are common to the four role-profiles and others that are more specific. These are transferable and e-competences/digital competences such as strategic and business planning; user needs identification/analysis, product service planning, technology and trend monitoring, innovating, user support, forecast development, relationship management, ICT quality management, audience development, communication, storytelling, time management and creativity, leadership, active listening, team working and fact-drive. These roles should have an in-depth knowledge of how a museum works. Moreover, many of the functions and competences attributed to the job profiles should be embedded in the context of a team.

It is necessary to develop a safe space to experiment and fail through a trial and error process (fail towards success)³⁶. Museums should once again become places of experimentation.

³⁵ For a detailed description of the four profiles please see the report "Emerging job profiles" available to download on the Mu.SA website.

³⁶ TRENDSWATCH 2017 <http://www.aam-us.org/resources/center-for-the-future-of-museums/projects-and-reports/trendswatch> (Downloaded April 2017)

The research suggests to develop training programmes inspired by the hackathon format³⁷, or a format involving residential courses, where museum professionals can gain hands-on experience of digital projects. This is clearly stated in the report *“Engage Audiences- Study on Audience Development - How to place audiences at the centre of cultural organisations”* it says that *“to develop an open listening attitude, a trial and error approach, based on evidence alongside the awareness of sharing the same goals”*³⁸.

It is necessary to improve internal collaborations within museum departments and external collaborations with ICT enterprises. This can promote a culture of cross-sectorial and interdisciplinary collaboration and communication that benefits the museum community as a whole.

³⁷ A **hackathon** (also known as a **hack day**, **hackfest** or **codefest**) is a design sprint-like event in which computer programmers and others involved in software development, including graphic designers, interface designers, project managers, and others, often including subject-matter-experts, collaborate intensively on software projects. (Source: Wikipedia, consulted May 2017)

³⁸ http://engageaudiences.eu/materials/nc0116644enn_002/ (Downloaded May 2017)

6. Key findings from the mapping of competences for museum professionals in Portugal, Greece and Italy

"We need to invest in everything, but above all in human resources, educating people not only in digital skills, but in education as a capital value"

Fiorenzo Galli, National Museum of Science and Technology, Italy

Across the three countries involved **a fragmented experience of the digital shift is evident, due to the different contexts, governance and resources (human and financial) invested.**

As a matter of fact, some museums are taking part in Google Art Project, Europeana, crowd sourcing initiatives and Wikipedia residencies. In Italy, some museums³⁹ are also experimenting with **gaming**, as an instrument to reach out to young audiences, so called *millennials*.

Hence, a museum is more likely to include the digital dimension in its overall strategy if it has a clearly established vision, priorities, as well as the availability of the necessary resources and conditions for investment (financial, logistical, and human). This would have a snowball effect, making it possible to increase investment in adequate and continuous training courses allowing museum professionals to develop digital and transferable competences.

Throughout the research the experts who were consulted highlighted some important factors that need to be taken into consideration within the Mu.SA project, which are:

- Lack of financial resources and the merging of museum departments and roles makes any expectations of employing new expert staff unrealistic;
- Lack of assessment tools to determine the level of digital competences of the whole staff;

³⁹ As an example, the game called "*Father and Son*", which is the first game fully produced and distributed by a national museum the National Archaeological Museum of Naples <http://www.tuomuseo.it/gamification/tuomuseo-designs-a-videogame-for-the-mann-museum/> (Consulted April 2017)

- Difficulties encountered by small museums in terms of financial and human resources;
- Low salaries of people working in the museum sector that makes it unattractive to ICT professionals;
- Lack of information about available ICT tools and how to use them appropriately in museums;
- Lack of assessment about the real impact of technologies implemented in museums;
- Lack of higher educational courses for preparing future leaders in the museum sector with the right skills regarding digital technologies;
- Lack of a national digital strategy in the three countries allowing the allocation of appropriate human and financial resources and training investment⁴⁰;
- Lack of offer for on-going training;
- Lack of personal motivation;
- Lack of generational turnover to close the generation gap and the digital divide;
- Slow administrative procedures that hinder the development of a digital strategy, for instance small museums often do not own their social media accounts or websites;
- Perception of museums as organizations that exist for the benefit of scholars rather than for everyone, as suggested in particular in the Italian report.

⁴⁰ In the three countries national recruitment policies do not respond to the real needs of the museum sector, which is actually willing and eager to enter and explore the digital environment.

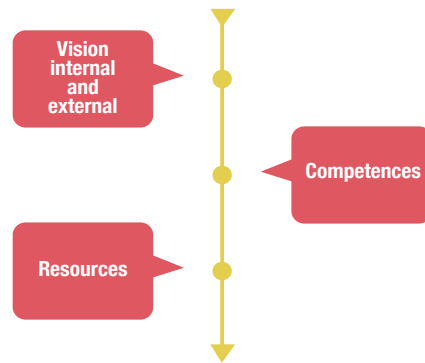


Fig. 5 Museum digital strategy museum must be in line with its vision, have competent staff and allocated resources to thrive in the digital environment.

In all three countries it is clear that virtually all aspects of the activities of the museums need to be improved at various different levels depending on the nature of each museum. Many interviewees agreed that the digitization and digital management of museum collections and archives is one of the basic requirements before moving on to intervention in other areas. This process will enable the creation of content which consequently needs to be communicated.

Therefore, it is important to develop an overall strategy in which all of the different elements are considered and connected to the museum’s mission. There should be a synergy that unites various dimensions, especially between the digitization and the management of collections, as well as between digital and analogical aspects, and the audience.

For practical reasons museum functions, although interconnected, and their related digital competences, are grouped into two distinct categories:

- **“Behind-the-scenes”** which includes all aspects regarding management, research, collections, infrastructure etc.
- **“Audience Engagement”** which includes all aspects regarding the visitor experience (before – after – during) ranging from

education to communication and the management of customer relations.

Across the three countries **communication**, is one of the areas that has been mostly affected by the digital shift. For instance, social media platforms have been used and explored by many museums (across the three countries the most used platform is Facebook). However, some interviewees underlined that its use is not being achieved in a strategic manner or purposely implemented to actually make museums more accessible. This task is usually carried out by professionals that accumulate several other tasks or by interns. Furthermore, there are cases where at administration level museums are not allowed to manage their social media platforms autonomously. Communication should convey a sense of community and engagement.

More investment should be sought in using ICT **for audience research and evaluation**, which is considered fundamental to make museums relevant and attractive to all target groups.

The use of digital technologies ***in exhibitions and in educational programmes is considered overall fragmentary and selective.*** One of the respondents from Greece mentioned *“the importance of implementing online educational activities in order to fulfil the social role of museums.”* Regarding the use of ICT in exhibitions, for instance in the form of digital displays, one interviewee pointed out that it is necessary to be able to regularly update the style, the content and the operation.

In order to assist with the process it is important for museums to think strategically about the possible wider opportunities of a digital approach. **There needs to be a mental shift and a cultural change in terms of the planning and visioning of services, so that the digital element can become an integral part of the thinking and planning process from the outset.** The existing processes also need to be reconstructed in a way that is relevant in a digital world. Museums should assess the digital competences of their staff and build up what can be defined as **“digital cultural awareness”** and **“digital confidence”**. There is now a pressing need to understand that these



roles are vitally important to help museums thrive in a digital environment. Upper management should therefore allocate appropriate resources for staff training, in order to develop digital skills to update and up-skill museum professionals and thereby provide them with dynamic new roles inside the museum.

An awareness of digital culture and a confidence and familiarity with digital approaches should be developed throughout the whole organisation.



Fig. 6 Graphic showing the relation between museums, people and technologies - By Alexandre Matos and Ana Carvalho - ICOM Portugal from the Mu.SA Athens conference November 2016

	Greece	Italy	Portugal
Most preferred area (1)	Museum and Tourism	Communication (including Social Media)	Museum and Tourism
Most preferred area (2)	Storytelling	Museum and Tourism	Communication (including Social Media)
Most preferred area (3)	Audience	Audience	Managing digital

	Development	Engagement	archives, digital collections
Less preferred area (1)	Basic ICT	Risk management in finance	Risk management
Less preferred area (2)	Advanced ICT	Outreach	Customer relationship Management

Tab. 1 Describes compared detailed data of preferences what museum professionals want to know based on the online survey

For a specification of **Basic ICT**, respondents to the online survey answered: Web content management, blog and software for calculation, writing and graphic, word processing, spread sheets, presentation, knowledge of free and open-source software, as well as database and use of digital archives, video making, sound design, digital archive, platform dedicated to collection, semantic web.

While for **Advanced ICT** the answers were:

Any communication device or application encompassing: radio, television, cellular phones, computer, videoconferencing and distance learning, coding, VR, AR, Augmented Reality, Application Development, Digitalization of the collection, 3D, Metadata Management, Digital Exhibition, XML language, specific software tools (Adobe Photoshop, digital drawing software, AutoCad - architecture software; systems of geographic information software, HTML).

Across the interviews, an emerging theme was to further explore the opportunities given by Wikipedia and understand what is Open data and online ticketing.

6.1 Desiderata

The following figure Fig. 7 summarises the main ideas gathered for both the present and the ideal situation:

Fig. 7 Graphic illustrating Current situation and Desired situation in light of the Mu.SA research findings



7. Key findings from the mapping of training provisions for museum professionals in Portugal, Greece and Italy

"The digitization of our archive opened up new horizons for us that we have always wanted to explore"

Angelos Moretis, The George Zongolopoulos Foundation

This chapter summarises the key findings of three reports regarding the mapping of training provisions for museum professionals in Portugal, Greece and Italy, gathered from the desk research and the online survey done in the three countries⁴¹.

This mapping aimed to understand the present situation concerning the approach to and the rate of diffusion of training programmes (formal, informal and non-formal) relating to digital competences and transferable competences in the museum sector. Specifically the research aimed at mapping the educational and training provisions at a national level related to the training offer existing for museum professionals. The mapping also included the offer in the cultural sector, specifically to some competences that could be of interest to museum professionals to acquire but that were not addressed specifically to them, but covered within the boundaries of the cultural sector. The aim of the mapping was to identify disconnections and mismatches between needs and offers, and provided information on graduate and postgraduate programmes and courses of formal and informal training. A total of 130 training courses were analysed.

It was conducted in three countries, Greece, Italy and Portugal, respectively by the Hellenic Open University (HOU) & the Vocational Institute of Akmi, the Link Campus University and the University of Porto (U.PORTO).

⁴¹ Detailed information can be found in the three national reports and its appendix 1 and 2, as well as the D.2.3.4 (Mapping educational and training provision for the museum sector in Greece, Italy and Portugal).

The survey collected information from universities, technological educational institutes, centres for educational training, and *Vocational Education and Training (VET)* institutions. The content and the subject of these graduate and postgraduate programmes were targeted at people who want to be trained and educated in order to work or who are already working in a cultural organisation.

Both qualitative and quantitative data were collected, using desk and field research. The field research was based on an on-line questionnaire delivered to students and professionals employed in museums or collaborating with museums. The desk research mainly consisted in accessing websites and information on Internet.

It possible to conclude that formal educational programmes were provided by universities, within the postgraduate level, mostly 2nd cycle, and are specially structured for museum professionals, boosted by, at time, legal conditions for certification. In Italy and Greece the research was enlarged to the whole cultural sector (although relevant to the museum one), instead in Portugal it was only focused specifically at museum professionals. Regarding non-formal and informal training programmes, in the 3 countries there were no official lists of education providers, nor were there a database that specifically focuses on the museum field.

Also, in all the three countries, the university programmes for the museum sector are taking on an even more interdisciplinary character, incorporating teachers and researchers from different scientific areas, departments and faculties, in an attempt to combine and bring together a range of different, complementary and innovative perspectives.

On the basis of the completed questionnaires it was evident that 57,22% of the museum professionals asked had taken part in some kind of training in the museum sector. These data are not statically relevant, since the cohort of respondents is not representative. It is worth however noticing that it is not a high number. The major common topics of the training are related to management and are summarized in the following word cloud Fig. 8 (the bigger the word, the more often it was mentioned):



Fig. 8 Word cloud illustrating the most common topics covered in training programmes for museum professionals mentioned by respondents

In Greece, the Mu.SA research found that the best-known and most important universities of the country teach at least one programme related to culture, in general, and thus to the management of the country's cultural heritage.

The desk research has shown that in Italy, universities provide the majority of training courses for the museum sector as one-year post-graduate programmes, while in Portugal similar courses are masters with duration of two years. Many museum – oriented postgraduate programmes also provide a range of additional scientific subjects.

Unlike in Italy and Portugal, in Greece University departments have given priority to incorporating digital technologies in contemporary humanities and the social sciences, addressing their use in teaching and research. The development of digital skills in students is seen as important and all Greek university departments use new technologies



either by teaching through a platform called “e-Class” or by integrating technology into their courses. Some courses are focused on contemporary technological applications with the use of computers, which can also be used for artistic creation, such as: digital manipulation of images, video art, photography, etc.

Portugal has a good range of academic programmes related to the heritage sciences and techniques and cross-disciplinary areas. However, when it comes to museology or cultural heritage programmes, hard skills like digital skills tend not to be sufficiently valued, although there are some outstanding exceptions to this rule, mostly in the field of the documentation and management of collections. In Portugal the educational institutions are now trying to satisfy the need of access at distance. ICT labs, as well as documentation and information services, are being installed and reinforced, allowing greater access to concrete physical resources, using updated and specially dedicated software programmes, as well as to electronic resources, such as databases or digital libraries, thereby developing skills and competences for searching, producing and managing information and knowledge.

The Mu.SA research has made it clear that graduation programmes related to specialist scientific areas, which are often not sufficiently integrated into the cultural sector, although they may be vitally important for museum staff and for postgraduate programmes for training museum professionals, also suffer from the same flaw of not giving digital skills enough consideration. In order to gain these skills, students usually have to choose university courses and programmes focused on ICT.

In all three countries it is considered important to continue the first basic cycle of studies while over the last few years it has become increasingly common for students to elevate their studies to a master level and then specialize in an interdisciplinary field. Specialization in cultural and heritage management, digital informatics, communication management and IT is thus now also appearing in the cultural and museum sector.

Online courses, data and research findings, regarding literacy, time and overall resources management, support the idea that there is an increasing interest in MOOCs, e-learning and face-to-face programmes, and this is an important factor to be considered.

In the online survey, most of the respondents said that they would prefer a national certificate and would be willing to participate in a training programme of 2 – 4 hours per week. In the questionnaires, the respondents could select the frequency of attending a training programme (half a day or one day every month, during working hours, in weekends, or at a time of their own choice).

As a result, the training that will be developed in Mu.SA project should embed a mix of interdisciplinary knowledge from Humanities and digital/technical content in both the MOOC and the specialized training programme.

This aspect is confirmed by the outcome of the online survey. The most highly appreciated aspects of a training course were: case studies and confrontation with experts, while online webinars were the least appreciated.

Another important element was fostering peer learning. Concerning the **mentoring methodology** many respondents said they would like to participate in a mentoring program but only a few wanted to be a mentor for themselves. A few respondents said it was not clear for them what exactly “mentoring” consisted of, but they said they were interested in it.

7.1 Relation to the eCult Skills role-profiles

For the WP2 - T2.3 of Mu.SA project, wherever feasible the three reports attempted to align the 40 *e-competences* contained within the 5 job role-profiles to the educational courses and training programmes identified by the desk research. The alignment of the e-competences to each course/programme was achieved assessing the content and the subjects taught in each case. In all three countries, it was a very

difficult and demanding task to retrieve this information, considering the highly specialized job role profiles and the lack of specification on the academic curricula provided while the risk of misinterpretation was therefore quite high.

