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Patras, 17 May 2019

Ref. No: oik.151730/695

To: Prof. Vagelis G. Papadakis

Dept. of Environmental &

Natural Resources Management

University of Patras,

CD-ETA Regional Project Manager

(by email)

**«Acceptance of the Action Plan regarding the Digitization of Natural and Cultural Heritage,  
project CD-ETA (INTERREG EUROPE)»**

Dear Prof. Vagelis Papadakis,

In response to your letter on 24<sup>th</sup> of April 2019 regarding the Action Plan of Digitization of Natural and Cultural Heritage of the Region of Western Greece you delivered to our organization, I would like to thank you and to inform you about the following:

The work team of the Dept. of Development Planning, Environment & Infrastructure of the Region of Western Greece read carefully the in depth analysis, the good practices you present and the well-structured Actions you recommend regarding the digitization of natural and cultural heritage in the Region of Western Greece. We all unanimously agree that this Action Plan can perform a very useful tool for our organization in order to get valuable ideas regarding initiatives we aim to launch within the frames of the Operational Programme of Region of Western Greece 2014 - 2020 and other regional funding Programmes.

This Action Plan is a tangible outcome of the great collaboration between the Region of Western Greece and University of Patras and promotes our common values for the economic and social growth of our region through innovative and developmental actions.

Sincerely yours,

Konstantinos Karpetas

Deputy Head of Region





UNIVERSITY OF  
**PATRAS**  
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

**Interreg  
Europe**



European Union | European Regional Development Fund



**Collaborative Digitization of Natural and Cultural Heritage**



**Action Plan for the Region of Western Greece on  
*Digitization of Natural and Cultural Heritage***

**Created by: PP3 - University of Patras**

**Patras, Greece, April 2019**

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## Executive summary

Digitization and online accessibility of cultural resources gives Europe's rich cultural heritage a clear profile on the Internet, **promotes regions, protects cultural diversity and contributes to better quality of life.**<sup>1</sup>

The United Nations Educational, Scientific and Cultural Organization (UNESCO) describes digital heritage as *“computer-based materials of enduring value that should be kept for future generations. Digital heritage emanates from different communities, industries, sectors and regions. Not all digital materials are of enduring value, but those that are require active preservation approaches if continuity of digital heritage is to be maintained”* (UNESCO).

Digitization and online accessibility lend the collections of museums, libraries and archives much greater visibility. This does not only attract new visitors, tourists and researchers, but also business to regional economies. Digitization and digital preservation further create employment opportunities in innovative areas such as 3D-capturing, 3D-processing and tools for text digitization or preservation of audio-visual material. It is estimated that **around 20% of Europe's collections have been digitized so far** (though for film heritage the share of digitized collection is only 1.5%). Making use of European Structural and Investment Funds (ESIF) to co-finance digitization activities can help regions play a key role in contributing to EU objectives in promoting cultural diversity as well as creative content for jobs and growth. The Czech Republic, Finland, **Greece**, Latvia, Lithuania, Poland, Slovakia and Sweden **have used the Structural Funds for digitizing cultural heritage resources**. However, it is important that the digitization activities are connected to the regional strategic framework, outlining how this will lead to economic growth and employment opportunities.

Public access to share one's digital heritage should be one of the major goals that a cultural institution might consider for an online presence. Online information offers the public, and other organizations, museums and corporate institutions alike, the ability to view the details of the available collections as well as upcoming events. It can also be a method to potentially attract donations of items and further aid museums and archives in their objectives of collecting and raising funds for preservation, conservation, exhibition and education, which can be costly and if possible, financed by outside sources.

**“Collaborative Digitization of Natural and Cultural Heritage, CD-ETA”** is a project under the European Programme «*INTERREG EUROPE*» (<https://www.interregeurope.eu/cd-eta/>), among eight partners from: Bulgaria, Romania, Greece, Spain (two partners), Italy, Slovenia and Estonia, who through a series of activities aim to improve the adoption of the digitization policy for natural and cultural heritage and to prepare the implementation of best practices into the participating regions, according to their needs.

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<sup>1</sup> <http://s3platform.jrc.ec.europa.eu/digitization-of-cultural-heritage>



The implementation of this common plan for cooperation work on interregional level will contribute to the establishment of common standards in the mass digitization of natural and cultural heritage.

*Project Consortium:*

1. Euroregion PlevenOlt (Bulgaria), [www.cbicenterspks.eu](http://www.cbicenterspks.eu)
2. Harghita County Council (Romania), [www.harghitacounty.ro](http://www.harghitacounty.ro)
3. University of Patras, Dept. Environmental and Natural Resources Management (Greece), [www.upatras.gr](http://www.upatras.gr) , [www.env.upatras.gr](http://www.env.upatras.gr)
4. Association of Municipalities of the Ribera Alta region (Spain), [www.manra.org](http://www.manra.org)
5. Foundation for Research and Innovation (Italy), [www.fondazionericerca.unifi.it](http://www.fondazionericerca.unifi.it)
6. Regional Development Agency of Gorenjska (Slovenia), [www.bsckranj.si](http://www.bsckranj.si)
7. Foundation Saint Mary the Royal of Historic Heritage (Spain), [www.santamarialareal.org](http://www.santamarialareal.org)
8. Estonian War Museum General Laidoner Museum (Estonia), [www.esm.ee](http://www.esm.ee)

**The Project CD-ETA aims mostly to improve the policy instruments related to the digitization of natural and cultural heritage in the regions participating in the project.**

Some of these regions already implementing digitization policies will act as "good practice providers" from which the other regions lagging behind in this issue, will gain new knowledge and ideas. Throughout the project, a series of activities (study visits, workshops, working groups, interregional thematic seminars, etc.) are carried out, with the ultimate objective of acquiring experience, knowledge and new ideas that will be reflected in Action Plans, one for each participating Region. *General Objective:* to accelerate the adoption of digitization policy and support the establishment of uniform standards for the massive digitization of natural and cultural heritage in the participating regions.

Main products of project implementation are ***regional strategies and plans for better organization of the management and exploitation of natural and cultural heritage***. It is expected that inspired by the project results to implement a number of new initiatives in the participating regions that directly improve eight (8) policy instruments – regional operational programmes (ROP), related to Growth & Jobs or European Territorial Cooperation (ETC) programmes. All the stakeholders, participating in the project, will benefit from them.

During **Phase I**, the following activities were organized:

- ✓ eight (8) stakeholder working group meetings in each participating region
- ✓ two interregional training workshops
- ✓ five thematic seminars focusing on *a) digitization on natural heritage b) digitization of museums and galleries, c) digitization of intangible cultural heritage, d) digitization of monuments and archaeological sites and e) digitization of libraries and archives.*

These activities aimed to the exchange of knowledge and experiences between the partners and the corresponding stakeholders in order to gain new knowledge and ideas, learn from the good practices and adopt those which match to the profile of each region or meets existing needs.

This effort would not be implemented without the participation of **key stakeholders from local and regional organizations**, who attended the stakeholders working group meetings and the thematic seminars/ interregional training workshops. These stakeholders not only contributed with their ideas and proposals, but the relevant stakeholders for policy development transferred the conclusions of these activities to their organizations, which are responsible for the regional development, management of policy instruments and the creation of the regional strategies.

The stakeholders of Western Greece, who participated in the aforementioned activities come from the following organizations:

- Region of Western Greece (responsible body for the management of the ROP)
- University of Patras (coordinator)
- Technological Educational Institute of Western Greece
- Computer Technology Institute and Press Diophantus
- Municipality of Patras
- Municipality of Nafpaktos
- Municipality of Ancient Olympia
- Cultural Centre of Messolonghi
- Ephorate of Antiquities of Achaia & Patras Archaeological Museum
- Ephorate of Antiquities of Ileia
- IT companies
- Local N.G.Os

The present **Action Plan (Actions 1-5 see Chapter 5) is the outcome of the common work** of the above group of stakeholders, under the coordination of University of Patras, Dept. of Environmental & Natural Resources Management (*Scientific Responsible Prof. Vagelis G. Papadakis*), having as main objective to deliver to the Region of Western Greece significant Actions for digitization of natural and cultural heritage to include them into the current Regional Operational Programme as well as to the next planning period. During **Phase II** of the project CD-ETA, PP3- University of Patras will monitor the implementation of these Actions presented in Chapter 5 and report accordingly.

*We would like to thank* all the above stakeholders-participants for their valuable contribution and the Region of Western Greece (RWG) for the continuous support to this effort and their willing to adopt the suggested actions. It is an additional strong tool that will drive the RWG to a sustainable growth based on the competitive advantages of the Region connected with the presence of relevant very good Universities, Research Centres, young scientists and active SMEs.

