

**From  
Vernacular  
to World  
Heritage**

*edited by*

LETIZIA DIPASQUALE

SAVERIO MECCA

MARIANA CORREIA

## **Ricerche. Architettura, Pianificazione, Paesaggio, Design**

Firenze University Press, in collaboration with the Department of Architecture of the University of Florence, promotes and supports the series *Ricerche. Architettura, Pianificazione, Paesaggio, Design*. This initiative aims to offer a contribution to national and international research on the project in all its dimensions, both theoretical and operational. The volumes of the series are evaluated according to renowned best practices at an international level and collect the research results of scholars from the University of Florence and from other national and international institutions.

*Ricerche. Architettura, Pianificazione, Paesaggio, Design* fully supports Open Access publishing as an ideal tool to share ideas and knowledge in every research field with an open, collaborative and non-profit approach. Open Access books and book chapters allow the research community to achieve a high research impact as well as rapid dissemination in any editorial form.





with the support  
of the Culture  
Programme of the  
European Union

**3D PAST**  
European  
Research  
Project

**Website:** <https://esg.pt/3dpast/>

**Platform:** <https://esg.pt/3dpast/platform/>

**App: 3DPAST**

available at App Store and Google Play

*download the app to browse the Augmented Reality  
contents of the book*

**3DPAST Augmented Reality tag**



video



images gallery



3D interactive model

This publication is the result of the project '**3DPAST – Living & virtual visiting European World Heritage**' [Grant Agreement Ref No570729-CREA-1-2016-1-PT-CULT-COOP1], co-funded by the European Union (2016-2020), under the programme Creative Europe.

The European Commission support for the production of this publication does not constitute endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

This collective work gathers three European university institutions and integrates contributions from the project leader and the project partners. In addition to the Editors, the main contributors are:

escola  
superior  
gallaecia



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE  
**DIDA**  
DIPARTIMENTO DI  
ARCHITETTURA



UNIVERSITAT  
POLITÀCNICA  
DE VALÈNCIA

#### Project Leader

**ESG / Escola Superior Gallaecia,  
Vila Nova de Cerveira, Portugal**

Project Leader and Director:  
Mariana Correia

Scientific advisors: Gilberto Duarte  
Carlos, José Vicente, Teresa Correia,  
Goreti Sousa, Mónica Alcindor,  
Rui Florentino, Damião Matos,  
Henrique Silva, Emília Simão,  
Ana Lima, Luis Paulo Pacheco

Researchers: Teresa Bermudez,  
Marco Mourão, Sandra Rocha,  
Jacob Merten

#### Project Partners

**Università degli Studi di Firenze, DIDA  
Dipartimento di Architettura, Italy**

Director: Saverio Mecca  
Scientific advisors: Letizia Dipasquale,  
Alessandro Merlo, Massimo Carta,  
Stefano Galassi, Giorgio Verdiani

Researchers: Lucia Montoni,  
Francesco Frullini, Alessandra Manzi,  
Gaia Lavoratti, Luciano Giannone,  
Enrico La Macchia

**Universitat Politècnica de València, Escuela  
Técnica Superior de Arquitectura, Spain**

Directors: Fernando Vegas, Camilla Mileto  
Scientific advisors: Valentina Cristini,  
Lidia García Soriano, Maria Diodato,  
Juan María Songel, Guillermo Guimaraens,  
José Luis Baró, Yolanda Hernández  
Researchers: Matilde Caruso, Alicia Hueto,  
María Lidón

*3DPAST Administrative coordinator  
and Proof reader: Sandra Rocha e Sousa*  
*3DPAST logo design: Teresa Correia,  
CI-ESG, Escola Superior Gallaecia*

#### With the Support of

**ICOMOS**  
International Council on  
Monuments and Sites

International Council on  
Monuments and Sites



Chaire UNESCO *Architecture  
de terre, cultures constructives  
et développement durable*



International Committee of  
Vernacular Architecture  
ICOMOS-CIAV



International Scientific Committee  
on Earthen Architectural Heritage  
ICOMOS-ISCEAH