In Greece the results of the research proved to be quite satisfactory as regarding the correlation between the courses offered for museum professionals and the 5 role-profiles already analysed. A sufficient number of courses (mainly provided by the National and Kapodistrian University of Athens) are linked to the aim of the project, which is the development of digital and transferable competences. In Portugal and Italy, the scenario is quite different.

Not all of the e-competences related to the 5 role-profiles are currently being taught and developed in Portugal in programmes specifically to museum professionals like museum studies/museology programmes. Out of 6 postgraduate programmes specially designed for museum professionals in the country, only 2 have a unit dedicated to digital skills and only 1 provides competences that correspond to the 5 job role-profiles, although not in a balanced way. Overall, the competences of the Cultural ICT Guide role-profile seem to be the least developed. Many Portuguese training programmes that are not especially intended for museum professionals may, nevertheless, be of interest in a very specific specialist area. Those that are dedicated to provide those skills generally do not consider the context of museums or culture.

From the desk research mapping the training programmes provided in Italy, it is shown that only 2 courses correspond to one of the 5 job role-profiles.

Most of the training programmes examined do not provide a range of e-competences that are linked to one of the 5 job role-profiles. The e-competences provided are closely related to a specific field, in one case that of communication, which might lead one to imagine that the course could be associated with the Online Cultural Community Manager role-profile, but the other e-competences necessary for this role-profile were lacking. Regarding digital skills, almost all the Italian formal training courses examined for museum professionals also provided a course on communication.



According to the Greek report, even though it is crucial for professionals to deploy transferable skills in order to increase their possibilities of getting a job in the labour market or even of improving their career, Universities in Greece have not included the provision of soft skills in their subjects. The gap between academic theory and practice/working experience that can provide the skills needed in the labor market, diminishes with the number of internships and practical training workshops that students participate in.

According to the Italian report the *hackathon* format could be included in Mu.SA training as a mid-term or final evaluation, as a training activity during the on-the-job training or as an independent workshop in order to introduce and/or reinforce and/or develop and/or evaluate transferable skills.

7.2 Benchmarking of MOOC

Massive Open Online Courses (MOOC) have rapidly become widespread in recent years. Many platforms have successfully hosted proposals by prestigious universities from all over the world and hundreds of courses have been launched in various areas, ranging from mathematics to poetry.

In this analysis, we have tried to identify some key aspects in order to ensure that the MOOC due to be elaborated for the Mu.SA project will be properly designed, starting from an evaluation or benchmarking of the existing MOOC related to museums and digital competences. The starting point is the study of the **major websites and learning platforms** that are used nowadays.

We considered the following specific websites and platforms:

- Future Learn;
- Iversity;
- EdX;
- Canvas Network;
- MiriadaX;
- Udacity;

- Udamy;
- Coursera.

Some **courses** offered by these websites and platforms were chosen, as they seemed to be relevant to the professional profiles related to digital competences for museums, especially to the job role-profiles of the eCult skills project, which the Mu.SA project intends to promote.

The courses selected are:

- Behind the Scenes at the 21st Century Museum;
- MOOC Managing the Arts;
- The Future of Storytelling;
- Digital Leadership: Creating Value Through Technology;
- Developing Cultural Intelligence for Leadership;
- Digital Accessibility: Enabling Participation in the Information Society;
- Inspiring and Motivating Arts and Culture Teams;
- Europeana Space: Creative with Digital Heritage;
- Corporate Digital Learning;
- Libraries leading with TV whitespace;
- Digital Branding and Engagement;
- Educación y Museos (3^a edición);
- VR developer;
- How To Analyze Your Market With Facebook Audience Insights.

Out of all the courses selected for benchmarking only one, *Behind the Scenes at the 21st Century Museum*, is related specifically to museums. The other courses cover various issues such as Digital Marketing, Audience Development, Cultural Marketing, Digital Branding and Engagement and Business Studies.

These courses were considered as representative of the best practices in terms of scientific content and methodology.

As regards the **methodology** employed, all these courses use videos as instruments of knowledge and teaching, the majority of which are interview-based. The quality of the interview obviously plays a very important role and can even determine the success of the course itself



(according to the relevant statistics, only a few people who enrol actually arrive at the end of these courses). Starting from the videos, the courses are structured in a way as to deepen the users' knowledge with the use of various different documents (such as articles and publications) and activities (i.e. quizzes, discussions, essays) with a specific didactic purpose.

In this context e.g. the course “the future of storytelling” offered on the online learning platform Iversity represents one of the best examples to be emulated, even though it was released four years ago (in 2013). The videos of the course are engaging thanks to a savvy post-production work. Each study session has a good balance between *in-depth information* and the possibility of asking questions at the end of the session, so to ensure that the participants have understood the information provided. An open blog allows for open discussions including all the participants, and also, there is the possibility for peer review of the essays written by the participants.

With reference to the **content**, some courses that concentrate on the teaching of digital skills are more theory-oriented, while others are very practical, such as VR developer that is available on the website Udacity. The choice of website or platform plays an important role and Udacity hosts some very useful practical courses.

From an educational perspective, there is a wide range of different objectives. Some courses value the transmission of knowledge through high quality content while others insist on the importance of establishing interactions between the participants, and still others emphasise learning outcomes or assessment. Considering the range of these different objectives, one can, perhaps, define the criteria of success as the number of views of a video, the number of participants who are active in the relevant forums and the social networks, and the number of registered participants that complete the course.

As regards the **target group**, MOOCs are generally free and open to anyone. This is presumably why we found no courses specifically designed for museum staff. If the prerequisites are too restricted, and



if the course is aimed at participants with specific knowledge, or requires specific equipment in order for it to be attended, it is unlikely to be popular. Even though most MOOCs are not intended to attract thousands of registered participants, their ability to expand or scale up is one of their major advantages.

On the subject of participant's engagement within a time scale, MOOCs are usually active for a limited period of time ranging from a few weeks to a few months. So participants can benefit from various options and facilities, such as peer reviews, discussions, and forums. It is however important for people to have to open access and study freely, even after the MOOC has been completed.

The majority of the respondents to the Mu.SA online survey had not participated in a MOOC addressed to the sector of museums, and very few replied to the question about the most valuable aspects of the MOOC, namely: flexibility, interaction, the possibility of access at a place and time of one's own choice, and the possibility of downloading material and interesting content. Therefore, the design and development of a MOOC must be of a high quality level in order to be engaging to the audience.

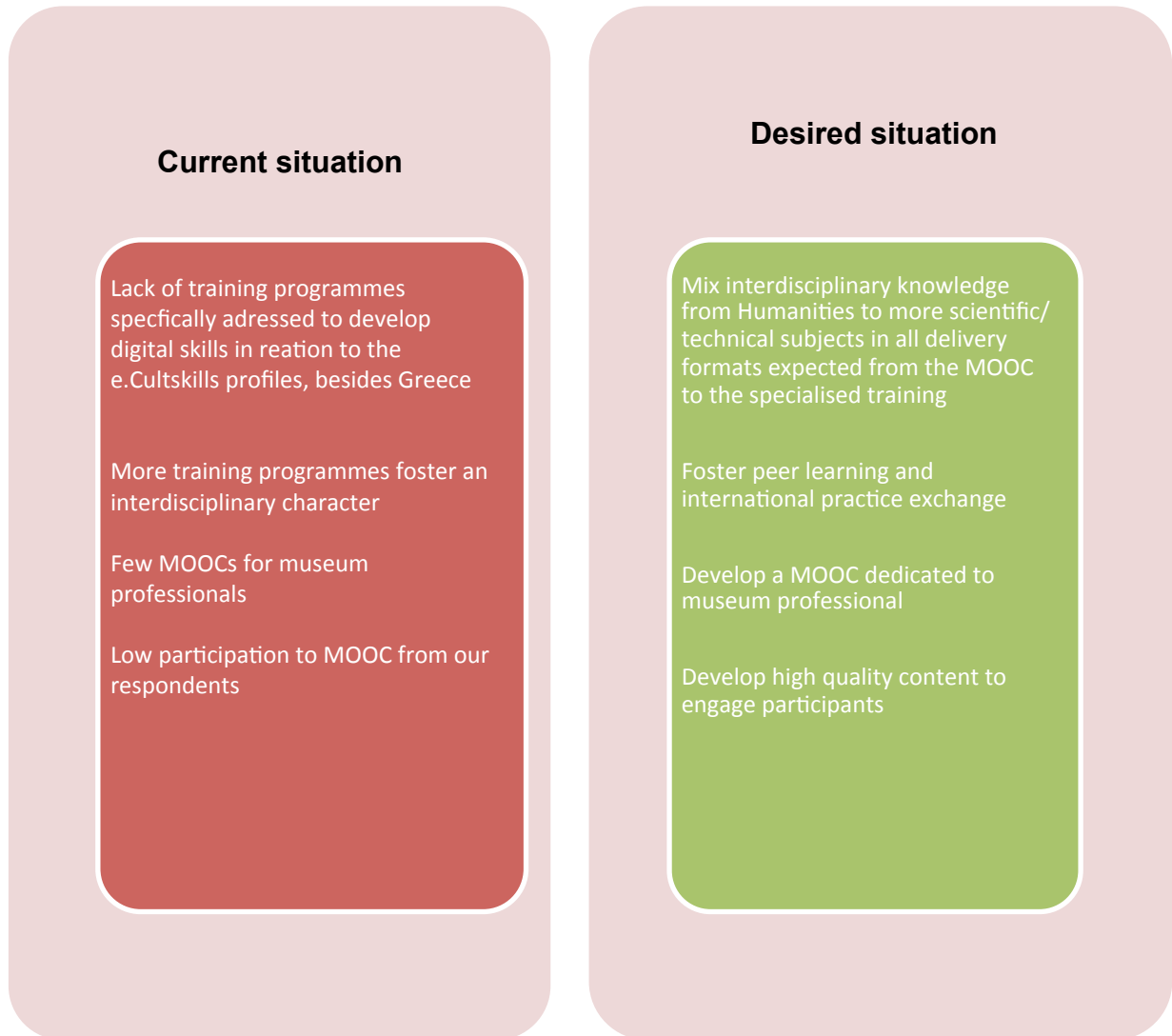
7.3 Summary of the mapping training provisions key findings

The results of mapping provisions of museum training concluded in some interesting proposals and important ideas that should not be neglected in the design of the training course (Fig. 9 and Fig. 10). More specifically:

- a mixture of interdisciplinary knowledge from the humanities with digital/technical content, in both the MOOC and the specialized training programme;
- including an initial assessment of the digital competences that the course participants inside the organisation already possess;

- including **a mix of local and international guest speakers**, who would be able to contribute to the courses with relevant case studies, share their expert insights, offer one-to-one sessions with participants and give feedback when projects are presented;
- fostering peer learning using the **mentoring methodology**;
- including a work-oriented methodology that would be useful for learning how to design and develop a communication project and/or product to be **implemented in collaboration with local authorities** and/or associations and/or companies. In this way learners would be able to evaluate the impact that their projects have on the local community;
- covering non-conventional topics such as gamification, on-line audience analysis, Search Engine Optimization (SEO) and search engine marketing (SEM) that would be useful for gaining a broader perspective about digital skills and tools for analysing and evaluating any kind of audience, even online;
- fostering an **agile process** and **user experience** approach, by designing the specialised training programme in a *hackathon* format or as an intensive residential course;
- fostering peer learning and the exchange of case-studies;
- developing high quality content for the MOOC in order to get participants more involved and engaged .

Fig. 9 Graphic summarising the current situation regarding the training course for museum professionals compared to the desired situation



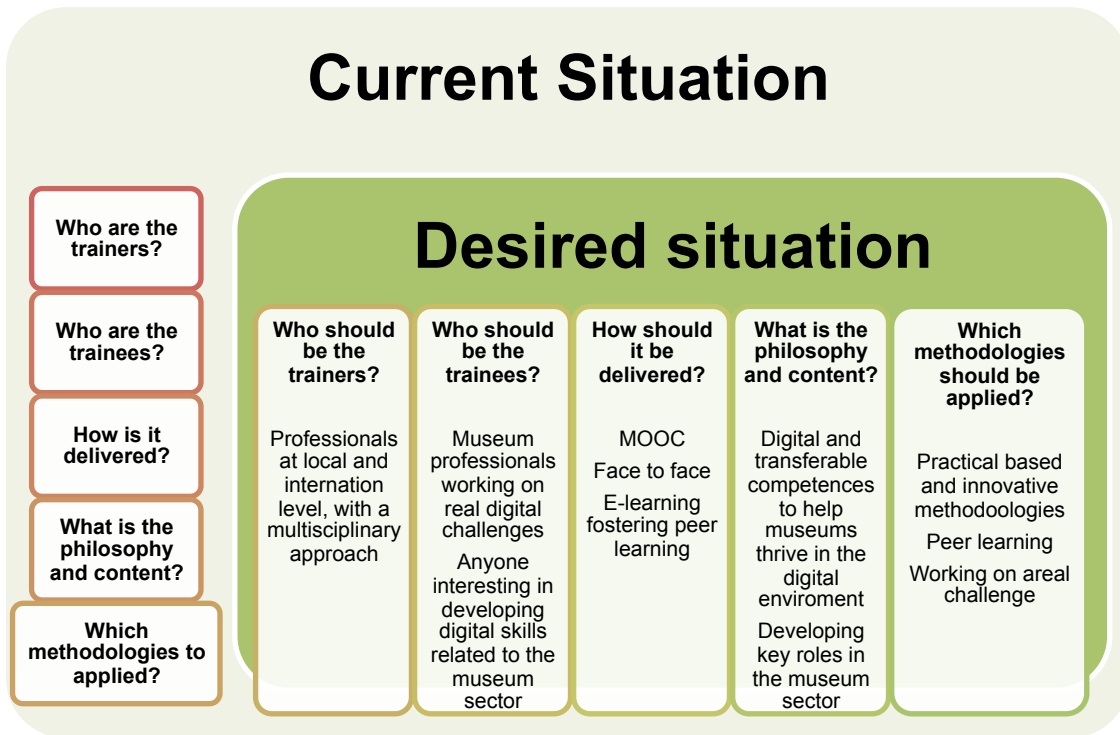


Fig. 10 Graphic summarising key findings in order to develop Mu.SA training

8. Emerging job profiles in the museum sector: a complex scenario

"The job profiles that are lacking in the museum sector are professionals and patience IT designers and developers who would understand the museum employees' needs in digital development. In POLIN we only have one specialist like this and he is priceless. We are lucky to have him on board. Thanks to him we were able to implement such digital solutions as on-line websites disseminating knowledge about Polish Jewry and electronic financial documents registration."

Joanna Król, Head of the Digital Collection and Resource Centre Department at POLIN- Museum of the History of Polish Jews

One of the goals of the Mu.SA research was to identify **new emerging job profiles in the museum sector by capitalising on the previous findings of the eCult Skills project**. This paragraph summarises the results, which have been collected, as mentioned in the methodology section, through interviews and focus groups. We asked our respondents to tell us the perception of the need to training digital competences in their countries and how relevant the eCult Skills role profiles were and for each profile to validate the list of e-competences⁴². Based on the Mu.SA research findings the eCult Skills role-profiles have been renamed and their knowledge, e-competences and transferable competences and tasks within the museum were updated.