## General Information

**Project:** “Collaborative digitization of natural and cultural heritage”, CD-ETA

**Duration:** Phase I- Action Plan Development: 01/04/2016-31/03/2019

Phase II- Action Plan Monitoring: 01/04/2019 - 31/03/2021

**Total Budget:** 2.071.748,00€

**European Regional Development Fund (ERDF) Contribution:** 85%

**National Contribution:** 15%

**Web page:** <http://www.interregeurope.eu/cd-eta/>

**Partner organization:** PP3- University of Patras

**Country:** Greece

**NUTS2:** Region of Western Greece (Dytiki Ellada)

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## 1. Terminology

### Digitization

Digitization is the process of converting information into a digital (i.e. computer-readable) format, in which the information is organized into bits. The result is the representation of an object, image, sound, document or signal (usually an analogue signal) by generating a series of numbers that describe a discrete set of its points or samples. Digitized information is easier to store, access and transmit, and digitization is used by a number of consumer electronic devices. The result is called digital representation or, more specifically, a *digital image*, for the object, and *digital form*, for the signal. Digitization does not define the quality (capturing photos with your mobile is also digitization) nor requirements for metadata collection.

### Digitalization

Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business. (Gartner glossary). Digitalisation process provides the workflow how digitized material can be enriched (with metadata for example) to provide and generate new (re)uses of digitized material.

### Metadata

Metadata is "data [information] that provides information about other data". Three distinct types of metadata exist: *descriptive metadata*, *structural metadata*, and *administrative metadata*. The concept metadata, includes the information about data that is utilized to "organize, locate, manipulate and otherwise work with data when it is not necessary or desired to actually deal with the data itself," such as the content, origin and quality of the data. In cultural heritage sector we mainly talk about the descriptive metadata, when describing the content of the scanned document or the photograph about the object. Structural metadata is used mainly for describing contexts.

### Cultural heritage

UNESCO defines Cultural heritage in "Convention concerning the protection of the world cultural and natural heritage" Article 1 as follows: For the purposes of this Convention, the following shall be considered as "cultural heritage":

- **monuments:** architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;
- **groups of buildings:** groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science;
- **sites:** works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view.



## Europeana

[Europeana.eu](http://Europeana.eu) is the EU digital platform for cultural heritage, collecting and providing online access to tens of millions of digitized items from libraries, archives, audiovisual collections and museums across Europe.

More than 3.000 institutions across Europe have contributed to Europeana. These range from major international names like the Rijksmuseum in Amsterdam, the British Library and the Louvre to regional archives and local museums from every member of the European Union. Together, their assembled collections let users explore Europe's cultural and scientific heritage from prehistory to the modern day.

Since 2008, Greece has contributed €25.000 to the funding of Europeana. To date, Europeana has enabled contribution of €1.961.515 from the budget of the EU to fund Europeana projects in Greece.<sup>2</sup>

## Abbreviations

|        |  |
|--------|--|
| AR     | Augmented Reality  |
| EDEN   | European Destinations of Excellence                              |
| EIA    | Environmental Impact Assessment                                  |
| ESIF   | European Structural and Investment Funds                         |
| ETC    | European Territorial Cooperation                                 |
| ICH    | Intangible Cultural Heritage                                     |
| ICT    | Information & Communication Technologies                         |
| IoT    | Internet of Things   |
| IT     | Information & Technology   |
| LIC    | Library & Information Centre                                     |
| RIS3   | Regional Innovation Strategy for Smart Specialisation            |
| ROP    | Regional Operational Programme                                   |
| RWG    | Region of Western Greece   |
| SME    | Small and Medium size Enterprise                                 |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| VR     | Virtual Reality  |

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<sup>2</sup> Europeana, Country Reports, Greece Jan.2018.

## 2. Natural and Cultural Heritage of the Region of Western Greece in a nutshell

According to the Greek Tourism Ministry, the Region of Western Greece was selected by EDEN - European Destinations of Excellence<sup>3</sup> as **the winner for 2016/2017 due to the cultural value of its proposed resources and the exceptional presentation of its nomination**. As a whole, the region of Western Greece covers a rich, diverse part of the land with 700.000 inhabitants comprising three historical and naturally endowed provinces: Achaia, Ileia and Aitolioakarnania. It is those three that have their own distinct territories, landscapes, local cultures and histories.

As the region's motto suggests Western Greece is *"full of contrasts"*. It's a region of small local places. It contains some of the most diverse and fragile Mediterranean ecosystems. Here contrasts the small with the big, the highland with the lowland, the arable riverside land in Alpheios, with the mountain pasturelands, the deep sea in the Corinth gulf and the Ionian with the alpine summits in Achaia and Aitolioakarnania, wetlands and estuaries, the country's biggest internal river Acheloos and lakes like Trichonida, islands and coasts, dense forests of pines, oaks, firs and Mediterranean shrubs and the most productive plain in the Peloponnese, together with the longest stretch of sandy coastline, which is found in the Ionian coast of Ileia.

Bringing the agenda of cultural experience forward—digital or otherwise—can be founded on the region's strong identities and cultural capital. Historically the region has played its part in the formation of the Greek ethnic culture from its origins in pre-history to the present day. All major historical periods have left their traces here. This is a powerful heritage that is worth of rethinking and reinventing.

Strong also is the link with legend. The region is shrouded in myth. Styx, the mythical river and passage to the Underworld, still flows from Mount Aroania. Hercules accomplished three of his labours in this land. He captured the Erymanthian boar, the Cerynean hind, and cleaned Augea's stables in a single day. The creative reconstruction of ancient myths-part of universal heritage with worldwide appeal—can find here novel applications that are linked to the landscape and its physical, social and environmental elements that gave rise to the myth in the first place.

Two of the world's greatest naval battles were fought here: the battle of Actium in 31 BC, between Octavian August and the combined forces of Mark Antony and Cleopatra; the **Battle of Lepanto** in the Gulf of Patras in 1571, between the forces of the Holy League and the Ottoman fleet (*see Fig. 1*). The nearby city of Nafpaktos known as Lepanto in Venetian times, is hosting a successful festival and re-enactment of the historical naval battle which draws outside visitors.

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<sup>3</sup> [https://ec.europa.eu/growth/tools-databases/eden/destinations/greece\\_el](https://ec.europa.eu/growth/tools-databases/eden/destinations/greece_el)



**Figure 1:** Battle of Lepanto 1571.

*Source: 1603, Oil on canvas, Palazzo Ducale, Venice, Photo CC License*

But, there were also tragic moments in history, whose memory is still preserved. The lagoon town of **Messolonghi**, some 35 km across the Gulf, was the battle ground of the long **Siege and Sortie** of 22 April 1826. It was this struggle that drew Lord Byron to Greece, where he gave his life. The events of the Sortie prompted Romantic Europe to support Greece's cause for independence and inspired Eugene Delacroix to paint in 1827 "Greece Expiring on the Ruins of Messolonghi". The anniversary event of the Sortie is an important event in the calendar of Messolonghi.

More than a century later, during the Second World War the region and country suffered under Axis occupation. Hideous war crimes were committed by the Nazi German armed forces in 1943, with the **Massacre of Kalavryta**. The martyr heritage of the town is today commemorated in the Hill of Remembrance and the municipal Museum of Kalavryta holocaust. It was thanks to its resourceful people and a charismatic mayor that the town of Kalavryta managed to change its fate from the devastation of war, to become a successful centre for winter tourism based on the Ski resort, the heritage railway and a strong brand name in dairy production with the PDO Kalavryta feta cheese.

But Western Greece and Ileia is also the land of Peace. The **Olympic Games** were held in the sacred town of Olympia between 776 BC and 393 AD. Today's Olympic torch relay and Olympic Truce continue to act as a living global symbol of reconciliation between people (see Fig. 2). However, a question that remains is how to animate this important heritage in today's world that is led by globalisation and flexible consumption, and with the increasingly corporate and technological character of sport in the modern Games. This is a hard question, with which the Greek state is struggling following the successful hosting of the 2004 Athens Olympics. There is demand among the public in Ileia for a bigger role for Olympia in the Olympic movement and patrimony.