International Committee of  
Architectural Photogrammetry  
ICOMOS-CIPA

*edited by*  
LETIZIA DIPASQUALE  
SAVERIO MECCA  
MARIANA CORREIA

**From  
Vernacular  
to World  
Heritage**



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DIDA**  
DIPARTIMENTO DI  
ARCHITETTURA

From Vernacular to World Heritage / a cura di Letizia Dipasquale, Saverio Mecca,  
Mariana Correia. — Firenze - Firenze University Press, 2020.  
(Ricerche. Architettura, Pianificazione, Paesaggio, Design ; 5)

<https://www.fupress.com/isbn/9788855182928>

ISBN 978-88-5518-292-8 (print)

ISBN 978-88-5518-293-5 (PDF)

ISBN 978-88-5518-254-6 (XML)

DOI 10.36253/978-88-5518-293-5

*FUP Best Practice in Scholarly Publishing* (DOI: 10.36253/fup\_best\_practice)

All publications are submitted to an external refereeing process under the responsibility of the FUP Editorial Board and the Scientific Boards of the series. The works published are evaluated and approved by the Editorial Board of the publishing house, and must be compliant with the Peer review policy, the Open Access, Copyright and Licensing policy and the Publication Ethics and Complaint policy.

*Firenze University Press Editorial Board*

M. Garzaniti (Editor-in-Chief), M.E. Alberti, F. Arrigoni, M. Boddi, R. Casalbuoni, F. Ciampi, A. Dolfi, R. Ferrise, P. Guarnieri, A. Lambertini, R. Lanfredini, P. Lo Nostro, G. Mari, A. Mariani, P.M. Mariano, S. Marinai, R. Minuti, P. Nanni, A. Novelli, A. Orlandi, A. Perulli, G. Pratesi, O. Roselli.

 The online digital edition is published in Open Access on [www.fupress.com](http://www.fupress.com).

Content license: the present work is released under Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0: <https://creativecommons.org/licenses/by-nc-sa/4.0/legalcode>).

Metadata license: all the metadata are released under the Public Domain Dedication license (CC0 1.0 Universal: <https://creativecommons.org/publicdomain/zero/1.0/legalcode>).

Le immagini utilizzate rispondono alla pratica del *fair use* (Copyright Act, 17 U.S.C., 107) essendo finalizzate al commento storico critico e all'insegnamento.

© 2020 Author(s)

Published by Firenze University Press

Firenze University Press  
Università degli Studi di Firenze  
via Cittadella, 7, 50144 Firenze, Italy  
[www.fupress.com](http://www.fupress.com)