The role-profiles initiated interesting debates around the role and the need of these "roles". The reality of the museum sector in each country, as regards investments in digital infrastructures and training, especially for public-owned museums, places some limitations. As mentioned above, most of the time teams are small and multitasking, human and financial resources are most often little. Moreover Mu.SA research underlines a lack of strategic vision able to envision the opportunities offered by digital technologies. All of the role-profiles were considered as important and useful, although it was felt that their

⁴² As mentioned the e-competence from the European e-competence framework <http://www.ecompetences.eu/methodology/> (Consulted April 2017)

tasks and the necessity for their functions needed to be further clarified. It should also be borne in mind that in Greece, Italy and Portugal only the well known museums can afford to appoint a person in charge of the digital strategy, as a part of their museum's internal organization or organogram.

From the data gathered from the interviewees and from the focus group, in general, participants underlined that the eCult Skills five profiles don't fit in their reality, currently, since they are so specialized. Furthermore, some participants mentioned the profiles are extremely demanding and will have many difficulties of being applied as such. Hence, these role-profiles should be seen as providing valuable opportunities to which the entire museum sector needs to aspire and may be used as guides and recommendations in a long-term basis.

Out of the five eCult Skills role-profiles, four were acknowledged to be the most important ones from the research findings. In priority, the majority of respondents argued that the most important role-profiles that museums should invest in when up-skilling their staff are:

1. **Digital Strategy Manager**⁴³
2. **Digital Collections Curator**
3. **Digital Interactive Experience Developer**
4. **Online Community Manager**

⁴³ For a detailed description of the four profiles please see the tables at the end of this report and the report "Emerging job profiles" available to download on the Mu.SA website.



eCult Skills	Mu.SA
Cultural ICT Consultant	Digital Strategy Manager
Digital Cultural Asset Manager	Digital Collections Curator
Interactive Cultural Experience Developer	Digital Interactive Experience Developer
Online Cultural Community manager	Online Community manager
ICT cultural guide	

Tab 2 - Job profiles – equivalence in eCult Skill and Mu.SA

1. Digital strategy manager

Also known as Cultural ICT Consultant, Digital Cultural Manager, Cultural Digital Strategy Manager, Cultural ICT Ambassador, Digital cultural mediator, Cultural ICT Advisor, Cultural ICT specialist.

A strategic role-profile for museums that aim to thrive in a digital environment in line with the overall museum strategy.

2. Digital Collections Curator

Also known as Digital Cultural Asset Manager, Digital Asset manager, Born-Digital Material Curator, Digital Curator

This role-profile is specialised in preserving and managing born-digital materials. Develop online and offline exhibitions and content for other departments.

3. Digital Interactive Experience Developer

Also known as Interactive Experience Developer, Digital Interactive Experience designer, Exhibit interactive designer

This role-profile is specialised in designing, developing and implementing innovative and interactive experiences providing a meaningful experience for all types of visitors.

4. Online Community Manager

Also known as Online Cultural Community manager, Online community developer, Online community specialist, Social media specialist, Digital Media curator, Visual Media curator, New Media Manager, Digital Communication Manager, Social media manager

This role-profile is vital for all museums aiming to invest in developing and engaging diverse audiences online and should be fully integrated into the institutional structure.

Tab 3 - Job profiles – Mu.SA

Although among the Mu.SA research team was a controversy in changing the titles of the eCult skills role – profiles, these have been changed since it seemed most appropriate in respect to the results findings. For example the Cultural ICT consultant was retitled **Digital Strategy manager** since from the research undertaken it was important to implement a digital strategy in line with the overall museum’s strategy. In fact, the **Digital Strategy Manager** was selected as the most important role-profile to be developed across the three countries⁴⁴.

In Portugal and Greece the second role-profile was the Digital collections manager, which reflects the importance of digitizing collections as a basis to develop your strategy. In Italy, instead, it was the **Online Community Manager**. The **Digital Interactive Experience Developer** was chosen in second favourable position in Portugal and in third position in Greece and Italy.

The majority of respondents pointed out that all of the professional role-profiles analysed should also **have a good knowledge of how a museum works**.

⁴⁴ In Italy only for 3 points the Online Community Manager was seen as the most important one, hence we can argue that the Digital Strategy manager and the Online Community manager are both very important role-profiles to be develop in Italy.

In Italy the experts who were consulted suggested that each e-competence at proficiency level should also be considered within an organisational chart. According to some of the respondents, a number of skills such as programming, software development or infrastructure installation, were widely considered as external skills with no real relevance to the elaboration of the digital strategy of a museum.

On the other hand, some of the Portuguese participants in the focus group identified another role-profile: an internal technical expert, such as an ICT expert employed as a member of staff with responsibilities for day-to-day operations of upgrading, installation, backup, and maintenance.

These roles, especially those of **Digital Strategy Manager** and, **Digital Interactive Experience Developer** are often carried out by external collaborators. , Some experts asked if a **Digital Strategy Manager** would fit in a museum's organisational chart, whether this figure should be internal or external, whether s/he should be employed by the Ministry and what specific tasks s/he should undertake. This role profile is supposed to be responsible for leading and guiding a museum's digital strategy, but this task usually belongs to the director, who has the responsibility of delineating a strategy, also including a digital strategy.

Whereas the role-profile of Online Community Manager is becoming increasingly present in museums, one of the major problems lies in the fact that this figure is usually not fully integrated into the museum structure.

The research shows that, although it is important to develop and integrate the profiles described in eCult Skills and revised in Mu.SA into the museum system, given the national contexts, there is still some resistance to instituting such a process due to many elements remarked by the research. Possible hindrance is the lack of financial resources and the merging of museum departments and roles which makes any expectations of employing new expert staff unrealistic, difficulties encountered by small museums in terms of financial and human resources, low salaries of people working in the museum sector that makes it unattractive to ICT professionals and above all a lack of a national strategy in digital investments and a leadership unable

sometimes to seize the opportunity offered by digital technologies. Therefore, it is possible to claim that a general sense of discouragement among the respondents was detected, as much more investment in digital infrastructure and, hence, training is required at a policy level. Nevertheless, we believe that the importance of the profiles described in Mu.SA will potentially be recognised, not only by the sector but also at a policy level.



9. E-competences, digital and transferable skills

This chapter describes which are the e-competences/digital and transferable competences needed so to be developed for the four role-profiles identified. The data are based on both the mapping of professional competences and of training provisions. In general, on the basis of the research findings and the respondents consulted during the interviews it is believed that it is necessary to develop useful skills **in order to reach a greater number and diverse museum visitors, while enhancing digital skills with this aim (and not just for their own sake).**

For each profile e-competences and transferable competences have been listed on a rating scale from those that are most important to those that are least important⁴⁵

According to the research outcomes there are e-competences and transferable competences that should be developed across all job role-profiles and are considered essential as a starting point for up skilling museum professionals⁴⁶.

⁴⁵ see in pg. 64 - 68, 70 and pg. 71.

⁴⁶ see in pg. 72 and 73.



9.1.1 Digital Strategy Manager e-competences

Digital Strategy Manager E-competences levels ** required / * desired- A Very important / B important () Mandatory <> optional
A.1. Information System and Organisational Strategy Alignment (A) Level e-4** Level e-5*
A.2. Service Level Management <> Level e-3** level e-4*
A.3. Business Plan Development (A) Level e-3** Level e-4*
A.4. Product / Service Planning (B) Level e-3**
A.7. Technology Trend Monitoring (A) Level e-3** (downgraded ⁴⁷) Level e-4*
A.8. Sustainable Development (B) Level e-3** level e-4*
A.9. Innovating (A) Level e-4** Level e-5*
D.1. Information Security Strategy Development <> Level e-3** (downgraded) ⁴⁸ level e-4*
D.3. Education and Training Provision (B) Level e-3**
D.4 Purchasing <> Level e-3** level e-4*
D.10. Information and Knowledge Management (A) Level e-3** Level e-4*
D.11. Needs Identification (A) Level e-4** Level e-5*
E.1. Forecast Development <> Level e-3**
E.3. Risk Management (A) Level e-3** level e-4*
E.4. Relationship Management (A) Level e-4**
E.5. Process Improvement (B) Level e-3** level e-4*
E.6 ICT Quality management <> Level e-3** level e-4*
E.7. Business Change Management (B) Level e-3** Level e-4*

⁴⁷ The level is downgraded to the respect of e-CF

9.1.2 Digital Strategy Manager Transferable competences

Digital Strategy Manager Transferable competences
A very important
B important
<i>Communication Skills A</i>
<i>Mentoring / coaching skills A</i>
<i>Analyse and synthesize information A</i>
<i>Negotiation skills A</i>
<i>Team working A</i>
<i>Networking skills A</i>
<i>Creative thinking skills A</i>
<i>Sense of initiative and entrepreneurship A</i>
<i>Resilience A</i>
<i>Leadership and change facilitator A</i>
<i>Decision making A</i>
<i>Time management B</i>



9.1.3 Digital Collections Curator e-competences

Digital Collections Curator

E-competences levels ** required / * desired

A Very Important /B important <> optional () Mandatory

A.1. IS and Organisational Strategy Alignment (A)

Level e-4 and e-5***

A.3. Business Plan Development (A)

Level e-3 and e-4 ***

A.4. Product / Service Planning (A)

Level e-3 and e-4***

A.7. Technology Trend Monitoring (A)

Level e-5**

A.9. Innovating (A)

Level e-5**

B.5. Documentation Production (B)

Level e-3*

C.3. Service Delivery B <>

Level e-3 **

C.4. Problem Management (A)

Level e-4**

D.4. Purchasing (A)

Level e-3, e-4***

D.10. Information and Knowledge Management (A)

Level e-5**

D.11. Needs Identification (A)

Level e-4 and e-5***

E.1. Forecast Development B <>

Level e-3 and e-4***

E.3. Risk Management B <>

Level e-3 and e-4***

E.4. Relationship Management (A)

Level e-4**

E.6. ICT Quality Management (A)

Level e-4**

9.1.4 Digital Collections Curator transferable competences

Digital Collections Curator transferable competences	
A very important B important	
<i>Time management</i>	A
<i>Management skills</i>	A
<i>Decision making</i>	A
<i>Communication Skills</i>	A
<i>Creative thinking skills</i>	A
<i>Networking skills</i>	A
<i>Interpersonal skills</i>	A
<i>Leadership and change facilitator</i>	A
<i>Teamworking</i>	A
<i>Mentoring / coaching skills</i>	A
<i>Sense of initiative and entrepreneurship</i>	B
<i>Mediation skills</i>	B
<i>Influence/ persuasion skills</i>	B
<i>Active listening skills</i>	B



9.1.5 Digital Interactive Experience Developer e-competences

Digital Interactive Experience Developer

E-competences levels ** required / * desired

A Very Important / B important

() Mandatory <> optional

A.1. IS and Organisational Strategy (A) Alignment

Level e-4 and level e-5***

A.3. Business Plan Development (A)

Level e-3 and level e-4***

A.4. Product/Service Planning (A)

Level e-4**

A.6. Application Design B <>

Level e-3**

A.7. Technology Trend Monitoring (A)

Level e-5**

A.9. Innovating (A)

Level e-4 and e-5***

B.1. Application Development B <>

Level e-3**

B.3. Testing (A)

Level e-3**

B.4 Solution Deployment B <>

Level 3**

B.5. Documentation production (A)

Level e-3**

C.1. User Support A <>

Level e-3**

C.2. Change support (A)

Level e-3**

C.4. Problem Management (A)

Level e-4**



D.11. Needs identification (A)

Level e-3 **

E.1. Forecast Development (A)

Level e-4**

E.3. Risk Management (B)

Level e-3** and e-4*

E.4. Relationship Management (A)

Level e-4**

E.6. ICT Quality Management (A)

Level e-3** and level e-4*



9.1.6 Digital Interactive Experience Developer transferable competences

Digital Interactive Experience Developer Transferable competences
A very important/B important

Creative thinking skills A

Sense of initiative and entrepreneurship A

Leadership and change facilitator A

Storytelling A

Active listening skills A

Networking skills B

Interpersonal skills A

Communication Skills A

Resilience B

Time management A

Team working A

Fact-driven A

Negotiation skills A

Decision making B

Analyse and synthesize information A

Mediation skills B



9.1.7 Online Community Manager e-competences

Online Community Manager E-competences levels ** required / * desired A Very Important / B important <> optional () Mandatory
A.1. IS and Organisational Strategy Alignment (A) Level e-4** and e-5 *
A.3. Business Plan Development (A) Level e-3** and e-4*
A.4. Product / Service Planning (A) Level e-4**
A.7. Technology Trend Monitoring (A) Level e-4** and e-5*
A.9. Innovating** (A) Level e-4** and e-5*
B.5. Documentation production (A) Level e-4** and e-5* (⁴⁸Upgraded from level 3)
C.1. User Support (A) Level e-3**
C.4. Problem Management (A) Level e-4**
D.2 ICT Quality Strategy Development (A) Level e-5**
D.11. Needs identification (A) Level e-4** and e-5*
D.12. Digital Marketing (A) Level e-4**
E.1. Forecast Development (A) Level e-4**
E.4. Relationship Management (A) Level e-4**
E.6. ICT Quality Management (A) Level e-4**
E.7. Business Change Management (B) Level e-4** and e-5*

⁴⁸ The level is upgraded to the respect of e-CF



9.1.8 Online Community Manager transferable competences

**Online Community Manager
Transferable competences
A Very Important /B Important**

Creative thinking skills A

Sense of initiative and entrepreneurship A

Leadership and change facilitator A

Storytelling A

Active listening skills A

Interpersonal skills A

Communication Skills A

Integrity/Ethical A

Resilience A

Communication Skills A

Negotiation skills A

Management skills A

Team working A

Decision making A

Time management A

Analyse and synthesize information A

Mentoring / coaching skills B

Influence / persuasion skills B

Networking skills B



9.1.9 The most important e-Competences (e-CF 3.0) to develop across the 4 MU.SA profiles

e-Competences identified from the European e-Competence Framework 3.0	Digital Strategy Manager	Digital Collections Curator	Digital Interactive Experience Developer	Online Community manager
A.1. IS and Museum Strategy Alignment	x	x	x	x
A.3. Business Plan Development	x	x	x	x
A.4. Product/ Service Planning	x	x	x	x
A.7. Technology Trend Monitoring	x	x	x	x
A.9. Innovating	x	x	x	x
D.11. Needs Identification	x	x	x	x
E.1. Forecast Development	x	x	x	x
E.4. Relationship Management	x	x	x	x
E.6. ICT Quality management	x	x	x	x

9.1.10 The most important transferable competences to develop across the 4 profiles

The most important transferable competences to develop across the 4 Mu.SA profiles				
	Digital Strategy Manager	Digital Collections Curator	Digital Interactive Experience Developer	Online Community manager
Leadership and change facilitator	x	x	x	x
Time management	x	x	x	x
Creative thinking skills	x	x	x	x
Communication Skills	x	x	x	x
Team working	x	x	x	x

According to the online research, the priority areas identified so to assist museum professionals in their current position are (the most acknowledged):

- Audience development and engagement, Storytelling, Visitors opinion /Evaluation, Monitoring, Assisting people with special needs, Inclusion, Accessibility;
- Digitalization, Digital Archive, Preservation, Preventive Conservation, Digital Exhibition, Database;
- Fundraising, Crowdfunding, Networking;
- Management, Team building, Problem solving, Leadership (change making and risk taking), Business planning, time management;
- Promotion, Tourism, Communication, Creative writing;
- Social Media, Web Design, Online Accessibility of Collections, photography, Digital Innovation, Marketing, Copyright, Gaming, semantic web;
- Museum Education also online;
- Creative skills/lateral thinking and entrepreneurship skills.