**Figure 2:** During the ceremony of lighting the Olympic Flame at Anc. Olympia.  
*Source: Reuters/Behrakis*

Back to Achaia, the region's capital, Patras with 220.000 people, is the third city in Greece and a centre for science, technology, education, commerce and industry, with a long heritage in the wine and spirits sector, and in textiles. It's the country's Western seaport—historic port of migration and of raisin export and host of cultural festivities, such as the famous Carnival and the International festival. The city is linked to the formation of Modern Greece since the 1820s, which is evidenced in its urban plan, in the many monuments and buildings. Patras was Europe's cultural capital in 2006. The city is still looking for a successful approach to cultural regeneration. There is a vibrant theatre and music scene, arts workshops and local eateries. But urban policy remains unstructured, fragmented and underfunded. There are obvious examples where former industrial buildings, elements of the city's identity are left unexploited due to rigid ownership structures and lack of vigour in the local economy. But there is also optimism that the high-speed train connection, the ongoing unification of antique monuments, and the opening up of the car-dominated city centre through sustainable mobility plans, will make Patras a desirable place to live and visit (*see Fig. 3*).



**Figure 3:** Famous landmarks of Patras: Apollon Treatre and Roman Odium.  
*Source: Wikimedia Commons*



### 3. Digitization of Natural and Cultural Heritage. State of the Art & Recommendations for the Region of Western Greece

In the following chapters we will focus on the lessons learned from the five (5) Thematic Seminars organized in CD-ETA partner regions, we will briefly present the best practices already implemented in the corresponding areas and match more with the characteristics, needs and potential of our region. Then, we will present the regional state of the art on the specific thematic, present already implemented good practices in national or regional level (if exist) and finally, we will present recommendation, as they derived from the regional stakeholder working group meetings.

#### 3.1 Natural Heritage

*“Natural features consist of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view, geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation, natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty”.<sup>4</sup>*

The most important reasons in order to digitize the Natural Heritage are to monitor, protect and valorise elements of high natural importance. More specifically, though the digitization of natural heritage can be accomplished the following:

- Extension of accessibility 24/7/365
- Provision of accessibility of all citizens to unique primary heritage sources
- Expansion of the search and discovery capabilities
- Access to very high resolution (even 10mm)
- Unification of scattered - remote collections
- Protection and preservation of the natural heritage
- Promotion of sites and areas of natural aesthetic
- Creation of educational opportunities

##### 3.1.1 Digitization of pathways

It has been launched the ministerial decision in accordance with Article 42 par. 9 Law 4280/2014 on "Defining technical requirements, for marking, opening and maintenance of mountaineering - hiking trails". For the recording of pathways/trails for each Decentralized Administration, responsible authority is the respective **Directorate of Forest of the Region**. The records are digitally registered at maps with suitable digital layers.

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<sup>4</sup> World Heritage Convention 1972



Directorates are also responsible for consolidating pathways/trails within their area and for registering their special characteristics in a list. The recorded data is sent to the General Directorate of Forests Development and Protection of Ministry of Environment and Energy, in printed and electronic form, to be registered in an **electronic database - geographic information system (Registry Paths)**.

Very interesting is the good practice (see Fig.4) implemented in Romania (Harghita County area), where they have proceeded to the digitalization of rock climbing trails in Harghita County. In the Region of Western Greece there are several walking and climbing pathways/routes of great natural beauty, such as the **National Independence Forest of Kalavryta** in Achaia or **Pan-Hellenic crossing of Vouraikos gorge** and their digitization can potentially contribute in the promotion of thematic tourism, preservation of the climbing/walking routes and easier access and monitoring in case of accidents etc.



**Figure 4:** Digitalization of rock climbing trails in Harghita County (Romania).

*Source: Regional Council of Harghita County*

Therefore, it is crucial to assess and to measure with GPS the rock climbing trails, so as to:

- clean and to mark the trails
- create topological maps of the trails
- digitalize the data gathered and to make these data available to the visiting tourists

### 3.1.2 Digitization of underwater natural heritage, Patras Gulf

UNESCO defines Cultural heritage in “Underwater Cultural Heritage 2001 Convention” Article 2 as follows:

A) Underwater cultural heritage” means all traces of human existence having a cultural, historical or archaeological character which have been partially or totally under water, periodically or continuously, for at least 100 years such as:

- sites, structures, buildings, artefacts and human remains, together with their archaeological and natural context
- vessels, aircraft, other vehicles or any part thereof, their cargo or other contents, together with their archaeological and natural
- context; and
- objects of prehistoric character

B) Pipelines and cables placed on the seabed shall not be considered as underwater cultural heritage.

C) Installations other than pipelines and cables, placed on the seabed and still in use, shall not be considered as underwater cultural heritage.

### 3.1.3 Recommendations for the Region of Western Greece

- **Recording and Displaying systems biodiversity action on wetlands / forests / parks**
  - National Lagoon Parks Messolonghi - Aitolikou
  - National Wetland Park Kotychi -Strofilias
  - National Park Helmos – Vouraikos
- **3D Digitization and documentation of Fixed Natural Monuments**
  - The plane tree of Pausanias in Aegio
  - The Twelve Fountains in Aegio
  - The Oaks in Kalamia village in Aegio
  - The plane tree of Plataniotissa village in Kalavryta
  - The Lesini forest of Aitolioakarnania
  - The plane tree of Ag. Lavra Kalavryta
- **Environmental Impact Assessment report**

The digitization of natural environment, apart from the cultural dimension, can perform a useful tool for the Environmental Impact Assessment report, which is necessary for the creation of infrastructures, interventions etc. The Environmental Impact Assessment (EIA) is a tool **enabling the preservation of natural resources** and the defence of the environment by introducing the environmental variable into decision-making on projects, which are predicted to have a significant impact on the environment. This instrument takes into account any change of environmental quality, due to emissions resulted from industrial activities, and not only. Through the digitization, any change in the natural environment due to the intervention can be monitored with the more accessible and easier quantitative assessment. By this way the environmental impact assessment becomes more objective, facile and it is not anymore influenced by the experience of evaluators, improving the decision making process.

### 3.2 Cultural Heritage: Museums and Galleries

Traditionally, museums and archival institutions have existed to procure, interpret and conserve cultural heritage. According to the International Council of Museums, a museum is, *“non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment”* (ICOM, 2012).

According to recent researches, museums are focusing audience engagement strategies on **digitization of the collection, social media and informative websites** to deliver public value and educational opportunities. Museums today need to fulfil their mission and create a sustainable future, which means that they must take care of their core assets, the collection, and also invest in strategy and leveraging technology to reach the connected consumer.

The lessons learned from the Thematic Seminar: *Digitization of Museums and Galleries*, organized in Florence- a city where museums and art are dominant- focus on the fact that digitization has been conceived for the development and dissemination of digital collections, in a long-term partnership between the local University, a creative ICT enterprise and other technical partners, originating not only new digital cultural products, but also some cross-fertilization evidences. A very representative example, where digitization plays important role is the **Uffizi Gallery in Florence**, one of the oldest and most important museums in Europe, where digitization strategies mostly concern the implementation of **digital collections and mobile applications** such as:

- Uffizi Touch® Cloud<sup>5</sup>, a new cloud application, allowing virtual tour to the entire Uffizi gallery with over 1150 exhibits<sup>6</sup>
- Due to the Cloud platform, all digital images are in extremely high resolution
- It's also available in App (not free) for tablets & smart phones

Another very interesting example of digitization of museums is the **Museo Galileo application**, which is a **Free guide** to Museo Galileo for smart phones and tablets (see Fig. 5). With this application the visitors can explore the entire Museo Galileo collection in their own mobile devices. Descriptions of all objects on display:

- Over 4 hours of videos showing how scientific instruments work and explaining the historical context in which they were designed and used.
- 1.5 hours of audio commentaries.
- 700 “in depth” pages of biographies and definitions of technical terms.
- The app highlights a selection of about 80 instruments of special interest, but the people can view the complete collection at any time.

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<sup>5</sup> [www.uffizitouch.it/en](http://www.uffizitouch.it/en)

<sup>6</sup> <https://vimeo.com/188054233>

The app requires an Internet connection. Free WiFi is available in the Museum.



Figure 5: Museo Galileo application.

Additional initiatives, met in other partner regions, such as the web platform “Domus”, operating under the supervision of Spanish Ministry of Culture, where more than 150 national Museums use this platform to document and promote their collections. Similar platforms operating mostly under public funding or under Museum’s funds or donors, met also in the majority of the partner regions.