*This book is printed on acid-free paper  
Printed in Italy*

*progetto grafico*

**didacommunicationlab**

Dipartimento di Architettura  
Università degli Studi di Firenze

Susanna Cerri  
Federica Giulivo

Stampato su carta di pura cellulosa *Fedrigoni Arcoset*

ELEMENTAL  
CHLORINE  
**FREE**  
GUARANTEED



---

## TABLE OF CONTENTS

---

<b>Introduction</b>	<b>7</b>
<b>Vernacular and earthen architecture at the core of local knowledge research: a quality partnership with successful outcomes</b>	<b>8</b>
Mariana Correia, Gilberto Duarte Carlos, Letizia Dipasquale, Saverio Mecca, Camilla Mileto, Fernando Vegas	
<b>The challenges of vernacular architecture</b>	<b>12</b>
Toshiyuki Kono	
<b>A heritage of reconciliation and of linkage between nature and culture</b>	<b>14</b>
Hubert Guillaud	
<b>Vernacular architecture in the World Heritage list</b>	<b>18</b>
Luis Fernando Guerrero Baca	
<b>Living and virtual visiting European World Heritage: an overview</b>	<b>24</b>
Mariana Correia	
<b>Vernacular World Heritage. A discovery through 3 dimensions</b>	<b>31</b>
<b>Crossing dimensions and components in vernacular architecture research</b>	<b>32</b>
Mariana Correia, Gilberto Duarte Carlos, José Vicente, Teresa Correia, Sandra Rocha e Sousa	
<b>Discovering vernacular heritage and its tangible dimensions</b>	<b>38</b>
Gilberto Duarte Carlos, Mariana Correia, Letizia Dipasquale, Saverio Mecca	
<b>Understanding the dimension of historical evolution</b>	<b>44</b>
Fernando Vegas, Camilla Mileto, Maria Diodato, Juan María Songel González	
<b>Valuing and codifying intangible knowledge</b>	<b>52</b>
Fernando Vegas, Camilla Mileto, Alicia Hueto, María Lidón	
<b>Enhancing vernacular World Heritage through digital technology and multimedia tools</b>	<b>60</b>
Alessandro Merlo, Gaia Lavoratti, Letizia Dipasquale, Saverio Mecca	
<b>The importance of creativity in vernacular heritage</b>	<b>68</b>
Gilberto Duarte Carlos, Mariana Correia, Emília Simão	
<b>Communication and dissemination of vernacular heritage</b>	<b>74</b>
Mariana Correia, Gilberto Duarte Carlos, Letizia Dipasquale, Saverio Mecca, José Vicente, Teresa Correia	
<b>From Vernacular Heritage to World Heritage. 8 case studies</b>	<b>81</b>
<b>The traditional cultural landscape of Pico island and its vernacular architecture, Portugal</b>	<b>82</b>
Gilberto Duarte Carlos, Mariana Correia, Goreti Sousa, Mónica Alcindor, Rui Florentino, Teresa Bermudez, Manuel P. R. S. Costa	

<b>Historic walled town of Cuenca, Spain</b>	98
Lidia García Soriano, Valentina Cristini, Fernando Vegas, Camilla Mileto	
<b>Historic centre of the city of Pienza, Italy</b>	114
Alessandro Merlo, Gaia Lavoratti, Francesco Frullini, Letizia Dipasquale, Saverio Mecca	
<b>Old Rauma, Finland</b>	130
Matilde Caruso, Lidia García Soriano, Camilla Mileto, Fernando Vegas	
<b>Villages with fortified churches in Transylvania, Romania</b>	146
Valentina Cristini, Fernando Vegas, Camilla Mileto, Lidia García Soriano	
<b>Historic centres of Berat and Gjirokastra, Albania</b>	160
Letizia Dipasquale, Massimo Carta, Alessandro Merlo, Giorgio Verdiani	
<b>Historic centre Chorá on the island of Pátmos, Greece</b>	178
Letizia Dipasquale, Lucia Montoni, Alessandra Manzi, Saverio Mecca	
<b>Vernacular architecture in Chazhashi settlement, Upper Svaneti, Georgia</b>	194
Gilberto Duarte Carlos, Mariana Correia, Goreti Sousa, Mónica Alcindor, Teresa Bermudez	
<b>Building the future of European Vernacular World Heritage</b>	<b>211</b>
<b>Conservation and maintenance practices</b>	212
Camilla Mileto, Fernando Vegas, José Luis Baró Zarzo, Yolanda Hernández Navarro	
<b>Assessing and mitigating impacts of changes on cultural heritage</b>	222
Letizia Dipasquale, Saverio Mecca, Lucia Montoni	
<b>Protecting and valuing cultural heritage</b>	230
Mariana Correia, Gilberto Duarte Carlos	





**Mariana Correia**  
**Gilberto Duarte Carlos**  
**Letizia Dipasquale**  
**Saverio Mecca**  
**José Vicente**  
**Teresa Correia**  
Escola Superior Gallaecia  
Università degli Studi di Firenze