Across the three countries' respondents, the preferred areas to invest are:

Museum and Tourism followed by *Communication (including social media)*, *Museum Policies and role and purposes of museum today*, *Audience engagement*, *Museum Management*, *Promotion and Finance and Storytelling* **while the less favourite areas to invest are Advanced ICT, Basic ICT and Financial Risk Management.**

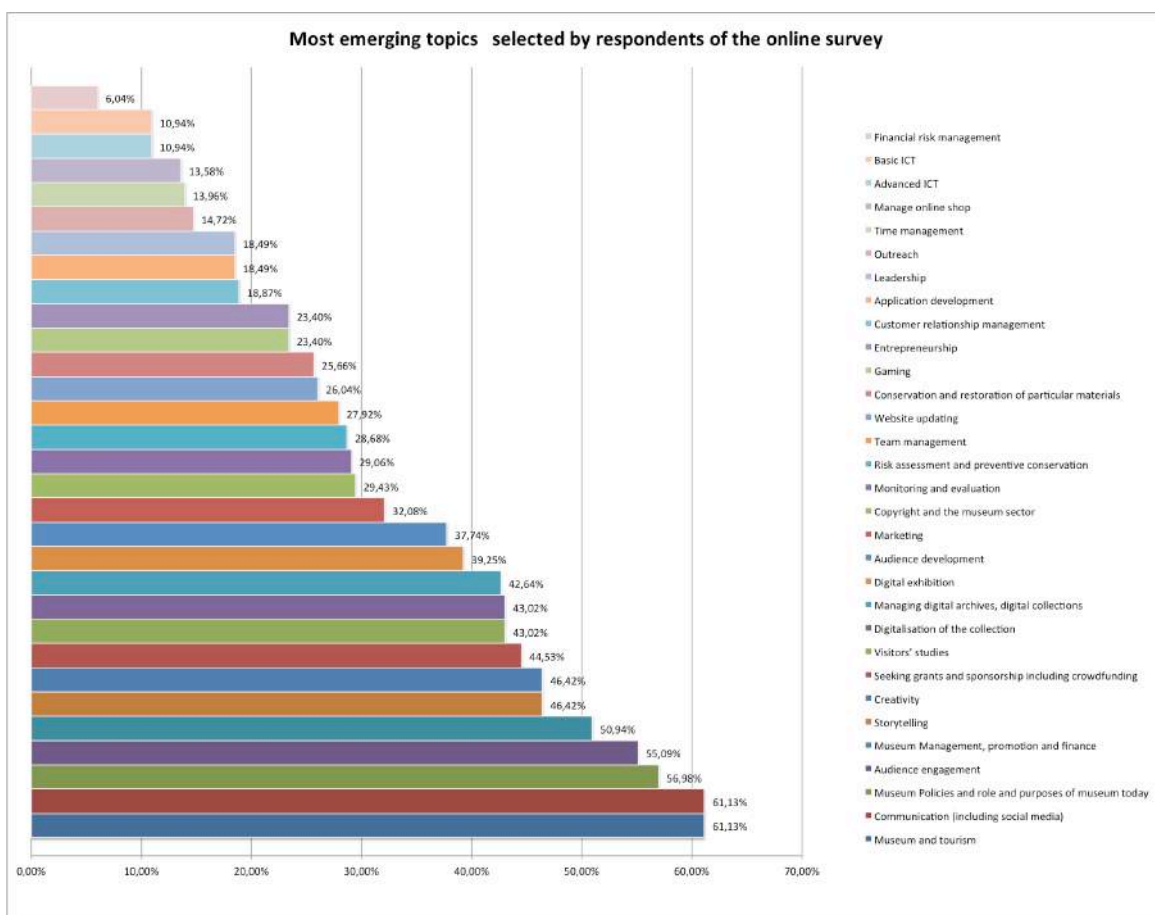


Fig. 11 Most emergent topics preferred selected by respondents to invest in training

Based on the answers collected from the online research carried out within the project Mu.SA, the training programme should include the following cross-cutting e – competences/digital and transferable competences appearing in all the four role profiles:

- strategic and business planning (IS and Strategy Alignment and Business Plan Development, ICT Quality Management);
- user needs analysis/audience research offline and online (Needs identification, Product /service planning);
- communication (basic and advanced use of social media) and Relationship management;
- storytelling;
- audience development⁴⁹;
- audience engagement⁵⁰ (User support) which includes all aspects of the visitor experience (before – after – during) ranging from education to communication and the management of customer relations;
- creativity and leadership;
- team working;
- innovation (looking at innovative solutions – Innovating);

49 **Audience development** is a term used to describe the way in which relationships between audiences and cultural organisations are managed. It is a planned, organisation-wide approach to extending the range and nature of relationships with the public, it helps a cultural organisation to achieve its mission, balancing social purpose, financial sustainability and creative ambitions. (@The audience Agency, Adeste project, <http://www.adeesteproject.eu/about>)

50 **Audience engagement** is an expression used in practice and literature in a very different and not codified way, like the many expressions that belong to the semantics of AD (audience building, audience participation, etc). In particular, it is used to highlight the dimensions of involvement that sounds less explicit in the concept of "development" and more mechanistic in that of "building". Definition from the *Study on Audience Development - How to place audiences at the center of cultural organisations*" European Commission <http://engageaudiences.eu/materials/> (Downloaded May 2017)

- knowledge of ICT terminology/existing digital tools for museums linked to «*behind-the-scenes*» which includes all aspects around management, research, collections, infrastructure etc. (Technology and Trend Monitoring and Forecast development);
- knowledge of the museum context (*Museum and Tourism Museum Policies and role and purposes of museum today, Museum Management, copyright and intellectual rights*).

More analytically, there will be provided a training programme with basic digital skills applying “the Digital Competence Framework for Citizens (DigComp) in combination with the essential e-competences in different levels of expertise from e-CF (European e-Competence Framework), as concluded by the Mu.SA research. The MOOC programme will train the participants in 8 e-competences, important in all four profiles. In the e-learning programme will be developed educational content for 26 digital and 16 transferable competences, which are considered fundamental for attributing in the museum sector. In other words, after completing the first stage of education in digital competences, the interested museum professionals would be able to attend a more specialised training programme focusing in advanced competences, digital and transferable, needed for employment, personal development and social inclusion.



10. Other interesting role profiles

This section describes some further interesting role profiles that emerged during the Mu.SA research. For the sake of brevity they are briefly described, as a complete analysis goes beyond the scope of the present project.

The **Wikipedian in residence**⁵¹: this is a Wikipedia editor with a placement inside an institution in order to facilitate Wikipedia entries related to that institution. Currently an ICT specialist usually covers this role, although many librarians and archivists are developing these skills. One of the goals of Wikipedia is to offer residencies to people from both sectors ICT and museums or libraries in order to facilitate dialogue between the two worlds, and understand metadata entries. The purpose is not to conduct cataloguing *per se* but to create shareable content with open licenses.

The **Data scientist**: this is an expert who identifies, collects, prepares, validates, analyses and interprets data related to various activities of the organization, in order to extract information, including so-called “insights” (either synthetic or derived from the analysis), which can be used to develop predictive models in order to generate organized systems of advanced knowledge.

The **Full stack developer**: this is person who can work with across the whole technology stack – from the back to the front end.

⁵¹ https://en.wikipedia.org/wiki/Wikipedia:GLAM/Wikipedian_in_Residence
(Downloaded in April 2017) <https://www.skillprofiles.eu/stable/g3/en/profiles/WSP-G3-025.pdf> (Downloaded in April 2017)

11. Conclusions

This report summarises the key findings of the research activities carried out by the partners involved in the European project Mu.SA - Museum Sector Alliance funded by the Erasmus+ programme Sector Skills Alliances in Greece, Portugal and Italy from December 2016 to March 2017.

The consortium investigated which digital and transferable competences are fundamental in order to support museum professionals and help them in their efforts to make museums thrive in a digital environment by capitalising on and revising the results of the eCult Skills project.

Given the aim of the research a qualitative approach was seen as the most appropriate in order to provide useful insights into which role-profiles and related digital and transferable competences need to be developed for museum professionals in order to help them face the current challenges.

Despite the fact that the research results are contextualized to the specific contexts of the three different countries analysed, some general considerations may be applied to the whole museum sector in Europe. It is however important to always bear in mind that the technologies involved and the needs of the audience are changing so quickly that new training needs are constantly emerging.

The partners carried out a mapping of professional competences, with the involvement of 81 experts in Europe, ranging from museum directors to policy makers, researchers, freelancers, etc. This study was conducted through interviews and focus groups, and it aimed to ensure a balance between various different points of views. A mapping of training provisions was also carried out by means of desk research and an online survey.

On the basis of the previous eCult Skills role-profiles, four emerging role-profiles have been validate and updated within the Mu.SA project:

- **Digital Strategy Manager**



Co-funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

- ***Digital Collections Curator***
- ***Digital Interactive Experience Developer***
- ***Online Community Manager***

For each profile e-competences and transferable competences have been listed on a rating scale from those that are most important to those that are least important. **The results of the research show that there are e-competences and transferable competences that should be developed across all job role-profiles and that should be considered essential as a starting point for up skilling.**

These are transferable and e-competences/digital competences such as strategic and business planning; user needs identification/analysis, product service planning, technology and trend monitoring, innovating, user support, forecast development, relationship management, ICT quality management, audience development, communication, storytelling, time management and creativity, leadership, active listening, team working and fact-drive. These roles should have an in-depth knowledge of how a museum works. Moreover, many of the functions and competences attributed to the job profiles should be embedded in the context of a team work. In general, we can argue, that on the basis of the research findings, the respondents consulted during the research believe that it is necessary to develop useful skills in order to reach a greater number of museum visitors, while enhancing digital skills in this direction (and not just for their own sake).

The research shows that, although it is important to develop and integrate the profiles described in eCult Skills and revised in Mu.SA into the museum system, given the national contexts, there is still some resistance to instituting such a process due to many elements remarked by the research, such as lack of financial resources and the merging of museum departments and roles makes any expectations of employing new expert staff unrealistic, difficulties encountered by small museums in terms of financial and human resources, low salaries of people working in the museum sector that makes it unattractive to ICT professionals and above all, a lack of a national digital strategy in

the three countries allowing for the allocation of appropriate human and financial resources and training investment. Therefore, it is possible to claim that a general sense of discouragement among the respondents was detected, as much more investment in digital infrastructure and, hence, training is required at a policy level.

In the second phase of the project the research findings will be used, in order to develop training programmes in different formats such as MOOC (Massive Open Online Course), e-learning, face-to-face and workplace learning, in line with the specific needs of the museum professionals in respect of the need to update digital competences.

In building the Mu.SA training programme it is important to devise an entry-level training programme as a basis for all profiles. This will allow all the interested participants to develop basic transferable and digital competences. Participants can follow on with a specialised training programme that aims to develop more advanced and specific skills for each profile.

The training approach of the Mu.SA project recognises the importance of both e-competences and transferable skills, and intends to encourage participants to learn in a practical and flexible way, with the use of an approach that is based on their own experiences and those of their fellow participants. These elements should be considered when elaborating and developing the MOOC and/or the European specialisation course based on face-to-face classes, e-learning and work based learning.

By all means, although Mu.SA research focused on emerging job profiles in the museum sector connected to digital technologies, **the underpinning theme is the need for a mental shift and a cultural change in terms of the planning and visioning of services, so that the digital element can become an integral part of the approach from the outset.** The upper management level has to envision digital technologies, as an element that makes it possible to develop meaningful relationships with new and existing audiences in line with the museum's mission. Museums need to work on their digital transformation plan starting from an idea of their overall vision, asking themselves why they wish to invest in technological assets, setting up

shared goals and allocating adequate financial and human resources, based on audience research and analysis of user needs. Adequate investment should therefore be sought for on-going up skilling as regards new technology for all museum staff, in accordance with their existing roles and tasks.

Ultimately the goal is to support museums in providing their staff with the right skills, helping them to strike a balance between social, cultural and economic priorities, while ensuring that these new competences have the right impact.



12. Description of the Digital Strategy Manager role-profile

A Digital Strategy Manager can be defined as an ICT Consultant. Those professionals with this role-profile have a strategic function in order to help museums to thrive in a digital environment. They are in charge of a digital transformation plan in line with the overall museum strategy. Currently they are most often seen as external collaborators, but in future they could belong to the internal organisational structure, or the same type of assistance could be provided by an external body (such as a Ministry).

Summary statement

In line with the overall museum strategy, Digital Strategy Managers support a museum’s technological and digital innovation. They provide museums with comprehensive, updated and unbiased information about digital products, and always work for the benefit of the museum. They must have a good knowledge of how a museum works.

Job Role-Profile Description	
Title	<i>Digital Strategy Manager</i>
Mission	The <i>Digital Strategy Manager</i> has a strategic function in order to help museums to thrive in a digital environment. S/he is in charge of a digital transformation plan in line with the overall museum strategy. S/he is responsible for the museum digital strategy and the financial planning of technological resources at a senior level, alongside the overall museum management. S/he plays a mediating role between the internal museum departments and external stakeholders, and is able to effectively communicate with various different stakeholders, especially high-tech companies. S/he is comfortable with working with both back-end and front-end technologies. S/he has a good



	knowledge of how a museum works.
Academic qualification Sector (recommended)	Master degree in Museum Studies or equivalent working experience in museums
Level (according to EQF)	Minimum 6
Tasks / Key responsibilities	<ul style="list-style-type: none"> • To plan the digital strategy and the financial planning of technological resources (budget allocated by the Director) at a senior level, in line with the overall management of a museum • To play a mediating role between the museum and the outside world, and is able to effectively communicate with various different stakeholders, especially high-tech companies • To facilitate the smooth flow from content production to technology in various different departments • To supervise upgrades, installations and backup operations on a day-to-day basis • To supervise the safety of all digital infrastructures • To make strategic decisions based on the relevant evidence and knowledge on new digital products • To provide internal guidelines/policies in compliance with ICT standards and regulations • To conduct benchmarking analyses • To produce periodic reports on the progress of the activities and results obtained • To assess staff training needs and organise training activities • To carry out evaluation reports on audience needs and