### 3.2.1 Greek good practices

- **Digitization in War Museum**

In the context of improving the **War Museum** services, from June 2014 until October 2015, within the frames of the Project "Presentation of the Museum's Collections and Exhibitions through interactive electronic applications and services of the Hellenic War Museum", which was co-funded by Greece and the European Union, were created online digital services aiming to attract people and particularly younger ones to Greek war history, through combined interventions between education and culture. Of particular importance are artifacts 3D models, which were in fact the innovation of this initiative. The major problems that were addressed were the vast amount of items, the great size variations that demanded the usage of a series of parallel workflows, each of them using specialized equipment and most serious, time constraints that urged procedures to be carried on keeping museum’s halls out of order as less as possible. The implemented activities were the following:

- Digitalization and documentation of the cultural material collected by the War Museum.
- Implementation of a new internet portal

- Implementation of online educational games
- Implementation of three-dimensional virtual tours to explore the museum and its exhibits through internet
- Implementation of a multimedia exposition.
- Implementation of a virtual host application with the use of portable devices.
- Implementation of collections management applications and digital services (e-shop, online tickets)

### 3.2.2 Recommendations for the Region of Western Greece

Important steps have been implemented in national level, in term of digitization of museums and their collections, using innovative web applications, smart phones etc. In the Region of Western Greece, where very important and famous museums are located, less similar application met.

Based on the experience gained through this thematic seminar, the following recommendations focusing on the digitization of museums in Western Greece can perform a starting point for further promotion of our regional museums:

- Creation of a portable **digital museum using Virtual Reality and / or Augmented Reality technologies**. Using innovative Immersion technologies so that the visitor will really feel that he/she is inside the museum. Some case studies could be Patras Archaeological Museum, Archaeological Museum of Olympia, etc.
- Digitization and promotion of special cultural evidence in museums or business premises (with cultural value) in our Region, such as Olympic Torches (Museum of Contemporary Olympic Games), Machines from Achaean Industry – Industrial Heritage, Augmented Reality Book for the Archaeological Museums of Patras, Agrinion and Pyrgos (the main cities of RWG).

### 3.3 Intangible Cultural heritage (ICH)

UNESCO defines Cultural heritage in “Convention for the Safeguarding of the Intangible Cultural Heritage” Article 2 as follows:

1. The “intangible cultural heritage” means the ***practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage***. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. For the purposes of this Convention, consideration will be given solely to such intangible cultural heritage as is compatible with existing international human rights instruments, as well as with the requirements of



mutual respect among communities, groups and individuals, and of sustainable development.

2. The “intangible cultural heritage”, is manifested in the following domains:

- oral traditions and expressions, including language as a vehicle of the intangible
- cultural heritage
- performing arts
- social practices, rituals and festive events
- knowledge and practices concerning nature and the universe
- traditional craftsmanship.

3. “Safeguarding” means measures aimed at ensuring the viability of the intangible cultural heritage, including the identification, documentation, research, preservation, protection, promotion, enhancement, transmission, particularly through formal and non-formal education, as well as the revitalization of the various aspects of such heritage.

Even though intangible cultural heritage is not as “popular” as the other kinds of heritage, CD-ETA partner regions have implemented initiatives in order to preserve oral traditions and ICH. For instance, in the region of **Castilla y León**, have created the **Geoportal**: which is a mobile App (see Fig. 6) that shows alerts related to the Intangible Cultural Heritage according to the user’s position.



**Figure 6:** Geoportal Platform.

Accordingly, in other partner regions, such as in Toscana, there are structures, which through specific activities, promote the local intangible cultural heritage. A representative example is **ARTOUR Toscana-The Craft Itineraries** ([www.artour.toscana.it](http://www.artour.toscana.it)). ARTour is a chance to travel through Tuscany on the trail of traditional crafts, stories and characters from the region's historic craftsmanship. Specifically:

- Itineraries can be visualized using Google maps

- Each itinerary is introduced by a short description
- Each craftsman included in the itineraries has his own information sheet with the history of his/her company, details and contacts and photos of products
- Related routes
- Social Network “facebook” and “twitter”

### 3.3.1 Greek Intangible Cultural Heritage (inscription in UNESCO ICH)

1. **The Mediterranean Diet** is a multinational one (inscribed in 2013 with Cyprus, Croatia, Spain, Italy, Morocco and Portugal), which is multidimensional, encompassing not only traditional cultivation and nutrition, but also philosophy, symbolism, social institutions, local customs and other cultural aspects.
2. The Know-how of **cultivating mastic on the island of Chios** (inscribed in 2014) is an element that involves both sexes and all age groups either as family groups or as co-workers, although this traditional form of agricultural production is now often carried out by immigrants to Chios who are trained in it by elderly bearers.
3. **Tinian marble craftsmanship** (inscribed in 2015). The art of marble-carving is an expression of the cultural identity of Tinos. Marble craftspeople possess empirical knowledge of the composition and structure of marble-bearing rock, the properties of each kind of marble, and the manipulation of its veins.
4. **Momoeria, New Year's celebration in eight villages of Kozani area, West Macedonia, Greece** (Inscribed in 2016). From December 25 to January 5 in Kozani (north-western Greece), dancers, actors and musicians can be seen performing in village streets and visiting people's homes to celebrate the coming of the new-year. The Momoeria dancers, a group made up of 30 male performers, are a special focus. They represent the priests of Momos (god of laughter and satire) or commanders of Alexander the Great wearing helmets, pleated skirts, traditional shoes and brandishing sticks dancing under their leader's command to convince the powers of nature not to endanger the livelihood of villagers.
5. **Rebetiko** (Inscribed in 2017). Rebetiko is a musical and cultural expression directly linked to song and dance that initially spread among the urban lower and working-class populations in the early twentieth century. Rebetiko songs are now a standardized repertoire in almost every social occasion involving music and dance. The element is performed in public and performers encourage audience participation. The practice is open to all and bearers could include any Greek or Greek-speaking person who enjoys this form of music and dance.

The digitization of ICH material is increasingly essential in the modern-day management of collections. There are several notable reasons for this. First and foremost, digitization can help museums prepare for up and coming electronic advances in collection storage and exhibition. Another reason, one that has already been mentioned, has to do with making cultural material accessible to the public. Accessibility of a digital collection is an important goal because it can help to raise awareness about forms of ICH at local, national and international levels. At a local level, making a collection accessible may help

to ensure the longevity of certain traditions, validate the custom or tradition for the community, or even revitalize a practice that has gone out of use. This is especially true if digitized collections become accessible on the Internet, where a group or community can view ICH collections from their own region, encouraging the group to maintain an appreciation for their unique customs and traditions. It also gives outsiders a chance to see what kinds of ICH are present in other places—helpful in terms of promotion, which is linked to goals of safeguarding.

Once digitized, a next step in collection management may involve the exhibition of a collection. Having a collection available for on-line viewing is beneficial because this virtual space can become an arena wherein community members can engage with local material, even when they have **limited mobility or are living away from the cultural group**. In some cases, it may also become possible for community members to contribute material to such collections from a distance, by uploading scanned images/documents or personal recordings, adding this to a growing pool of heritage material. In these cases, members of a cultural group are offered the opportunity to continue a relationship with specific customs and traditions, even ones that are no longer being practiced, which may provide them a sense of **continuity and connectivity**. In addition, on-line databases allow individuals, researchers and community members alike, quick and easy access to a collection, as well as heightened sharing capabilities.

### 3.3.2 Recommendations for the Region of Western Greece

- **Patras Carnival**

The culmination of all the cultural events of the city, as well as the major winter show of the country is the **Carnival of Patras**. It is an endless feast lasting two months during which time the colours, gaiety, imagination, and high-spiritedness carry away every single inhabitant of the city as they all join in happiness and sorrow. While the modern, cosmopolitan character of the Patras Carnival might not give it away, the Greek carnival actually has its roots in ancient Greece and in the worship of the god Dionysus. For ancient Greeks, Dionysus was the god of the grape harvest, winemaking and wine, ritual madness, fertility, theatre and religious ecstasy—a hefty title and they made sure to celebrate him accordingly. Epic feasts, processions, singing, plays, masked dancing, and lots and lots and lots of wine.

Due to the fact that Patras Carnival is the bigger in Greece and one of the biggest in Europe, and given that there is rich material available, the digitization of Patras Carnival can perform an additional tool to promote it in European and international level and inform the younger generations about old traditions related to Patras Carnival.

This can be achieved by:

- Creation of a digital museum with the use of Augmented Reality technologies
- Digitization of approximately 3,500 items and creation of a promotion portal (Posters, Photographic material (from Parades, Carnival floats, Opening & Closing Ceremonies, Bourboulia, Video of events, Radio Broadcasts, Other -Invitations, Event Tickets, etc.)