	<p>collect them from other departments</p> <ul style="list-style-type: none"> • To plan user-centred technology projects and interventions • To foresee the impact of digital solutions while responding to the needs of the museum and its audiences • To advise on digital training and regulations 	
<p>Knowledge <i>(In EQF, Knowledge is described as theoretical)</i></p>	<p>Required</p>	<p>Knowledge of:</p> <ul style="list-style-type: none"> • Advanced coding, Virtual Reality, Augmented Reality, Application Development, Digitalization of collection, 3D, Metadata Management, Digital Exhibition, XML language, specific software tools, systems of geographic information software, HTML • Digital terminology and products to assist effective communication with digital collaborators and contractors in the case of joint projects • The major IT frameworks e.g. COBIT, ITIL, CMMI, ISO and their applications in a museum context • The different service models (Saas, Paas, Iaas) and operational translational (i.e. Cloud Computing) • Digital devices and tools for storage and retrieval of data • The new emerging technologies • ICT architectural framework • Museum functions and context • The principles and regulations of intellectual property rights • Structured project management methodologies • How to implement audience development strategies • The ability to conduct and interpret



		audience research
	Desired	<ul style="list-style-type: none"> • User Experience • Knowledge of Agile process management • Open Data and linked data
e-Skills	Required	<p>The ability to:</p> <ul style="list-style-type: none"> • Plan and manage an effective digital strategic plan • Manage, implement and run digital projects • Use digital platforms for the analysis and interpretation of user needs • Make decisions based on evidence • Advise on copyright and intellectual property • Implement an audience development strategy • Advise and work in synergy with the other departments • Collaborate with external digital providers
	Desired	<p>The ability to:</p> <ul style="list-style-type: none"> • Develop software • Apply agile process management techniques • Interpret and use open and linked data
<p>Transferable skills</p> <p>A Very important B Important</p>	<p><i>Communication Skills A</i></p> <p><i>Mentoring / coaching skills A</i></p> <p><i>Analyse and synthesize information A</i></p> <p><i>Negotiation skills A</i></p> <p><i>Team working A</i></p> <p><i>Networking skills A</i></p> <p><i>Creative thinking skills A</i></p> <p><i>Sense of initiative and entrepreneurship A</i></p> <p><i>Resilience A</i></p> <p><i>Leadership and change facilitator A</i></p> <p><i>Decision making A</i></p> <p><i>Time management B</i></p>	

Environment	This role-profile is strategic for all those museums that want to thrive in a digital environment. Digital Strategy Managers are in charge of a digital transformation plan, in line with the overall museum strategy. Currently, they are most often seen as external collaborators, but in future they could belong to the internal organisation.
KPI	<ul style="list-style-type: none"> • Number of digital projects begun, implemented, completed, failed • Number of digital projects delivered on time, within the budget, and within scope and the quality requirements • Number of staff involved in digital projects • Quantity of new and returning audiences reached through the digital strategy • Audience satisfaction online/offline • Number of defined KPI with teams
Relationships / Reporting line/ Answerable to	<p>Reports to: Director and Head of other departments</p> <p>Interacts with: Curatorial Conservation Department Communication Department ICT Department Education Department Customer Relationship Services</p>

13. Description of the Digital Collections Curator role-profile

On the basis of the Mu.SA research findings curators with specific skills as Digital Interactive Experience Developers will soon be a crucial requirement. They will have a key role to play in using technology to provide meaningful experiences to audiences, since the inappropriate use of technology can represent an obstacle to the narrative to be conveyed. This could either be an internal employee on the museum staff, or an external collaborator.

Summary statement

The Digital Interactive Experience Developer designs, develops and implements innovative and interactive experiences based on audience needs, providing meaningful experiences for all types of audiences.

Job Role-Profile Description	
Title	Digital Interactive Experience Developer <i>Also known as Interactive Experience Developer, Digital Interactive Experience designer, Exhibit interactive designer</i>
Mission	The Digital Interactive Experience Developer designs, develops and implements innovative and interactive experiences based on audience needs, providing meaningful experiences for all types of audiences.
Academic qualification Sector (Recommended)	<i>University degree (Architecture, Humanistic)</i> BA/MA in Information Technologies <i>Museum degree (desired)</i>
Level (according to EQF)	<i>Minimum 6</i>
Tasks/ Key responsibilities	<ul style="list-style-type: none"> To design and prototype interactive and innovative installations providing meaningful experiences for all types of audiences

	<ul style="list-style-type: none"> • To carry out audience research and observation analysis • To develop accessibility tools for all types of visitors • To facilitate communication flows between various different museum teams and external high-tech companies • To facilitate relations between various different museum teams and departments: curatorial, ICT, education, marketing, communication, etc. 	
<p>Knowledge</p> <p><i>In EQF, Knowledge is described as theoretical</i></p>	<p>Required</p>	<p>Knowledge of:</p> <ul style="list-style-type: none"> • Devising creative solutions for the provision of new concepts, ideas, products or services that could add value to the museum and enhance the experience of its audiences. • ICT terminology and products to assist effective communication with ICT collaborators and contractors in the case of joint projects (Augmented Reality, Application Development, Digitalization of the collection, 3D, Metadata Management, Digital Exhibition, XML language, specific software tools (Adobe Photoshop, digital drawing software, AutoCad - architecture software; systems of geographic information software, HTML). • The functions of how a museum works • The principles and regulations of intellectual property rights • Structured project management methodologies • Audience development strategies • The techniques and best practices of audience engagement • Storytelling techniques • Communication • Audience research and interpretation/analysis of the data • Interactive storytelling
	<p>Desired</p>	<ul style="list-style-type: none"> • User experience • Agile process • How to implement an audience development strategy

e – Skills	Required	<p>The ability to:</p> <ul style="list-style-type: none"> • Use technology to provide meaningful experiences based on the needs and motivations of different types of audiences • Design, implement and evaluate interactive digital exhibitions • Interpret and analyse reports on user needs • Collaborate and cooperate with other departments • Apply analysis techniques of user experiences <p>Apply agile process management</p>
	Desired	Familiarity with interactive software
<p>Transferable skills</p> <p>A Very important B Important</p>	<p><i>Creative thinking skills A</i></p> <p><i>Sense of initiative and entrepreneurship A</i></p> <p><i>Leadership and change facilitator A</i></p> <p><i>Storytelling A</i></p> <p><i>Active listening skills A</i></p> <p><i>Networking skills B</i></p> <p><i>Interpersonal skills A</i></p> <p><i>Communication Skills A</i></p> <p><i>Resilience B</i></p> <p><i>Time management A</i></p> <p><i>Team working A</i></p> <p><i>Fact-driven A</i></p> <p><i>Negotiation skills A</i></p> <p><i>Decision making B</i></p> <p><i>Analyse and synthesize information A</i></p> <p><i>Mediation skills B</i></p>	
Environment	The Digital Interactive Experience Developer works closely with exhibition curators and educational services, attempting	

	to detect and capitalize on interactive potential in exhibition plans. S/he works with the ICT team, acting to combine and integrate the exhibition design, ICT, education, marketing and communication.
KPIs	<ul style="list-style-type: none"> • Number of digital projects begun, implemented, completed, failed • Quantity and frequency of new and returning audiences reached through the digital strategy • Audience satisfaction/External evaluation of the museum experience (based on a qualitative and quantitative analysis) • Diversity of relevant means (supports, installations, etc.) used to connect audiences with the exhibition content
Relationships / Reporting line/ Answerable to	<p><i>Reports to:</i> Director and/or Head of other departments Digital Strategy Manager</p> <p><i>Interacts with:</i> Curatorial department Communication Department ICT department Education department Customer relationship services/ Visitor services</p>

14. Description of the Digital Interactive Experience Developer role-profile

Digital “objects” that have been developed in a virtual environment are now becoming part of museum collections. The Mu.SA research findings indicate that developing specific skills of curators in this increasingly important sector will soon be a crucial requirement for museums if they are to carry out their mission of preserving cultural resources, conducting research and educating future generations.

Summary statement

The Digital Collections Curator is specialized in preserving and managing digital collections. S/he develops online and offline exhibitions and contents for other departments.

Job Role - Profile Description	
Title	<i>DIGITAL COLLECTIONS CURATOR</i> Also know as Digital Cultural Asset Manager, Digital Asset Manager, Digital Curator
Mission	The Digital Collections Curator is responsible for implementing the digital strategy relevant to collecting, storing, archiving, preserving and making accessible the digital collections (either born – digital or digitized). In larger museums this could be a role-profile in itself, while in smaller museums a curator should be up skilled in the area.
Academic qualification Sector (recommended)	<i>University degree</i> <i>Museum degree (desired)</i>
Level (according to EQF)	<i>Minimum 6</i>

<p>Tasks / Key responsibilities</p>	<ul style="list-style-type: none"> • To improve a museum’s digital preservation, management and exploitation plan for all digital cultural content/objects, on an on-going basis • To provide information on copyright and protection of digital cultural property according to international standards • To supervise the implementation of cataloguing/archiving standards • To produce metadata according to recognised international standards • To collaborate with museum staff in order to facilitate their work with digital cultural assets • To collaborate with other departments and manage projects involving enhancement of digital materials • To supervise the security and safety of digital materials • To design projects in collaboration with other departments in order to enhance the digital collection • To facilitate the use of collections according to museum policies and activities. 	
<p>Knowledge <i>(In EQF, Knowledge is described as theoretical)</i></p>	<p>Required</p>	<p>Knowledge of:</p> <ul style="list-style-type: none"> • Terminology and products to assist effective communication with ICT collaborators and contractors in the case of joint projects • Web, cloud and mobile technologies • Devices and tools for the storage and retrieval of digital data • Good practices and standards for digital asset management • The new emerging technologies • The functions and context of the museum • The principles and regulations of intellectual property rights • Structured project management



		<p>methodologies</p> <ul style="list-style-type: none"> • Audience development strategies • The best practices of audience engagement • Communication strategies • Knowledge of software • Open data
	Desired	<ul style="list-style-type: none"> • User experience • Storytelling techniques • Agile process management • Audience research • Implementation of audience development strategy • How to edit Wikipedia entries
e – Skills	Required	<p>The ability to:</p> <ul style="list-style-type: none"> • Use the support of Software • Edit Wikipedia entries • Digitize collections • Cataloguing • Retrieve information • Preserve the Digital Collections
	Desired	<ul style="list-style-type: none"> • Apply and understand user experience processes • Apply agile processes techniques
<p>Transferable skills</p> <p>A Very important</p> <p>B Important</p>		<p><i>Time management A</i></p> <p><i>Management skills A</i></p> <p><i>Decision making A</i></p> <p><i>Communication Skills A</i></p> <p><i>Creative thinking skills A</i></p> <p><i>Networking skills A</i></p> <p><i>Interpersonal skills A</i></p> <p><i>Leadership and change facilitator A</i></p> <p><i>Teamworking A</i></p> <p><i>Mentoring / coaching skills A</i></p> <p><i>Sense of initiative and entrepreneurship B</i></p> <p><i>Mediation skills B</i></p> <p><i>Influence/ persuasion skills B</i></p> <p><i>Active listening skills B</i></p>

Environment	<p>The Digital Collections Curator collaborates with external technology suppliers and, within the museum, with the:</p> <ul style="list-style-type: none"> • Management • Education departments • Communication department • Object curatorial departments (if different from own)
KPIs	<ul style="list-style-type: none"> • Number of digital projects begun, implemented, completed, failed • Quantity of new and returning audiences reached through the digital strategy • Audience satisfaction online/offline • Diversity and size of the collection of digital assets • Extent and frequency of consultation of digital assets by the audience
Relationships / Reporting line/ Answerable to	<p><i>Reports to:</i> <i>Director and/or Head of other departments</i> <i>Digital Cultural mediator</i></p> <p><i>Interacts with:</i> <i>Communication Department</i> <i>ICT department</i> <i>Education department</i> <i>Customer relationship services</i></p>

15. Description of the Online Community Manager role-profile

The Mu.SA research findings indicate that museums have to deal with ever-increasing numbers of online users through social media platforms. While some museums exploit this potential, many others are still not aware of the possibilities it offers. This role-profile is becoming increasingly valuable for museums to thrive in a digital environment. Online community development and care is a responsibility often carried out by professionals that cumulate several tasks within the organisation. We believe, however, it should gradually become a specialised task and a profile integrated in the communication department/team.

Summary statement

As a member of the team for communication, marketing and audience development and in line with the museum's overall strategic plan, and mission, the online community manager:

- is responsible for development and implementation of an online audience development plan (e.g. social media, interactive platforms, events, etc)
- creates a sense of community between the museum and its online stakeholders/communities.

S/he also

- works in close collaboration with other professionals in the museum team and its departments (e.g. communication, curatorial, management, and ICT).

S/he must have an extensive knowledge of how a museum works.

Job Role-Profile Description



Title	<p><i>Online Community Manager</i></p> <p>Also known as Online Cultural Community Manager, (as in the previous project Cult skills, which Mu.SA is a follow up), Digital Communication Manager, (as stated in interviews) Digital Media Curator, Visual Media curator, New Media Manager, Social Media Specialist or Online Community Developer.</p>	
Mission	<p>The online community manager answers to the needs of both the online and offline communities. S/he creates and manages accessible and collaborative online communities for all stakeholders (audiences, colleagues in museums and cultural heritage sector, educational organisations, donors, sponsors, decision makers, etc.).</p>	
Academic qualification Sector (Recommended)	<p><i>University degree (Communication/Art/etc.)</i></p> <p><i>Museum specialisation (desired)</i></p> <p><i>Web manager vocational training</i></p>	
Level (according to EQF)	<p><i>Minimum 6 -7</i></p>	
Tasks/ responsibilities	Key	<ul style="list-style-type: none"> • To design and implement an online audience development plan in line with the museum’s overall strategic communication plan (including KPI and Smart Objectives) • To engage, monitor and to manage online audiences • To liaise effectively with the other departments within the organisation in order to produce both content and meaningful online experiences • To carry out online surveys tracing audience needs • To carry out and monitor online activities • To assess and evaluate the effectiveness and efficiency of online activities (e.g. write periodic reports on online insights, conduct web analytics and analyse them, in order to assess whether objectives are being achieved)
Knowledge	Required	Knowledge of:

(In EQF, Knowledge is described as theoretical)		<ul style="list-style-type: none"> • Marketing (Unconventional and Digital Marketing) • Digital tools for online events (Chat, Webcast, Facebook, live streaming, among others) • Legal aspects in Copyright, Creative Commons, Royalties • Web content accessibility • Web analytics (Google analytics, Facebook insights, etc.) • Effective communication, mediation • Knowledge of how a museum works • Project management methodologies • Audience development strategies • Storytelling techniques • Audience research data interpretation • Extensive knowledge of social media platforms
	Desired	<ul style="list-style-type: none"> • Online user experience • Knowledge of the use of graphic tools • Knowledge of graphic design programs • Knowledge of web publication tools (e.g. CMS, Blog and Editor) • Knowledge of Mark-up and style sheets (e.g. XHTML, HTML and CSS) (depending on each organization requirements)
e – Skills	Required	<p>The ability to</p> <ul style="list-style-type: none"> • Plan an effective online communication strategy • Effectively engage with audiences online • Monitor and evaluate digital projects • Undertake user needs analysis online and interpret reports on audience research from other departments • Identify needs and problems, and to resolve conceptual problems and problematic situations in digital environments • Use digital tools to innovate processes



		<p>and products</p> <ul style="list-style-type: none"> • Keep up-to-date with the evolution of digital technologies • Improve and integrate information and content into an existing body of knowledge with an understanding of how copyright laws and licenses are to be applied.
	Desired	<ul style="list-style-type: none"> • Ability to use visualising tools to create graphic representations
<p>Transferable skills</p> <p>A Very important</p> <p>B Important</p>	<p><i>Creative thinking skills A</i></p> <p><i>Sense of initiative and entrepreneurship A</i></p> <p><i>Leadership and change facilitator A</i></p> <p><i>Storytelling A</i></p> <p><i>Active listening skills A</i></p> <p><i>Interpersonal skills A</i></p> <p><i>Communication Skills A</i></p> <p><i>Integrity/Ethical A</i></p> <p><i>Resilience A</i></p> <p><i>Communication Skills A</i></p> <p><i>Negotiation skills A</i></p> <p><i>Management skills A</i></p> <p><i>Team working A</i></p> <p><i>Decision making A</i></p> <p><i>Time management A</i></p> <p><i>Analyse and synthetize information A</i></p> <p><i>Mentoring / coaching skills B</i></p> <p><i>Influence / persuasion skills B</i></p> <p><i>Networking skills B</i></p>	
Environment	<p>As a member of the team for communication, marketing and audience development, the Online Community Manager is responsible for developing and implementing an online audience development plan in line with a museum's overall strategic plan and mission.</p>	
KPIs	<ul style="list-style-type: none"> • Number of online audience projects begun, implemented, completed, and failed • Quantity and frequency of new and returning audiences reached through the digital strategy 	

	<p>(audience engagement)</p> <ul style="list-style-type: none"> • Audience satisfaction score • Digital traceability
<p>Relationships / Reporting line/ Answerable to</p>	<p>Reports to: Head of Communication and marketing</p> <p>Interacts with: Curatorial department ICT department Education department Customer relationship services Management department</p>

16. References

British Council, (2016) *Cultural Skills Unit Research. Preliminary research for the museum sector in Greece*, UK. Available at <https://www.britishcouncil.gr/sites/default/files/ima-greece-preliminary-research.pdf>

Camacho, CF , (2015) *Redes de Museus e Credenciação: Uma Panorâmica Europeia*. Coleção Estudos de Museus. Casal de Cambra: Caleidoscópio.