- **Digitization of the Ceremony for the lighting of the Olympic flame**

The Lighting of the Olympic Flame is held in Ancient Olympia. The first Lighting took place in 1936 for the Berlin Olympic Games by the means of a concave mirror. According to the ritual, the High Priestess proceeds to the lighting at the Temple of Hera (Heraion) which is opposite to the Temple of Zeus, at the archaeological site of Olympia. There, the High Priestess, calls the God of Sun Apollo to light the torch, making a prayer. The Olympic flame is a symbol used in the Olympic movement. Several months before the Olympic Games, the Olympic flame is lit at Olympia, Greece. This ceremony starts the Olympic torch relay, which formally ends with the lighting of the Olympic cauldron during the opening ceremony of the Olympic Games. The flame then continues to burn in the cauldron for the duration of the Games, until it is extinguished during the Olympic closing ceremony. This ceremony is worldwide famous, attracts the interest of millions of people and is recognizable from all the nations.

- **Olympic Truce or ekecheria**

The Olympic Truce or ekecheria is based on an ancient Greek tradition, dating back to the ninth century B.C. All conflicts ceased during the period of the Truce, which began **seven days prior to the opening of the Olympic Games** and ended on the seventh day following the closing of the Games, so that athletes, artists, their relatives and pilgrims could travel safely to the Olympic Games and afterwards return to their countries. The sacred Greek tradition of ekecheiria (truce) constituted **the cornerstone of the Olympic Games in ancient times**, providing safety and a peaceful environment for both the athletes competing in the Games and for the spectators in attendance. Its adoption was dictated by the oracle of Delphi as a way to put an end to the wars that at the time devastated the Peloponnese.

- **Digitization of traditional event of Agios (Saint) Symios at Mesolongi city**

One of the most beautiful traditional festivals of Greece is the unique celebration of Agios Simios (*Ai Simios*, see Fig. 7). The Monastery of Agios Simios celebrates twice a year, on February 2nd and on the weekend of the Holy Spirit (movable festival, usually in June). The feast of Saint-Symios, with great historical and religious character, is the only urban festival in the country and is connected with the events of the Exodus<sup>7</sup>. The groups of rigged, protagonists of this traditional custom, guided horseback or on foot to the monastery of Saint-Symios, wearing local dress and have fun with the accompaniment of traditional instruments, the tabor and zurna.

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<sup>7</sup> The Exodus of Mesolongi is one of the most important historical events of the Greek War of Independence. It took place in April 1826. The residents of Mesolongi, along with other Greek cities, had also rebelled, killed their Turkish governors and set their city free.



**Figure 7:** During the celebration of Agios Simios (Ai Simios).  
Source: Greek intangible cultural heritage <http://ayla.culture.gr>

### 3.4 Monuments and Archaeological Sites

A "**Historical Monument - Location - Space**" may be any building, landscape, region or structure that is local, regional, or nationally significant. A "Historical Monument - Location - Space" or "Cultural Heritage Monument" is an official geographical location, where pieces of political, military, cultural, or social history are preserved and which have been preserved due to the value of their cultural heritage.

Digitization of Monuments/Archaeological Sites is the exact recording and documenting its geometrical characteristics in a way that reliably represents its geometric form and location in space/area using diagrams, two dimensional (2D) or three dimensional (3D) models with the use of personal computers.

Greece is world known about archaeological monuments and sites. Indeed, according to the "List of the declared archaeological sites and monument of Greece" ([www.listedmonuments.culture.gr](http://www.listedmonuments.culture.gr)) there are approximately **138 archaeological sites, 20178 ancient monuments, 29 historical places and 712 monuments of modern cultural heritage.**

#### 3.4.1 Greek good practices

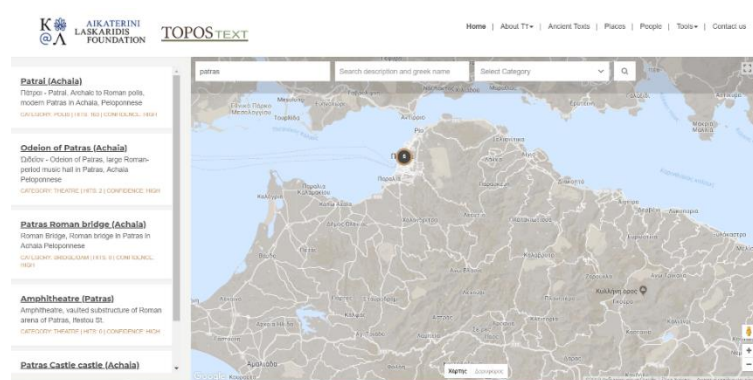
##### **ToposText TOPOSTEXT: Primary historical sources in geographic context**

ToposText is a mobile app and website designed to reduce the user disconnect between Greek (and broader Mediterranean) ancient cultural heritage monuments and the ancient written sources that gives those monuments relevance (*see Fig. 8*). Few modern travelers have extensive knowledge of ancient authors. Even experts cannot summon up the precise passages on the spot to elucidate the historical or mythological associations of the place they are standing. The ToposText concept - assembling in a mobile app a critical mass of source **text indexed by place names and presented via a map interface**



**and keyword-in-context indexes** - can be applied to any historical area/period at any scale - but local, cult, and military history seem to attract the most devoted followers. A local historian has already gathered most of the information required - the job of the developer is to provide the tools and platform for organizing and sharing a pet obsession.

**Digital mapping** has advanced rapidly since 2013. Assembling geographic coordinates to link to place names - hundreds of hours of labor using Google Earth for ToposText - is now unnecessary. Gazetteers can be borrowed or generated almost effortlessly. The tagging of texts requires relatively simple computer scripting, with modest human care.



**Figure 8:** Topostext web platform ([www.topostext.org](http://www.topostext.org))

In the Region of Western Greece there are also plenty of monuments and sites of high archaeological and historical importance. Specifically,

- **Archaeological areas** of Olympia, Therma, Kalydon, Aipidos, Alifeira, Epitalia, Ilida
- **Ancient Theatre** of Makinea, Oiniades, Pleuron, Stratos
- **Ancient Acropolis** of Samia
- **Ancient cities** of Paleros, Oiniades, Skala, Psofida, Eliki, Kyrenia, Dymi, Egira, Lepreos, Alikirna
- **Ancient Graves** of Agia Triada, Dafni, Kakovatos, Lefkos, Vounteni, Skillountia
- **Aqueducts** of Roman Aqueduct of Patras
- **Ancient Temples** of Epicurius Apollo

### 3.4.2 Recommendations for the Region of Western Greece

- ✓ **3D Representation of recently renovated, difficult to reach, Byzantine churches**
  - Palaio Monastira of Agia Lavra
  - Agios Nikolaos Agridiou
  - Agios Dimitrios Bada
- ✓ **Digital Integration and Promotion of the Ancient Fortification Developments of the Region**, includes
  - Patras Castle,

- Dymes' Fortification Walls
- Rion & Antirion Castles

### 3.5 Libraries and Archival Collection

The word “**library**” traditionally refers to a collection of books used for reading or studying, or the building or room in which such a collection is kept. The word derives from the **Latin word *liber***, meaning “**book**.”

Archival collections are viewed as the, “records, personal papers, and artifacts in any form or media, accumulated by a person or organization and preserved because of their continuing value” (U.S. National Archives, 2008).<sup>8</sup> The objects chosen by institutions to be catalogued into their collections are selected because they aid in the understanding of cultures, both past and present, and support their institutional mission. These collections represent a wide breadth of beauty and cultural value, but most often they are chosen for what they represent and stand to teach (Keene, 1998)<sup>9</sup>. Archival collections are imperative to these institutions, because without them, they would be unable to perform the basic functions found in most of these institutions’ mission statements or statement of purposes that focus on exhibition, preservation and conservation, and research and interpretation.

Within the frames of the corresponding thematic seminar, were presented by the partners’ initiatives and good practices of digitization of libraries and archives. In the majority of the partner regions exist National Digital Libraries, which in compliance with the recommendations of the European Commission, have digitized and documented important archives. Indeed, in Spain, through the collaboration with research institutes the, have already implemented 3D digitization of important books.

In Greece there are several Archival organizations, public or private, which keep collections and archives of high historical value. For instance:

- Archives from the Greek communities of Alexandria and Cairo <http://ekalexandria.org>
- Archives / Institutions of Political Personalities
- Contemporary Social History Archives [www.askiweb.eu/index.php/el/](http://www.askiweb.eu/index.php/el/)
- Benaki Museum’s Historical Archives [www.benaki.gr](http://www.benaki.gr)
- Greek Historical & Literary Archives [www.elia.org.gr](http://www.elia.org.gr)
- Monastic Archives: Manuscripts from Mount Athos
- Archives of Metropolises

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<sup>8</sup> U.S. National Archives and Records Administration. (2008). Strategy for Digitizing Archival Materials for Public Access, 2007-2016. Digitization at the National Archives. Retrieved April 5, 2013 from <http://www.archives.gov/digitization/strategy.html>

<sup>9</sup> Keene, Suzanne. (1998). Digital Collections: Museums and the Information Age. Boston: Butterworth-Heinemann

### 3.5.1 Greek good practices

#### Digitization of Greek Film Archive Foundation

Exceptional digitization work has been done by the Greek Film Archive Foundation ([www.tainiothiki.gr/v2/en/](http://www.tainiothiki.gr/v2/en/)). The Greek Film Archive Foundation is a non-profit cultural organization whose purpose is the research, collection, conservation and promotion of the Greek and international film heritage. The web platform is the result of Sub-project 6: “Inter-thematic Cultural Site of the Greek Film Archive” of the Project: “Digital Repository of the Greek Film Archive and the Museum of Cinematography” under the 3rd Community Support Framework, 25% of which is funded by National and 75% by Community Funds. Through the unit “Museum of Cinematography”, the user can navigate the museum exhibits, obtaining information and viewing special photographic material. Furthermore, access is provided to 10 three-dimensional objects as well as information on the multi-media edition that was produced for the Museum of Cinematography.

#### Library and Information Centre (LIC) of University of Patras

LIC ([www.library.upatras.gr/digital](http://www.library.upatras.gr/digital)) has developed during the past five digital collections, which are freely available to the public. Most of these collections are provided - through appropriate protocols - in the Europeana digital library, making LIC one of the biggest Greek providers. Details of each collection (size and usage statistics) are provided. It includes:

1. **Kosmopolis**- Digital collection Kosmopolis includes the full text of 14 philological and literary journals that were published in Greece and in other areas with Greek population, from 1834 until 1930.
2. **Pleias** his collection includes the context of 26 Greek periodicals of 19th and early 20th century belonging to the collections of Hellenic Literary and Historical Archive (ELIA).
3. **Daniilis** - Daniilis is a digital collection that indexes and provides open access to the content of important Greek periodical that belong to the collection of Municipal Library of Patras.
4. **Diogeneia**- Diogeneia is the newest digital collection of the Library and Information Centre, which collects memory documents of historical importance for the University of Patras, the city of Patras, Achaia and Greece.
5. **Greek Social and Economic Journals**- The collection constitutes an electronic index that consists of bibliographic data of some of the most important 20th century Greek periodical publications in the area of social, economic and political science.

### 3.5.2 Recommendations for the Region of Western Greece

- **Patras Municipal Library**

Patras Municipal Library has a vast amount of archives of high historical and cultural value. Additionally, there are also photos from important personalities and events, collections, books etc.

The material to be digitized includes:

- 59 handwritten volumes with proceedings from the municipal councils
  - At least 400 paintings
  - More than 1,500 photos of (Doris Collection)
  - Historical archive of 25.000 pages.
  - 50,000 pages from book collections etc.
- 
- **Digitization of the very rich Municipal Library of Andritsaina**  
[www.andritsainalibrary.gr](http://www.andritsainalibrary.gr)
  - **Collection, Recording & Digitization of the Tobacco Industries of Agrinio**
  - **Digitization of the historical archive of the Winery Achaia Clauss**  
[www.achaiaclauss.gr](http://www.achaiaclauss.gr)
  - **Valveios Library of Messolonghi city**
  - **Historical archive of the Philharmonic Society - Odeon of Patras** [www.fe-odeiopatron.gr](http://www.fe-odeiopatron.gr)

## 4. The Policy Context

The sharing economy, the Internet of Things (IoT) and the factory of the future, are led by widespread adoption of automation, and cause a redefinition of spatial relationships through the digital media, and digitized social relations. This is an opportunity for growth and local upgrading as much as a threat for local jobs, identities and sense of place. All this showcases the need for prudent cultural and natural heritage preservation policies, of which digitization can be an important part. One such effort is underway within the frame of the **Regional Innovation Strategy for Smart Specialisation**. Thanks to the Universities, the region has a strong community and talent pool of software engineers, programmers, experts in electronics and communication technologies that are essential to collaborative digitization efforts. For the first time these important groups are included in the frame of RIS3 strategies, where of course innovative collaborations can be developed.

It has to be stressed that digitization must be accompanied by enlightened cultural policies, if opportunities for access and participation, individual and collective creativity are to be fully used. Digitization is profoundly changing our cultural experience, not only in terms of new technology-based access, production and dissemination, but also in terms of participation and creation, and learning and partaking in a knowledge society.

The **“Regional Operational Programme (ROP) 2014-2020: Investments in Growth and Jobs, Western Greece”** has included ambitious aims to protect the natural environment, preserve cultural heritage, maintain areas of particular environmental and aesthetic value and develop the natural and cultural resources of the area.

Specifically, the **Thematic Objective 6: “Preservation and protection of environment and promotion of resources efficiency”** gives particular emphasis in the transformation of the tourism product through the upgrading of culture, which is a priority area of the regional smart specialization strategy. Tourism in conjunction with the culture can, with appropriate adjustments, perform as a driving force of the economy of Western Greece. It also provides great opportunities for implementing integrated systems of combined technologies and allows the development of specialized activities based on knowledge. Tourism requires a special kind of policy for innovation, which supports the ability to generate knowledge and added value in an industry that does not create the technology, but uses it.

The **aim of the current Action Plan** is to present to the Region of Western Greece (RWG), the responsible organisation for the regional policy tool (ROP), the state of the art regarding the Digitization of Natural and Cultural Heritage among CD –ETA partners regions accompanied with recommended actions that can be adopted by the RWG. Therefore, this Action Plan can be a useful tool for the RWG, which will help the authority to proceed to measures and initiatives through the policy tools in order to:

- Promote the digitization of documentary heritage managed by the Regional Government



- Increase funds for the digitization of natural and cultural heritage according to the needs and priorities of the region
- Endowment of economic and human resources
- Provide training in the field of digitization
- Provide grants for professional practice for digitization.

## 5. Action Plan for Western Greece

In continue, **certain actions are presented and addressed to the RWG in order the policy makers to take them under consideration and for integration in ROP**, as these recommendations derive from almost a three-year process with numerous of study visits in European regions, meetings with local stakeholders, presentations from experts and a vast amount of new ideas (see Appendixes). In the previous Chapters, several recommendations for digitization regarding natural and cultural heritage in the Region of Western Greece were presented. The following five (5) Actions are complete proposals including estimation of budget and project's duration.

### 5.1 Action 1: Creative industries and culture

**Relevance to the project:** Action 1 concerns a call of proposal launched by the Region of Western Greece in the beginning of April 2019, in order to support and fund project ideas dealing with “*Creative industries*”. The content and features of the call was a result of many working meetings among experts and members of the regional council of the RWG, in order to exchange ideas regarding the needs and potential of the region in the field of Creative Industries.

Project CD-ETA had a vital role into this process. More specifically, one of the features of the call, as described below, is dealing with *digitization of natural and cultural heritage and the use of innovative technologies (Virtual Reality and Augmented Reality) in culture*, which will contribute to the preservation and promotion of natural and cultural heritage. This feature derived from the feedback of stakeholders of the RWG, who participated in the CD-ETA stakeholder working group meetings during Phase I. The ideas, good practices and the importance of the use of innovative technologies in the cultural heritage, which were in depth discussed and analyzed during CD-ETA working group meetings, were transferred through the CD-ETA stakeholders into the regional council and were included in the specific call as an additional action. Within the frames of this action, one or more project ideas will be selected and funded.

The inspiration of this action derived from the 2<sup>nd</sup> Thematic Seminar organized in Florence: “*Digitization of Museums and Galleries*”, where several applications, web platforms, VR and Augmented reality applications in Museums and Galleries were presented, aiming to offer to the visitors a unique experience (mainly from **Uffizi Gallery in Florence** regarding digital collections and mobile applications and **Museo Galileo application**). Both of them have been described in chapter 3.2 *Cultural Heritage: Museums and Galleries*.

The research team of University of Patras, during Phase II, will monitor the implementation of these projects ideas and how they contribute in the objectives of the action.

**Nature of the action:** The proposed action aims to enhance the competitiveness of the enterprises of Western Greece operating within the context of economic activities characterized as "Creative Industries". The call will support the following:

- Project ideas dealing with the design, ***promotion, valorisation of cultural heritage*** with the use of digital and innovative technologies. Specifically, they will be supported applications, with the use of VR and AR technologies in museums, galleries and other sites of cultural heritage.
- ***Publication, typography and bookbinding, museums*** which combine creative features for the digitization of books, archives, photographs and pictures.