CEDEFOP, European Union (2014) *Terminology of European education and training policy. A selection of 130 key terms*, Luxembourg. Available at: <http://www.cedefop.europa.eu/en/publications-and-resources/publications/4117> (Downloaded December 2016)

Center for the Future of Museums and American Alliance of Museums (2017) *TrendsWatch 2017*. Available at: www.aam-us.org/about-us/media-room/2017/trendswatch-2017-report-helps-museums-prepare-for-change-in-us-and-worldwide - (Downloaded May 2017)

European commission. Study on Audience Development – “How to place audiences at the centre of cultural organisations” Available at: <http://engageaudiences.eu/materials/> (Downloaded May 2017)

ICOM (2006), *Carta nazionale delle professioni museali*, ICOM Italia.

ICOM Code of Ethics for Museums (2013) (Downloaded May 2017) icom.museum/fileadmin/user_upload/pdf/Codes/code_ethics2013_eng.pdf

ISTAT (2015/2016) *I musei, le aree archeologiche e i monumenti in Italia*, Available at: <https://www.istat.it/it/archivio/194402>

Legget J., (2011) *Staff and Training in Regional Museums* ICOM-ICR, ICOM-ICTOP, Paris

Neves, JS, Santos JA, and Lima MJ, (2013) *Panorama Museológico em Portugal (2000-2010)*. Lisboa: Direção-Geral do Património Cultural.

Ruge A., (2008) *Museum Professions. A European Frame of Reference*,



ICOM-ICTOP, Paris. Available at icom.museum/fileadmin/user_upload/pdf/professions/frame_of_reference_2008.pdf

Santos, JA, Serôdio C, and Ferreira F, (2017). *Diagnóstico aos Sistemas de Informação nos Museus Portugueses*. [s.l.]: Edição do Grupo de Trabalho Sistemas de Informação em Museus (GT-SIM). Available at: https://www.bad.pt/noticia/wp-content/uploads/2017/06/GTSIM_DSIM_RelatórioFinal.pdf.

Symbola & Melting Pro (2017) *The Museum of the Future: Insights and reflections from 10 international museums*. Available at: <http://www.project-musa.eu/wp-content/uploads/2017/03/MuSA-Museum-of-the-future.pdf>



16.1 Websites

ADESTE, Audience DEveloper: Skills and Training in Europe

<http://www.adesteproject.eu/about>

(Consulted September 2017)

ARTS – Skills for the creative economy

<http://arts-project.eu/>

(Consulted September 2017)

Cambridge online dictionary

<http://dictionary.cambridge.org/>

(Consulted September 2017)

CREA.M – creative blended mentoring for cultural managers

<https://www.encatc.org/en/projects/transnational-cultural-projects/>

(Consulted September 2017)

DIGCOMP - Digital Competence Framework for citizens

<https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>

(Consulted September 2017)

Digital Economy and Society Index (DESI).

<https://ec.europa.eu/digital-single-market/en/desi>

(Consulted September 2017)

eCULT SKILLS project and description of role profiles. Available:

<http://groupspaces.com/eCult/pages/project-results>

(Consulted September 2017)

European Framework for e-Competence (e-CF)



Co-funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

A European reference framework of 40 competences related to the professional IT and information and communication technologies (ICT) sectors, which adopts a shared language for skills, competences, knowledge and levels of experience with the goal of being understood throughout Europe.

<http://www.ecompetences.eu/ftp://ftp.cen.eu/CEN/Sectors/List/ICT/Workshops/eCF3.0%20brochure.pdf>

User guide for the application of the European e-Competence Framework: http://www.ecompetences.eu/wp-content/uploads/2014/02/User-guide-for-the-application-of-the-e-CF-3.0_CEN_CWA_16234-2_2014.pdf

(Consulted September 2017)

European Qualification Framework

Descriptors defying levels of expertise in the European Qualification Framework (EQF):

<https://ec.europa.eu/ploteus/en/content/descriptors-page>

(Consulted September 2017)

Hellenic Ministry of Culture and Sports

<http://www.culture.gr/en/SitePages/default.aspx>

(Consulted September 2017)

ICOM - International Council of Museums Greece

<http://network.icom.museum/icom-greece/>

(Consulted September 2017)

ICOM - International Council of Museums Italy

<http://www.icom-italia.org/>

(Consulted September 2017)

ICOM - International Council of Museums Portugal

<http://icom-portugal.org/>

(Consulted September 2017)

Italian Ministry of Cultural activities and Tourism



Co-funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

<http://www.beniculturali.it/mibac/export/MiBAC/index.html - &panel1-1>
(Consulted September 2017)

Italian Museum Directorate

<http://musei.beniculturali.it/>
(Consulted September 2017)

Portuguese Directorate General for Cultural Heritage

<http://www.patrimoniocultural.gov.pt/pt/museus-e-monumentos/dgpc/> (Consulted September 2017)

Portuguese Museums Network

<http://www.patrimoniocultural.gov.pt/en/museus-e-monumentos/rede-portuguesa/>
(Consulted in September 2017)

Wikipedian in Residence

https://en.wikipedia.org/wiki/Wikipedia:GLAM/Wikipedian_in_Residence
(Downloaded in September 2017)
<https://www.skillprofiles.eu/stable/g3/en/profiles/WSP-G3-025.pdf>
(Downloaded in September 2017)

17. List of contributors

17.1 List of interviewees from Greece

Alexandra Nikiforidou, Museologist, Postscriptum S.A.

Esther Solomon, Assistant Professor in Museum Studies, School of Fine Arts, University of Ioannina

Giorgos Marakis, Conservator-Museologist, Head of the Conservation Dept., Archaeological Museum of Heraklion-Crete, Hellenic Ministry of Culture & Sports

Iphigenia Vogiatzi, Archaeologist-Museologist, Curator of the permanent exhibition & programmes, National Historical Museum, Athens

Kalliope Fotiadi, Archaeologist, Ephorate of Antiquities of East Attica, Hellenic Ministry of Culture & Sports

Maria Alexaki, Archaeologist-Museologist, Freelance museum expert

Panagiota Dalakoura, Archaeologist-Museologist, Ephorate of Antiquities of Rhodope, Hellenic Ministry of Culture & Sports

Panagiotis Vosnidis, Archaeologist, Byzantine and Christian Museum, Athens, Hellenic Ministry of Culture & Sports

Polyxeni Veleni, Archaeologist, Director, Archaeological Museum of Thessaloniki, Hellenic Ministry of Culture & Sports

Thouli Misirloglou, Art Historian, Director, Macedonian Museum of Contemporary Art, Thessaloniki

Yannis Koukmas, Social anthropologist, Ethnological Museum of Thrace, Alexandroupolis

17.2 Focus group contributors from Greece

Alexandra Bounia, ICOM Greece

Alexandra Nikiforidou, Museologist, Postscriptum S.A.

Angelos Moretis, General Director, George Zongolopoulos Foundation, Athens

Artemis Stamatelou, ICOM Greece

Despina Catapoti, Assistant Professor in Cultural Theory & Digital Culture, University of the Aegean

Despina Kalessopoulou, Archaeologist-Museologist, National Archaeological Museum, Athens, Hellenic Ministry of Culture & Sports

Eirini Charitaki, Archaeologist, Ephorate of Antiquities of East Attica, Hellenic Ministry of Culture & Sports

Erato Koutsoudaki, Museologist-Exhibition designer, Freelance Ifigenia Dionissiadou, Head of the IT department, Benaki Museum, Athens

Katerina Petrou, Archaeologist, Ephorate of Antiquities of East Attica, Hellenic Ministry of Culture & Sports

Pari Kalamara, Archaeologist, Director, Ephorate of Antiquities of Euboea, Hellenic Ministry of Culture & Sports

Philippos Mazarakis-Ainian, Senior curator, National Historical Museum, Athens



17.3 List of interviewees from Italy

Anna Maria Marras, ICOM Italy - Wikimedia Italia

Carlotta Margarone, Digital Media Curator, Communities manager, Documentation and Communication Services, Madama Palace, Turin

Fiorenzo Galli, General Director and Director of the Cultural Offer, National Museum of Science and Technology, Milan

Francesca Gottardo, Founder of the Blog and Community "#svegliamuseo"

Gabriel Zuchtriegel, Director of the Archeological Park of Paestum

Giuseppe Ariano, Communication Consultant Mibact

Lucrezia Ungaro, Scientific and Technological Coordination, Trajan's Markets, Rome

Margit Oberrauch, Administrative Director, Museion – Modern and Contemporary Art Museum of Bolzen

Maria Elena Colombo, Digital Media Curator, Freelance

Massimiliano Franceschetti, Researcher, Inapp ex Isfol

Maurizio Felicori, Director Royal Palace of Caserta

René Capovin, Project Manager, Musil – Industry and Labour Museum – Brescia

Valentina Zucchi, Responsible Customer Care, Mus.e Association Civic Museums of Florence

Vitalba Morelli, Vice President, *Tuomuseo* Association



17.4 List of focus group contributors from Italy

Alessandro Bollo, Director of *Polo del 900*, Founder of Fitzcarraldo Foundation, Turin

Anna Maria Visser, Ferrara University, Co-Director of the Master Musec

Annalisa Cicerchia, Senior Researcher, Istat; Professor of Management of the Cultural Industries, Tor Vergata University of Rome

Beatrice Boatto, Communications and Digital Media, Prada Foundation, Milan

Cristina Da Milano, Director, ECCOM. Idee per la Cultura, Rome

Francesca Lambertini, Project Manager, BAM!, Bologna

Gian Paolo Manzella, Regional Council Member, Latium

Giovanna Barni, President, CoopCulture

Marcello Carrozzino, PERCRO - Sant'Anna School of Advanced Studies of Pisa

Massimo Negri, Museum and Industrial Archeology Consultant, Kriterion

Michela Perrotta, Educational Department, Grassi Palace, Venice

Nicolette Mandarano, La Sapienza University of Rome

Paola Guarnera, Digital Communication, National Gallery of Modern Art, Rome

Pippo Ciorra, Professor, Camerino University and Architecture Senior Curator, MAXXI, Rome

Prisca Cupellini, Online Communications and Digital Projects Curator, MAXXI, Rome

Simona Caraceni, Artribune, steering the Focus Group

17.5 List of interviewees from Portugal

Ana Rita Costa, PhD Student, University of Coimbra
Clara Vaz Pinto, Director - National Museum of Costume, Lisbon
Cláudia Camacho, Curator – Antiframe, Porto/Lisbon
Fernando Cabral, Director - Sistemas do Futuro, Porto
Isabel Tissot, Conservation specialist – Archeofactu, Lisbon
Joana Sousa Monteiro, Director, Lisbon Museum
Jorge Raposo, Municipal Ecomuseum of Seixal
Maria José Santos, Director, Penafiel Museum
Maria Vlachou, Executive Director, Acesso Cultura, Lisbon
Paulo Monteiro, Director, Glorybox, Viseu
Rita Canavarro, Money Museum, Lisbon
Rui Raposo, Director, Department of Communication and Arts of the University of Aveiro
Sara Barriga, Money Museum, Lisbon

17.6 List of focus group contributors from Portugal

Ana Carvalho, ICOM Portugal
Ana Rita Canavarro, Money Museum
Ana Rita Costa, Phd Student, University of Coimbra
André Avelans Coelho, Realizasom
Alexandre Matos, ICOM Portugal
Clara Vaz Pinto, National Costume Museum
Cristina Reboredo, Mapa das Ideias
Inês Camara, Mapa das Ideias
Ines Fialho Brandão, Museum professional, Cascais Municipality
Jorge Santos, Researcher, ISCTE - Instituto Universitário de Lisboa
Manuel Pizarro, ICOM Portugal
Rui Pedro Costa, National Costume Museum

17.7 List of interviewees for the report “Report Museum of the future”

Anne Krebs, Head of Socio-economic Studies and Research Division, Research and Collection Department, France

Daria Hookk, Senior Data Analyst, Hermitage, San Pietroburgo, Russia

Janice Lane, Director of Gallery Development and Visitor Experience and **Dafydd James**, Head of Digital Media, National Museum of Wales, United Kingdom

Javier Pantoja, Chief Digital Officer, Head of technology, Prado, Spain

Joanna Król, Head of digital collections and resource center department, Polin Museum of the History of Polish Jews, Poland

Kati Price, Head of Digital Media and Publishing, V&A, United Kingdom

Linda Volkens, Marketing Manager, International and Digital Marketing, Rijksmuseum, Amsterdam, The Netherlands

Pedro Gadanho, Director MAAT, Lisbon, Portugal

Samuela Caliari, Head of Public Engagement & **Davide Dalpiaz**, Scientific Communicator, Multimedia Content Coordinator, MUSE, Italy

Sanna Hirvonen, Public Programmes KIASMA, Finland



18. Mu.SA project Consortium

The Mu.SA consortium is a rich mix of higher education institutions, independent and national research centres, cultural and social associations and organisations, and one of the most important European networks.

AKMI Anonymous Educational Organisation is a leading niche consultancy specialised in human resources development, education and lifelong learning, labour markets and public administration reform. It is a private management-consulting firm providing advisory services and conducting studies in the public and private sectors with more than 20 years presence in Greece and abroad. <http://www.iek-akmi.edu.gr>

Culture Action Europe is a European network of membership organisations, cultural organisations and individuals. We connect those that strive to put culture at the heart of the public debate and decision-making.

<http://www.cultureactioneurope.org>

ICOM GREECE- The Hellenic National Committee of ICOM was established in 1983 with the aims to offer to the Greek museum community an opportunity to meet and learn from each other by organizing events, activities, conferences and by publishing books, to encourage networking and collaboration of Greek museum professionals with colleagues from abroad. <http://www.network.icom.museum/icom-greece>

ICOM Portugal - The Portuguese National Committee of ICOM is a professional association and a national committee of ICOM since the 50's. We represent more than 500 museum professionals or specialists, students, professors, and museums in Portugal and we aim to be an active voice promoting museums and their professionals everywhere.