The call was launched on 02/04/2019 and the deadline for the submission of project ideas is 14/06/2019. After the evaluation of the submitted projects ideas, University of Patras will monitor the implementation of the approved projects dealing with the action that derived from CD-ETA, as described above.

### **Objectives**

- Increase the competitiveness and visibility of businesses
- Enhancement of the existing small and micro enterprises, through the elaboration and implementation of integrated business plans for the upgrading of creative services / products
- Support businesses in adapting and using new digital technologies in the sector of culture and tourism (VR, Augmented Reality, etc).

**Eligible partners:** Eligible partners can be any Greek public or private organisation active in the market in the fields of ***IT, culture, protection of natural environment and cultural heritage***. For example, such organisation can be:

- public or private, small, medium or large enterprises (including social enterprises)
- public bodies at local, regional or national level
- social partners or other representative of working life, including chambers of commerce, craft/professional associations and trade unions
- research institutes
- SMEs
- non-profit organisations, association, NGO related to digitization services, protection, preservation and promotion of the natural and cultural heritage

### **Involved stakeholders**

- Region of Western Greece, Dept. of Development Planning
- University of Patras
- Municipality of Patras
- Ephorate of Antiquities of Achaia, Ileia and Etoloakarnania
- Archaeological Museum of Patras
- Archaeological Museum of Anc. Olympia
- Cultural Centre of Messolongi

- IT SMEs

**Duration:** The duration of the projects will be up to 30 months

**Budget:** The total budget of the projects cannot be higher than 300.000€

**Funding Source:** Operational Programme of the Region of Western Greece 2014-2020

## 5.2 Action 2: Digitization of Libraries and Archives

**Relevance to the project:** In the 5<sup>th</sup> Thematic Seminar “*Digitization of Libraries and Archives*”, very interesting good practices were presented from all the partners dealing with methods, tools and innovative technologies for the digitization of important books and other archives. Specifically, the digital library “**PARES: Portal de archivos espanoles**”, a portal and database created by Spain's Ministerio de Cultura containing more than twenty million documents and digital images from the principal Spanish archives. It is a good practice which inspired University of Patras to suggest Action 2 in order to make the first step starting from the local libraries, which have a vast amount of valuable archives and books illustrating the local and regional history.

**Nature of the action:** The proposed action aims at the implementation of a series of actions, which will create the right conditions for the promotion of the cultural wealth of the local and regional Libraries at local, regional and national level. The provision of digital cultural content concerns all members of the local community, from the ordinary citizen to the researcher, students and university graduates. The strategy of this action, apart from providing digital content, it also concerns education, promotion of research activities, preservation of vulnerable material, the upgrading of the equipment and thus the creation of digitization conditions for all material that needs to be digitized. This activity ensures the preservation of the Libraries’ archives and increase the number of visitors in the Library.

### **Objectives**

This action aims to the digitization of the collections of the local and regional Libraries. In the framework of this action, historical archives, photographic archives, artworks, books with content of local interest, etc., will be digitized.

The activity performs part of the regional strategy, which aims at strengthening the linkage of the territory with society, exploiting, among other things, the potential of new technology.

### **Specific objectives:**

- Research, collection, preservation, valorisation and dissemination of historical evidence concerning the history of Greece
- The promotion of the history of the area and Greece to the wider public

- Integrated documentation of the entire collection, with full use of thematic indexing
- Storage, management and promotion of the digital material through digital repository services
- Training of the users
- Activities for its dissemination in the wider public
- Installation of the appropriate equipment for the processing, storage and documentation of digital material and maintenance.

#### Eligible partners

- public body at local, regional or national level
- research institutes
- non-profit organisations, association, NGO related to digitization services,
- educational community, scholars of historical studies at local / regional and national / international level, journalism community
- Researchers of humanities

#### Involved stakeholders

- Region of Western Greece, Dept. of Development Planning
- University of Patras
- Municipality of Patras - Patras Municipal Library
- Hellenic Open University

**Duration:** The duration of the action will be up to 18 months

**Budget:** The total budget for the action will be up to 200.000€

**Funding Source:** Operational Programme of the Region of Western Greece 2014-2020

### 5.3 Action 3: Digitization of Vouraikos gorge pathway and other regional pathways

**Relevance to the project:** The good practice implemented in **Romania (Harghita County area)** and presented in the 1st Thematic Seminar "Digitization of Natural Heritage" dealing with the digitization of walking and climbing pathways/routes inspired University of Patras to recommend Action 3.

**Nature of the Action:** The Action focuses on the digitization of the regional pathways and mountain trails of the area, which are characterized by significant beauty, natural aesthetic and are visited by a vast amount of people. Special attention is given to the pathway of Vouraikos gorge, which belongs in the National Park of Chelmos-Vouraikos (Natura 2000). It becomes more and more famous in Greek and foreign visitors, and the action aims to promote it in a wider public, not only the specific route but the whole area which is characterized by an extremely natural beauty. As the pathway is attracted by many visitors, the digitization of the specific route (including with signs with major landmarks, places that need extra attention etc) will attract more visitors, who will enjoy



with safety crossing of Vouraikos gorge. Apart from the digitization of the partway, the action is also encouraging the creation of digitization and registry of photos, videos and documentaries about the points of interest of the route and the sights of the wider region available in the digitized route.

### **Objectives**

- Promotion of the E4 path of the Protected area at Diakopto village, which passes through the Vouraikos gorge, following the rack railway tracks Diakopto-Kalavryta (approx. 22km)
- Creation of a brandname of the area in the thematic tourism
- Promotion of the digitized path in social media, tourism platforms
- Extension of current touristic programmes
- Preservation of the climbing/walking routes
- Emergence of new thematic routes (cycling etc.)
- Easier access in cases facilitation of mountain rescue missions
- Creation of a safe environment for the visiting tourists

Additional mountain pathways of the area that attract many visitors and can potential be digitized are located neighbour areas of the Region

- **Tsakalaki:** one of the most beautiful mountains in the area. The climb can be made either from Agia Kyriaki side, where the Papadia faucet is or from Kentriki side.
- **Omalia:** is an extended plateau. Climb to the plateau and then to the top is pretty easy, even for young children and is good for a first experience on the mountains.
- **Tsekoura:** is a difficult mountain especially toward the side of Koritsa and the climb from the village is about 3 hours.

**Eligible partners:** Eligible partners can be any Greek public or private organisation active in the fields of **IT, culture, protection of natural environment and cultural heritage**. For example, such organisation can be:

- public or private, small, medium or large enterprise
- public body at local, regional or national level
- research institutes/universities
- non-profit organisation, association, NGO related to digitization services, protection, preservation and promotion of the natural and cultural heritage, **climbing associations** etc
- Municipalities, Developmental Agencies

### **Involved stakeholders:**

- Region of Western Greece, Dept. of Development Planning
- University of Patras
- Region of Western Greece, Directorate of Forest of the Region
- Municipality of Egialia (Achaia)

- IT companies

**Duration:** The duration of the action will be up to 24 months

**Budget:** The total budget for the action will be up to 350.000€

**Funding Source:** Operational Programme of the Region of Western Greece 2014-2020

#### 5.4 Action 4: E-culture and digitization

**Relevance to the project:** In the 3<sup>rd</sup> Thematic Seminar “*Digitization of Intangible Cultural heritage*”, among others, a good practice was presented implemented in Toscana, where through specific activities, Toscana promotes the local intangible cultural heritage through **ARTOUR Toscana - The Craft Itineraries** ([www.artour.toscana.it](http://www.artour.toscana.it)). ARTour is a chance to travel through Tuscany on the trail of traditional crafts, stories and characters from the region's historic craftsmanship. Based on this, we recommend action 4: E-culture and digitization.

**Nature of the action:** The action aims at the creation of a **cultural information hub**, which will highlight and valorise the cultural heritage, while will act as a benchmark and integrated source of cultural information and visibility, ensuring a framework of scientific excellence, quality and multilingual presence of the collections and the monuments of city of Patras and the wider area. The visitors of Patras (from port, airport, etc) will be able through their mobile devices to get informed of the city's landmarks, with photos, information and how they will access prior or during their visit at Patras. Of high importance is the use of ICT technologies / applications that can upgrade and strengthen the tourism-culture sector of the Region of Western Greece. The local Universities, Research Institutes and ICT companies located in the area can significantly contribute towards this effort as well as the demand for ICT applications from the private and public sectors.

#### **Objectives**

The action aims to foster the creation of applications for information and entertainment of the citizens and the visitors of the city and the wider area. For this purpose, the collaboration among IT companies and the local universities and research institutes will be supported for the creation of innovative applications for the promotion of the cultural heritage of the region (monuments, archaeological sites, places of cultural interest). Specifically, will be supported:

- Creation of digital tools for the promotion of specific forms of tourism
- Digital depiction of the regional cultural routes, the cultural landmarks, accompanied with related information and photos, enabling the visitor to learn and visit the city without the need of a tour guide,
- Digital management of the Brand Name of the Region of Western Greece, Destination management systems (Destination Marketing)

- Smart systems for informing the visitors when entering in the Western Greece
- Emphasis in the use of up to date technologies such as virtual/augmented reality, smart alerting, smart tags, etc.

**Eligible partners:** Can be any Greek public or private organisation active in the fields of *IT, culture, protection of natural environment and cultural heritage*. For example, such organisation can be:

- public or private, small, medium or large enterprise a public body at local, regional or national level
- social partner or other representative of working life, including chambers of commerce, craft/professional associations and trade unions
- research institutes/universities
- non-profit organisation, association, NGO related to digitization services, protection, preservation and promotion of the natural and cultural heritage
- tourism, maritime, travel associations

#### **Involved Stakeholders**

- Region of Western Greece, Dept. of Development Planning
- University of Patras
- Municipality of Patras
- Port Authority of Patras
- IT companies

**Duration:** The duration of the action will be up to 24 months

**Budget:** The total budget of the action cannot be higher than 200.000€

**Funding Source:** Operational Programme of the Region of Western Greece 2014-2020

#### **5.5 Action 5: Digitization of Underwater Cultural Heritage in Patras Gulf**

**Relevance to the project:** In the 4<sup>th</sup> Thematic Seminar “*Digitization of Monuments and Archaeological sites*”, a best practice **TOPOSTEXT** was presented: an indexed collection of ancient texts and mapped places relevant the history and mythology of the ancient Greeks from the Neolithic period up through the 2nd century CE. Based on this best practice we recommend a similar action but focusing on **underwater cultural heritage**.

Although it is a good practice coming from Greece, we had the opportunity to get informed about this within the frames of CD-ETA project and specifically, during the preparation of the 4<sup>th</sup> Thematic Seminar organized in Greece, when we were looking for good practices related to the specific Thematic. Indeed, Prof. Papadakis, Regional Project Manager, met the creator of TOPOSTEXT in a conference organized in Greece –focused on the digitization of cultural heritage (2nd Pan-Hellenic Conference on Digital Cultural Heritage-EuroMed 2017).

In addition to TOPOSTEXT, Action 5 was also inspired by the good practice “iWALK.BG” ([www.iwalk.bg](http://www.iwalk.bg)), presented by the Bulgarian partners. This 3D application is a tourist and educational platform with the main purpose to digitize the cultural and historical sites, museums, cultural monuments and all valuable objects and jewels reflecting the spirit and the imprint of history. The conceptual design involves filling geographic maps with digitized object and building mobile applications.

**Nature of the action:** In Patras Gulf, due to its strategic geographical position, many sea battles have taken place in ancient years and during the I & II World Wars. Therefore, many shipwrecks are abandoned there, providing in the underwater environment special natural and cultural heritage. Shipwrecks become home for many fishes, where they also reproduce and consequently they create a new ecosystem. In nowadays, where overfishing leads to less fish populations, shipwrecks are very important even more in places like the gulf of Patras, where the seabed is flat and muddy and do not exist other places for the fish to make homes and avoid trawler nets. In addition, coralligenous based Indicators lately are used to evaluate and monitor the "Good Environmental Status" of the Mediterranean coastal waters. The digitization of natural and cultural heritage of Patras Gulf is essential for the protection, preservation and promotion of this heritage to the wider public.

### Objectives

The objective of the action is to promote the underwater cultural and natural heritage existing in the seabed of Patras Gulf through digitization practices. Specifically, the detailed description with drawings, maps, documents, films and photographs, of the seabed stories, their social and economic aspects and how the local community can benefit from the wise valorisation of the tangible and intangible underwater heritage. In addition, the natural heritage is very important as well as sponges, coral reefs and shells have significant role in the environmental balance of the seabed and the digitization of colonies and the whole underwater environment will significantly in its preservation, awareness raising of the wider society and in combination with additional activities from tourism and cultural operators, it will contribute to the attraction of more visitors and the economic development of the area.

The action will support:

- Digitization activities in Patras Gulf for the underwater natural and cultural heritage
- Creation of apps, web platforms which will perform as repository of the digitized material
- Networking with culture and tourism professionals for the creation of thematic cultural tourism
- Dissemination activities in order to promote the digitized material in national and international level

**Eligible partners:** Can be any Greek public or private organisation active in the fields of *IT, culture, protection of natural environment and cultural heritage*. For example, such organisation can be:

- public or private, small, medium or large enterprises
- public bodies at local, regional or national level
- Universities
- Professional Divers
- non-profit organisations, association, NGO related to digitization services, protection, preservation and promotion of the natural and cultural heritage
- Chambers of Commerce

**Involved Stakeholders:**

- Region of Western Greece, Dept. of Development Planning
- University of Patras
- Municipality of Patras
- Ephorate of antiquities of Achaia
- Ephorate of Underwater Cultural Heritage
- IT companies

**Duration:** The duration of the action will be up to 24 months

**Budget:** The total budget for the action cannot be higher than 350.000€

**Funding Source:** Operational Programme of the Region of Western Greece 2014-2020

## 5.6 Crucial Stakeholders

For the implementation of the abovementioned actions and suggestions it is crucial the collaboration of several stakeholders activating in the wider area of the Region of Western Greece. Some of the most important key players are the following.

| Stakeholders                       | Role   |
|------------------------------------|--|
| Region of Western Greece           | It is the regional authority responsible for the application of the policy instrument, the launching of the calls and the allocation of the funds.   |
| University of Patras & Researchers | University of Patras is a pool of knowledge and its researchers can contribute with their scientific knowledge and innovative ideas in to the implementation of the proposed actions and their further exploitation.                         |
| Local Municipalities               | The Municipalities are responsible for the management of several elements of cultural heritage of an area. Their involvement is crucial for the implementation of the actions (provision of information, access to the sites/objects, etc.). |
| Ephorates of                       | The three Ephorates of Antiquities of the Region of Western  |



|  |  |
|--|--|
| Antiquities & archaeologists   | Greece and the experienced archaeologists can provide all the necessary information for the implementation of the actions. Indeed, project CD-ETA contributed to the enhancement of linkages among the Region, University and the Ephorates.   |
| Engineers  | IT engineers will provide the technological know-how and the methodology of how will be implemented, in technical aspects, the actions.  |
| Political scientists   | The political scientists can play significant role as they will further elaborate the socioeconomic benefits from the digitization actions, which will preserve and promote the natural and cultural science. In addition, they can suggest further policy instruments to the regional authorities.  |
| Associations/NGOs  | Cultural and civic associations/NGOs can contribute with ideas and information specifically when we have to deal with intangible cultural heritage.  |
| Enterprises  | IT enterprises will provide the necessary technological knowledge and equipment for the implementation of the activities.  |
| Chambers of Commerce   | The Chamber is the umbrella of the local enterprises. They inform, mobilise and provide them initiatives for new activities. The collaboration with the chambers is crucial as they will inform the IT companies, other companies related to culture, tourism, etc., about the benefits that will have through their involvement in the proposed actions.    |
| Cultural Organizations (Museums, Libraries, Archival Institutions, etc.) | The contribution of cultural organisations and their collaboration with all the other organisations is very important because each of them is aware of the different kind of cultural heritage that will be digitised. In addition, they will provide access to the researchers and IT experts to the material that will be digitised (books, objects, etc). |
| Divers   | In case of the digitization of underwater cultural and natural heritage, the contribution of experienced divers is necessary.  |
| Educational Community  | As one of the main objectives of the digitization practices is to educate the wider community about the elements of natural and cultural heritage, representatives of this sector will contribute with ideas and recommendations how the knowledge will be transferred in order to fulfil the educational purposes of digitization.                          |

## Appendixes – Supporting Documents

1. Presentations of all Partners in the five thematic seminars focusing on *a) digitization on natural heritage b) digitization of museums and galleries, c) digitization of intangible cultural heritage, d) digitization of monuments and archaeological sites, and e) digitization of libraries and archives.*
2. Preparation documents and proposals/presentations of PP3 – University of Patras in the above five thematic seminars.
3. Presentations in the two interregional training workshops.
4. Minutes and press releases of eight (8) stakeholder working group meetings in Western Greece.