<http://www.icom-portugal.org/>

Hellenic Open University, project leader, it is the only Greek state University that offers distance learning study programs in Social Sciences, Applied Arts, Science and Technology and Humanities. The DAISSy (Dynamic Ambient Intelligent Social Systems) Research Group

contributes to the realization of an advanced humane society by inventing technology that adapts to human needs.

www.daissy.eap.gr

Istituto per i Beni Artistici Culturali e Naturali della Regione Emilia was founded in 1974 to support and advise the Regional Government in policy making and act as an advisory body to local authorities in the field of cultural heritage, including museums, libraries, archives, natural and built heritage.
<http://www.ibc.regione.emilia-romagna.it>

Link Campus University is a private University in Rome that operates since 1999 as the Italian affiliation of the University of Malta. It leads many professional courses, MAs, MBA in the field of Cultural Heritage, Arts, Digital Fabrication, Management, Economics, Law, Mobility, Drones and Sports.
www.linkinternational.eu

Mapa das Ideias is a Portuguese company dedicated to the relationship between museums, audiences and communities, since 1999. Its expertise in museum and cultural communication has led to the creation and development of mediation tools and projects, as well as training programs for museum mediators.
www.mapadasideias.pt

Melting Pro Learning is a cultural organisation that operates in the field of arts and culture to promote innovative projects and approaches. MeP is inspired by the understanding that culture plays a major role in contributing to a more cohesive society and the wellbeing of people.
www.meltingpro.org

National Organization for the Certification of Qualifications and Vocational Guidance (EOPPEP) is a statutory executive body in the National Network for Lifelong Learning responsible for certifying the “outputs” of non-formal education and informal learning, as well as providing scientific support for counselling and career guidance services in Greece.
www.eoppep.gr

Symbola Foundation for Italian Qualities is a not for profit networking organization connecting personalities and associations



Co-funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

belonging to the economic, cultural, institutional sectors and civil society, aiming at promoting a new quality-oriented model of development: the soft economy.

www.symbola.net

Universidade do Porto was founded in 1911 and is a benchmark institution for Higher Education and Scientific Research in Portugal. Besides hundreds of courses, FLUP offers programmes in Information and Communication Sciences and in Digital platforms, and postgraduate programmes in Museology, accredited and considered pioneering educational projects.

<http://www.sigarra.up.pt>



19. Authors profiles

Achilles Kameas, Hellenic Open University

Dr. Achilles D. Kameas received his Engineering Diploma (in 1989) and his Ph.D. (in 1995, in Human-Computer Interaction), both from the Department of Computer Engineering and Informatics, Univ. of Patras, Greece. Since 2003 he is a member of staff (with tenure) with the Hellenic Open University (HOU), where he teaches Pervasive Systems and Software Design (currently an Associate Professor). He is the Director of the Postgraduate Study Programme on "Pervasive and Mobile Computing Systems" (<http://sdy.eap.gr/>). Since September 2016, he is the Deputy Dean of the School of Science and Technology. Since 2000 he established the DAISSy research group (Dynamic Ambient Intelligent Social Systems) (<http://daissy.eap.gr>), aiming to contribute to the realization of an advanced humane society by inventing technology that adapts and supports human needs and not the other way round.

Alexandra Bounia, ICOM Greece

Professor of Museology in the Department of Cultural Technology and Communication of the University of the Aegean. She studied archaeology and history of art in the National and Kapodistrian University of Athens (Greece) and museology in the University of Leicester (UK). Her research interests focus on the history, theory and management of collections and museums, the interpretation of material culture and the use of new media for the protection and promotion of cultural heritage. She has published in Greek and international journals and books and has been a member of research programmes in Greece and abroad. She has served in various administrative position at the University of the Aegean, where she currently serves as the Vice-Rector of Academic Affairs and Quality Assurance.

Alexandre Matos, ICOM Portugal



He has a PhD in Museology from Porto University he's currently Director of the Department of Research and Training of *Sistemas do Futuro* and Affiliate Professor in the Department of Cultural Heritage Sciences and Techniques, Faculty of Arts and Humanities of University of Porto.

He's always liked museums, but he totally falls in love with it when he first worked in one and realized the interesting stories he could tell from an object as simple as a portrait. He works on museum documentation because is the most effective way to keep that stories alive. He writes about it at [Mouseion](#).

He's a researcher at [CITCEM](#) and member of the current governing bodies of [ICOM Portugal](#) and a board member of [CIDOC](#).

Ana Carvalho, ICOM Portugal

She is and member of the current governing bodies of ICOM Portugal. Currently, is a post-doctoral researcher at the University of Évora (Portugal). Her research focus on the implications of the UNESCO's Convention for the Safeguarding of Intangible Cultural Heritage (2003) in national public policies, specially the challenges for museums in safeguarding Intangible Cultural Heritage (ICH). Her interests also cover the use of digital tools and techniques in museums for the dissemination of ICH. Her awareness of cultural heritage and museums has encompassed her life, especially since she was a teen and started to depict historic buildings fascinated by the effects of time and change. That appeal has grown along the curiosity about the world, where museums have a special place by telling stories about humankind over time – past and present. That curiosity still drives her to be a committed museologist and to contribute to make museums telling those stories in a more compelling and effective way.

Antonia Silvaggi, Melting Pro Learning



She holds a degree in Archaeology, with an innate passion for museums and stories. Project manager and researcher for Melting Pro, Italy, Rome, she has been coordinating the research activities of the Mu.SA project and was one of the editors of the final report. She has extensive experience in working on international projects on audience development training, cultural participation and digital storytelling. She is also currently involved in CONNECT – CONNECTING AUDIENCES European Alliance for Education and Training in Audience Development.

Artemis Stamatelou, ICOM Greece

Archaeologist-museologist, based in Athens, Greece. She studied Archaeology, History of Art and Museology at the University of Athens. She is a PhD candidate in Museology at the School of Fine Arts of the University of Ioannina. Her research focuses on Greek art museums, taking as a starting point the Municipal Art Gallery of Athens. Since 1997 she has been working as a museum professional in institutions of various types regarding their mission and collections. To name a few: National Historical Museum, Municipal Art Gallery of Athens, Byzantine and Christian Museum, Hellenic Children’s Museum, Foundation of the Hellenic World. She is a member of the General Assembly of the National Historical Museum, the “International Museum Academy” Programme of the British Council, and the Balkan Museum Network. (Public profile: uoi.academia.edu/ArtemisStamatelou).

Claudia Matera, Link Campus University

PhD in Contemporary History of Art, she is a researcher CCIs sector and support professor at Arts undergraduate programmes and MAs of Cultural Heritage at Link Campus University.

She has been assistant curator in international exhibitions in Italian Museums and founder and game designer at NutGames s.r.l.. She is Creative Entrepreneur Advisor, level 7 Professional (www.aspire2create.eu).



Her field of scientific interests are digital game based learning, educational methods with new technologies in Museums and urban area, Museology and Contemporary History of Art.

Domenico Sturabotti, Symbola Foundation for Italian Qualities

Architect, landscaper. He has been the director of Symbola Foundation since 2004 . He has been exploring in depth for six years, the cultural and creative industries both from a qualitative and econometric point of view. He has recently carried out the first Italian study on design economics. He is curator of numerous researches on the strengths of made in Italy, on the relation between manufacturing, creativity and green economy, as well as on the relation between cohesive dynamics and competitiveness.

Federica Pesce, Melting Pro Learning

She designs and coordinates national and international cultural projects related to informal lifelong learning and to the development of territories through multimedia technologies.

Her present challenge is to transform information into knowledge relying on digital storytelling techniques and social design practices.

Her passion to put together different but complementary people is translated into the creation and the handling of international partnership within the working environment. She is fundraising and cultural management consultant for many public and private entities. She is also member of the Rome Co-Design Jam group.

Education: PhD in Arts, Design and new Technologies at Sapienza, University of Rome. Advanced Master in Artificial Intelligence, option Cognitive Science at KUL Leuven, Belgium. She holds a Degree in Philosophy at Sapienza, University of Rome.

Ilektra Simitsi, AKMI



She is a Political Scientist specializing in Public Administration of the Department of Political Science in the University of Athens (Greece). She holds a masters degree in Law School in the direction of European Law from the Democritus University of Thrace (Greece), a masters degree in Public Policy and Human Development from the United Nations University – Maastricht, at the Maastricht Graduate School of Governance (the Netherlands) and is a PhD candidate of the Legal Department of Democritus University of Thrace (Greece). Ms Simitsi has working expertise in organization, managing, monitoring and evaluation of co-funded programs. She has a strong research profile since she counts several participations in conferences and also publications and they are dealing with matters of governance and consumers protection law, the public insurance system, the process of policy making, statistical analysis and law, harmonization of law, changes in the legal frameworks and cross border - regional legal and financial issues.

Ivo Oosterbeek, Mapa das Ideias

He is a Design graduate with an Archaeology M.A., with training in Tourist Events Management, and experience in cultural projects' management. He has worked in several institutions and research projects, like the Quaternary and Prehistory Group (uID-73 FCT). Besides this, Ivo has been involved in activities for the promotion of cultural disciplines ranging from archaeology to music. After finishing his master degree, an initial focus on cultural awareness has slowly been reshaped as a concern for social development as the basis of cultural values.

Manuel Pizarro, ICOM Portugal

He is a PhD student in Museology at the University of Oporto (Portugal). His research focuses on city museums and their role in the society, how they define their mission and goals, incorporation policies, museum management models and develop their interpretive,

communicational and participative strategies. By studying city museums, where the relevance of intangible cultural heritage and the memories, both personal and collective, promote nowadays an intense requalification and even transformation of the exhibition and museum's goals around the world, he's also interested in analyse the relevance of the use and development of digital techniques and competences. As a consequence, his research is also focused in the differences and common traits between museums and interpretive centres, where the role of the technology tools and strategies is exponentially greater.

Panagiota Polymeropoulou, Hellenic Open University

She is a researcher at the Hellenic Open University, member of the DAISSY Research Group, HOU, Hellas. She is holding a MSc. in Cultural Informatics and Communication with specialization in Museology from the University of the Aegean and received scholarship from the State Scholarships Foundation (IKY) for postgraduate studies in Museology. She is an experienced Researcher at Research & Development Projects, funding by EU Resources. The results of her research have been published in journals and proceedings of national and international conferences. She likes visiting museums around the world and learning about new cultures.

Patrícia Remelgado, University of Porto

She holds a PhD in Museology from Porto University and she's the Director of portodosmuseus.pt, a digital platform about museums, cultural heritage and creative industries, a benchmark reference in the sector. She always loved museums and cultural heritage and the dynamics of multidisciplinary and improvable synergies. She considers communication essential for the proper functioning of cultural institutions and for the effective participation of the public. As a consequence, her research is also focused on the use and development of digital techniques and competences. The challenges of communication and marketing have led her to specialize in Marketing Management at Porto Business School. She is a researcher



at [CITCEM](#) and member of the current governing bodies of [APOM](#) – Portuguese Association of Museology.

Paula Menino Homem, University of Porto

She holds a Combined Degree in History and Archaeology, a First Degree in Conservation and Restoration of Archaeological and Ethnographic Artefacts, a MSc in Chemistry Applied to Cultural Heritage and a PhD in Museology. She is an Assistant Professor at the Faculty of Arts and Humanities ([FLUP](#) | [U.PORTO](#)), Department of Heritage Studies, and a researcher at [CITCEM](#). She loves museums since a young girl; wonderful places from where, sensorially, she is able to travel and experience different cultures, learn and have fun. She cares for museums since decades. Her overall action and research interests include the domain of risk management, preventive conservation, integrated and sustainable protection of cultural heritage and its multifaceted and multi-supported communication, especially in museum with communities' inclusiveness policies; a context within which ICT have an important role.

Romina Surace, Symbola Foundation for Italian Qualities

Graduate in Political Science, attended the "Master of Art and Culture Management" of the Trentino School of Management, at the Museum of Modern and Contemporary Art of Trento and Rovereto - MART. As senior researcher in Symbola Foundation (since 2007) she manages research projects focused on cultural and creative industries, green economy, Made in Italy and social innovation. She coordinates the report *I am Culture* (since 2010), handles contact with all the cultural and creative professionals involved and she is responsible for the editing.

Sabina Rosso, Symbola Foundation for Italian Qualities

Specialized in events, conferences and exhibitions organization at national and international level; Management of European Community Special Projects, after spending several years in Australia to attend

academic courses she began her professional career in 2000 as a consultant for various companies dealing with environment, technology and territorial development issues.

Since 2003 she has been following European development cooperation projects. Since 2011 she promotes and coordinates events and initiatives related to the food issue. Since 2005 cooperates with Symbola Foundation in the organization of the *Soft Economy Festival* and of the *Banca delle Qualità* project, recently in the design and coordination of the *Public Utilities Festival*.

Susana Medina, University of Porto

She is an art historian and museologist. She holds a PgD in European Cultural Planning (De Montfort University, 2005), a MA in Museology (FLUP, 2008) and she's a PhD student in Museology at FLUP. She's a lecturer on Project Management for Museums at the MA in Museology, at the same Faculty. She publishes and lectures on a regular basis. She is a researcher at [CITCEM](#) and her research interests are scientific heritage, collaborative networks and information system for museums. As a practicing museologist, she is a curator at FEUPmuseu since 2003, and integrates the task force of U.Porto Digital Museum's project. She loves museums since she was a little girl, when she realized that museums hold so many wonderful objects that she would like people to know. And ever since she is sure that her life will be forever inspired by these powerful thinking machines: museums.

Valentina Re, Link Campus University

She is Associate Professor at Link Campus University of Rome. In 2005 she obtained a Ph.D. in Film Studies at the University of Bologna. From 2009 to 2014, she was Assistant Professor at Ca' Foscari University of Venice. She is senior editor of the journal *Cinéma & Cie* and a member of the Editorial Board of the journal *Cinergie*. She is also co-editor of the book series "Innesti / Crossroads" and "Narrazioni seriali" (Serial narratives). Among her publications are the books, *L'innesto. Realtà e finzioni da Matrix a 1Q84* (Mimesis 2014, coauthored with A. Cinquegrani), *Cominciare dalla fine. Studi su Genette e il cinema*



(Mimesis 2012), and Visioni di altre visioni. Intertestualità e cinema (Archetipolibri 2007, coauthored with G. Guagnellini).



20. Annexes

20.1 Annex 1 Job-Role Profile template adapted from the e-Competence Framework

Job Role Profile Description		
Title	<i>Name of this Role and aliases (meaning other given titles that describe the same role)</i>	
Mission	<i>A summary or résumé of the role of the professional in the organization, and the rationale of the role. The "Summary Statement" briefly sums up what the professional will do in her/his function (Warning: role-profiles are not necessarily job-profiles, as employees in an organisation can have various different roles, even if their jobs are named differently)</i>	
Academic qualification Sector (recommended)	<i>The required educational background or provider of the qualification/ educational programme for the role-profiles – School studies/ University course/ Master Programme, etc</i>	
Level (according to the EQF)	<i>The level of expertise according to the EQF levels e.g level 6, 7 or 8</i>	
Tasks/ Key responsibilities	<i>What the professional will perform in a cultural organization. The responsibilities and activities that this role-profile carries out.</i>	
Knowledge (In EQF knowledge is described as theoretical)	Required	<i>the standard knowledge required for this role</i>
	Desired	<i>the preferred knowledge for this role</i>
e-skills	Required	<i>the standard digital skills required for this role</i>
	Desired	<i>the preferred digital skills for this role</i>
Environment	<i>Brief description of the working environment for the role-profile</i>	
KPIs	<i>Key Performance Indicators of the role in the organisation. Indicators for measuring the results obtained by the role-profile</i>	
Relationships	<i>Describes with whom the role profile reports to inside the organisation</i>	

<i>e-Competence proficiency levels</i>	<i>The e-competence which are A very important and B important, and the ones which are mandatory () or optional<> for this role described according the levels: e-1 to e-5, related to EQF levels 3 to 8 ** Level Required and * Level Desired</i>
<i>Transferable skills</i>	<i>Transferable skills that are A very important and B important</i>



20.2 Annex 2 Interview template

SECTION A Organisation technical details. <i>If you are interviewing a freelancer/consultant please avoid boxes connected to the Museums.</i>	
Date	
Location	
Interviewer's name and organisation	
How is the interview done?	Skype or other means <input type="checkbox"/> <input type="checkbox"/> Face to face
Name of the interviewee	
Role and tasks within the organisation/for freelancers explain what they do (250 words)	
Brief description of the organisation (500 words)	
Website	
Social media	Facebook <input type="checkbox"/> Twitter <input type="checkbox"/> Instagram <input type="checkbox"/> Skype <input type="checkbox"/> Pinterest <input type="checkbox"/> GooglePlus <input type="checkbox"/> LinkedIn <input type="checkbox"/> Youtube <input type="checkbox"/> Tumblr <input type="checkbox"/> Vine <input type="checkbox"/> which Other(s) <input type="checkbox"/>
Size/n. employees	<input type="checkbox"/> Micro 1-10 <input type="checkbox"/> Small 11-20 <input type="checkbox"/> Small/medium 21-50 <input type="checkbox"/> Large more than 50
Type	<input type="checkbox"/> National <input type="checkbox"/> Regional <input type="checkbox"/> Local <input type="checkbox"/> Municipality <input type="checkbox"/> Private <input type="checkbox"/> Other, please specify
Main Departments (tick all that apply)	<input type="checkbox"/> Marketing <input type="checkbox"/> Communication <input type="checkbox"/> Library <input type="checkbox"/> Research <input type="checkbox"/> Costumer service



	<input type="checkbox"/> ICT <input type="checkbox"/> Cafeteria <input type="checkbox"/> Online Shop <input type="checkbox"/> Shop <input type="checkbox"/> Education <input type="checkbox"/> Conservation <input type="checkbox"/> Other(s):
Specify the type of museum and collections (<i>tick all that apply</i>)	<input type="checkbox"/> Anthropology <input type="checkbox"/> Garden <input type="checkbox"/> Archaeology <input type="checkbox"/> Ethnology <input type="checkbox"/> Aquarium <input type="checkbox"/> College, University or School <input type="checkbox"/> Historic Building/Site <input type="checkbox"/> Natural History/Science <input type="checkbox"/> Planetarium <input type="checkbox"/> Archaeology/Ethnology <input type="checkbox"/> Zoo <input type="checkbox"/> Arboretum/Botanical <input type="checkbox"/> Art <input type="checkbox"/> Children's <input type="checkbox"/> History <input type="checkbox"/> Nature Centre <input type="checkbox"/> Science and Technology Centre <input type="checkbox"/> Other(s):
Museum's annual attendance?	
Indicate the museum main target audience(s).	<input type="checkbox"/> Adults <input type="checkbox"/> Schools (all types) <input type="checkbox"/> Seniors <input type="checkbox"/> Families <input type="checkbox"/> Other(s):

Section B: Open-ended questions

The Digital Challenge and Museum needs

1. Digital and technology are impacting our daily life as citizens; consequently they are highly impacting museum professionals' daily work. Recent studies suggest that the digital dimension should be embedded in all aspects of museum work. However there are still



gaps in digital competences for museum professionals.

What is your opinion regarding the above statement? How is **the museum sector** reacting to the digital shift in your country?

2. Which aspects of the museum work are the most affected by the digital shift? (management, communication, education, exhibition, management collection, audience engagement)

3. What would **help museum professionals** to better face the challenges when trying to embrace the digital dimension? According to you what are the digital competences that museum professionals need to develop? What are the transferable ones⁵²?

4. To improve a museum digital strategy, in what area do you think **museums** should **invest** in? (Not exhaustive list)

- Up skill in the use of social media
- Digitalisation of the collection
- Managing archives, collection
- Website updating
- Digital exhibition



- App development
- Online shop management
- Other, please specify:

SECTION C:
eCult Skills role profiles

5. Which of the following job role profiles do you think are the most relevant today and what do you think about them? (Please refer to the materials on the eCult Skills profiles send in advance)

- CULTURAL ICT CONSULTANT
- DIGITAL CULTURAL ASSET MANAGER
- INTERACTIVE CULTURAL EXPERIENCE DEVELOPER
- CULTURAL ICT GUIDE
- ONLINE CULTURAL COMMUNITY MANAGER

6. Would you assign any of these roles to an employee or hire a new employee in your museum? Please explain your answer

CULTURAL ICT CONSULTANT	<input type="checkbox"/> Yes	<input type="checkbox"/> NO
DIGITAL CULTURAL ASSET MANAGER	<input type="checkbox"/> Yes	<input type="checkbox"/> NO
INTERACTIVE CULTURAL EXPERIENCE	<input type="checkbox"/> Yes	<input type="checkbox"/> NO



DEVELOPER	
CULTURAL ICT GUIDE	<input type="checkbox"/> Yes <input type="checkbox"/> NO
ONLINE CULTURAL COMMUNITY MANAGER	<input type="checkbox"/> Yes <input type="checkbox"/> NO

7. Please go through the list of digital competences for the profile given to analyse and ask them to rank their importance (1: less important, 5: most important)

8. What transferable competences should be added to these profiles today? (Use the list provided) Are there more that we have not considered?

9. Any additional comments that you are keen to add?

Transferable competences

1. Leadership and change facilitator



Co-funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

<p>Defining and communicating vision and ideas that inspires others to follow with commitment and dedication</p>
<p>2.Sense of initiative and entrepreneurship (The ability to turn ideas into action. It involves creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. The individual is aware of the context of his/her work and is able to seize opportunities that arise. It is the foundation for acquiring more specific skills and knowledge needed by those establishing or contributing to social or commercial activity. This should include awareness of ethical values and promote good governance)</p>
<p>3. Time management Ability to plan time and how to prioritize tasks and responsibilities</p>
<p>4. Creative thinking skills Able to generate new ideas, invent new things, create new images or designs; find new solutions to problems; able to use wit and humour effectively.</p>
<p>5. Negotiation skills Ability to manage to create mutually beneficial professional agreements through a specific strategy, includes (defend, argue, justify)</p>
<p>6. Interpersonal skills Ability to effective at building trust, finding common ground, having emotional empathy, and ultimately building good relationships with people at work and in your network. Also referred as social skills, this skill is closely related to Communication Skills</p>
<p>7.Communication Skills Ability to speak and/or write well and get your ideas across to other easily</p>
<p>8. Active listening skills Ability to listen/pay attention to what others are saying, without forming judgment about them, be careful of verbal and non verbal sign</p>
<p>9. Mediation skills Able to resolve conflicts that stems from different perspectives or interests; able to deal with conflict in an open, honest and positive way</p>
<p>10. Integrity/Ethical Apply ethical principles</p>
<p>11. Fact-driven Being able to use evidence to take decisions</p>
<p>12. Team working Ability to carry out many different responsibilities, sometimes with very little</p>

advanced notice
<p>13. Resilience Ability to bounce back after a disappointment or set back, big or small, and continue to move onward and upward</p>
<p>14. Mentoring / coaching skills Ability to provide constructive wisdom, guidance, and/or feedback that can help others further their career development</p>
<p>15. Management skills Creating and motivating a high performing team with people of varied skills, personalities, motivations, and work styles</p>
<p>16. Influence / persuasion skills (Being able to influence perspectives or decision making but still have the people you influence think they made up their own minds)</p>
<p>17. Networking skills (Being able to be interesting and interested in business conversations that motivates people to want to be in your network. The bigger and stronger the network you have, the more easily you can get things done (e.g., find a job, get advice, find business partners, find customers, etc....))</p>
<p>18. Analyse and synthesize information Ability to knit together information from disparate resources</p>
<p>19. Decision making able to identify all possible options, weigh the pros and cons, assess feasibility and choose the most viable option</p>
<p>20. Storytelling Ability to communicate through stories and to convey a message through stories.</p>
<p>21. Audience Development Understanding what is audience development. Audience development is a term used to describe the way in which relationships between audiences and cultural organisations are managed. It's a planned, organisation-wide approach to extending the range and nature of relationships with the public, it helps a cultural organisation to achieve its mission, balancing social purpose, financial sustainability and creative ambitions.</p>

20.3 Annex 3 Mapping educational and training provisions – Desk research template

SPECIFIC DATA	OFFERED INTERNSHIP OR ANY KIND OF WORKING EXPERIENCE?	
	CERTIFICATE OF ATTENDANCE, DEGREE, OTHER..	
	FINAL ASSESSMENT/VALIDATION (PROJECT WORK, THESIS, FINAL TEST, REPORTS...)	
	ASSESSMENT METHOD OF COURSE	
	PREREQUISITES OF PARTICIPATION (IF ANY)	
	OTHER E-COMPETENCE/DIGITAL SKILLS PROVIDED DIFFERENT FROM THE 5 JOB ROLE PROFILES?	
	WHICH E-COMPETENCE OF THE 5 JOB ROLE PROFILES PROVIDES?	
	WHICH TRANSFERABLE SKILLS DOES IT PROVIDE?	
	LINKED TO A SPECIFIC PROFILE OF THE 5 JOB ROLE PROFILES?	
	N. OF PARTICIPANTS PER COURSE ADMITTED	
	TARGET GROUP OF PARTICIPANTS	
	DURATION OF THE MODULE/ COURSE/ TRAINING	
	SUBJECTS TAUGHT	
	METHODOLOGY (LECTURES, CASE STUDIES, MEETINGS WITH PROFESSIONALS, BLENDED LEARNING, MENTORING/ TUTORING...)	
	WHAT TYPE OF TRAINING? (ONLINE, OFFLINE, MOOC, E-LEARNING, WEBINAR...)	
	WHAT KIND OF TRAINING? (MODULE INSIDE A LONGER COURSE, INDEPENDENT COURSE...)	
	BRIEF DESCRIPTION (AIM, WEBSITE, TEACHING LANGUAGE...)	
	NAME OF THE COURSE	
	LEVEL (ACCORDING TO EQF)	
	FORMAL, INFORMAL TRAINING/ EDUCATION/HIGHER EDUCATION/VET	
COUNTRY CITY		

PROVIDER	NAME

20.4 Annex 5 Online Survey template

Survey – Training needs on digital competences and transferable skills:

- Identify the gap between current and required levels of knowledge, skills and aptitude
- Identify what the general content of training should be
- Identify the foundation of a training plan

1. Have you participated in any museum sector training?

Yes

No

If yes...

2. What Museum sector training have you completed?

Please provide name of the course and Topics

2.a Did it lead to a certification? If yes, please specify which one

3. What training have you found most valuable?

4. Have you ever taken part in a MOOC?

Yes

No

IF yes – which one? What was the most valuable aspect in a MOOC?

5. What areas of training and of skills development would most assist you in your current position?

7. What areas would you be willing to invest in (Please tick all that apply):

Audience development

Storytelling

Creativity

Entrepreneurship

Leadership

Communication (including social media)

Museum Policies and role and purposes of museum today

Visitors' studies

Monitoring and evaluation

Application development

Basic ICT

Advanced ICT

Museum Management, promotion and finance

Seeking grants and sponsorship including crowdfunding

Conservation and restoration of particular materials



- Risk assessment and preventive conservation
- Financial risk management
- Team management
- Time management
- Audience engagement
- Outreach
- Marketing
- Digitalisation of the collection
- Managing digital archives, digital collections
- Website updating
- Customer relationship management
- Digital exhibition
- Manage online shop
- Copyright and the museum sector
- Gaming Museum and tourism
- Other, please specify

8. If you ticked basic ICT, can you specify which ones?

9. If you ticked advanced ICT, can you specify which ones?

10. Please list any other major topics or skill areas that you would regard as important for inclusion in a museum training course about digital competences and transferable competences

11. Please identify 3 priority areas to invest in that would most assist you in your current position.

12. How much time per week would you be able to dedicate to the training?

- 2 hours
- 2-4 hours
- 1 complete day
- 3 days weekends
- Other specify

13. What do you appreciate in a training course?

- Case studies
- Online resources
- Talking with Museum experts
- Sharing expertise with peers
- Study visits
- Online webinars
- Hands-on sessions
- Other, please specify

4. Would you take part in a mentoring programme?

- Yes
- No
- I don't know what it is but I'm interested

15. Would you be interested in becoming a mentor?

- Yes
- No
- I don't know what it is but I'm interested

16. What kind of certification would you need?

- National

Regional

None

* 17. Would you be interested in a training that aims at developing skills in the following roles?

	Yes	No	Maybe
CULTURAL ICT CONSULTANT Identifies the best-suited solutions, according to the museums' and audiences' needs, requirements and financial resources and deliver advice on how new technologies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DIGITAL CULTURAL ASSET MANAGER Deals with the preservation, management and exploitation (incl.monetization) of the born-digital or digitized cultural content in a museum, whether in a physical or virtual space.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INTERACTIVE CULTURAL EXPERIENCE DEVELOPER Designs, develops and implements innovative and interactive experiences involving digital content through physical and virtual interfaces and channels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CULTURAL ICT GUIDE Shows cultural heritage content through ICT tools to improve audience experience and understands interactivity of ICT devices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ONLINE CULTURAL COMMUNITY MANAGER Creates and manages an engaging, attractive, accessible and collaborative online community for all stakeholders online and offline. Designs the online communication strategy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other, please specify _____

Section B

Details about you...

We would like to know a little more about you

You work in the museum..

Full time

Part time

Intern

Volunteer



- External collaborator
- No, I don't work in a Museum
- Other, please specify

19. If you are an external collaborator could you tell us, what services you provide? (Optional)

20. I work in a museum...

- Small (staff 1-20)
- Medium (staff 21-50)
- Big (more than 50 staff)
- Other, please specify

21. I work in the museum...

- less than 2 years
- between 3-5 years
- More than 5 years

22. Your Museum is...

- National
- Regional
- Local Municipality
- Private
- Other

Can you tell us which one? OPTIONAL

Specify the type of museum and collections (tick all that apply)

- Anthropology
- Garden
- Archaeology
- Ethnology



- Aquarium
 - College, University or School
 - Historic Building/Site
 - Natural History/Science Planetarium
 - Archaeology/Ethnology
 - Zoo Arboretum/Botanical
 - Art Children's
 - History
 - Nature
 - Centre Science and Technology Centre
- Please other specify

24. Main Departments of the museum (Please reply if you work in a museum and tick all that apply)

- Marketing
- Comunicazione
- Library
- Reserach
- Costumer service
- ICT
- Cafeteria
- Online Shop
- Shop
- Education
- Conservation

Other, please specify

The museum has... (tick all that apply)

- Website
- Facebook page
- Instagram
- Ipad / Tablets
- immersive experiences
- Augmented Reality

Please, specify

26. I don't work in a museum because

- I've just graduated
- Can't find a job in the museum sector



Other, please specify:

27. I have a

- Diploma
- Certificate
- Nothing
- For Degree, please specify which one:

28. Are you interested in being informed about the training that MU.SA is going to develop?

- Yes
- No





Result Number: 2.1

Result title: Mapping the skills supply and demand of the Museum Sector

Deliverable version:1



Co-funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.