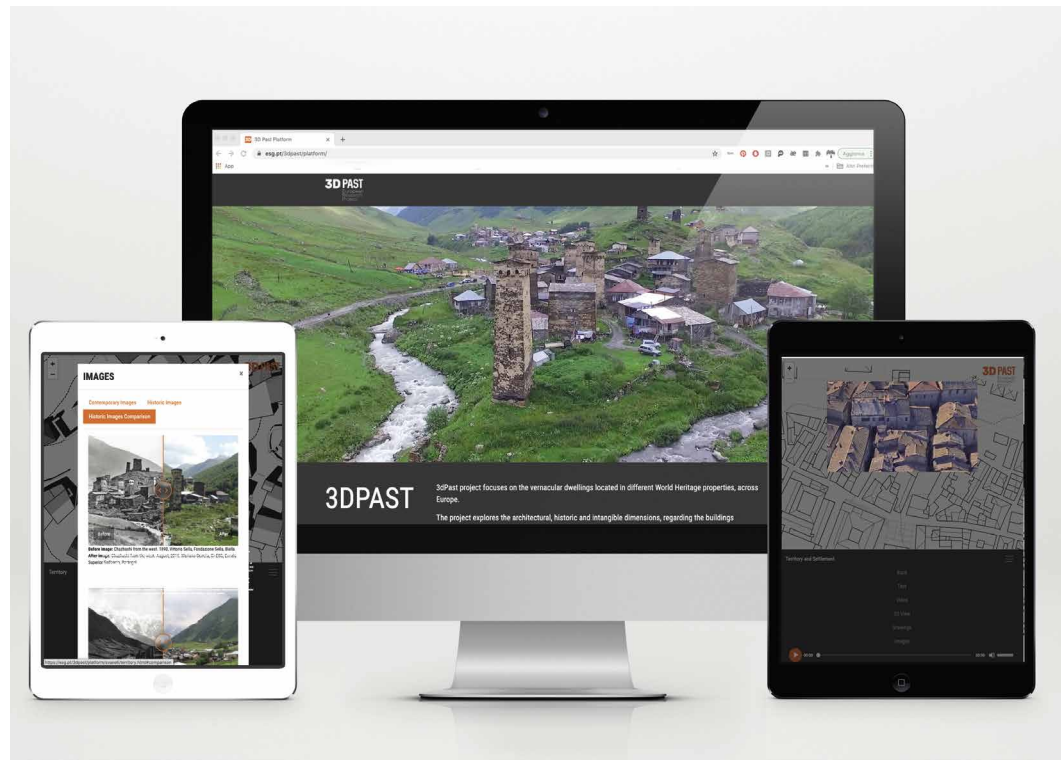
### **Enhancing vernacular heritage to ensure its outstanding significance and safeguard**

Vernacular architecture is one of the most significant cultural expressions of a socio-economic structure: it represents the way in which local materials and traditional building techniques, learned from endogenous evolutionary processes and from cultural advances, were used to respond to the physical and socio-economic needs of a group, thus generating remarkable architectural models adapted to the historical-cultural experience and the specific environmental restriction of each territory. They are, therefore, unique models strongly linked both to the environmental and to the socio-economic and cultural context, which nevertheless have universal elements in common: they use local resources; they adapt strongly to the morphology and to the bioclimatic characteristics of the place; they are the result of the transmission of experience and knowledge; they are the expression of a living model and the identity of a group; they are extremely vulnerable, as they face sudden changes (natural or cultural); and the deterioration process can be easily triggered.

Thanks to the universal nature of vernacular architecture, in recent decades, various organisations have asked for the protection and recognition of this heritage as a cultural asset, and as a shared value. It should be mentioned, in particular, the Charter on the Built Vernacular Heritage, ratified by the General Assembly of ICOMOS, in Mexico in 1999, on which the character of vernacular architecture is claimed as essential for the identity of people: “The built vernacular heritage is important; it is the fundamental expression of the culture of a community, of its relationship with its territory and, at the same time, the expression of the world’s cultural diversity” (Introduction, ICOMOS, 1999).

However, the knowledge to maintain and preserve vernacular heritage is disappearing at an ever-increasing pace, when not properly recognised as part of the people’s identity. Especially considering the few numbers of vernacular sites listed as World Heritage, precisely due to their character, a long way still needs to be undertaken. Raising awareness and sharing the significance and the quality of this still little-known vernacular World Heritage, existing in Europe, increases its Outstanding Universal Value, and contributes to its safeguard and enhancement, but also to raise awareness to future vernacular World Heritage nominations.

*opposite page*  
**Chorá of Pátmos, Greece**  
(© A. Manzi, L. Montoni, 2018)



→  
**3DPAST Platform**  
 (www.esg.pt/3dpast/platform)  
 (© Ci-ESG, Escola Superior  
 Gallaecia, 2020)

opposite page  
**3DPAST App**  
 (© Ci-ESG, Escola Superior  
 Gallaecia, 2020)

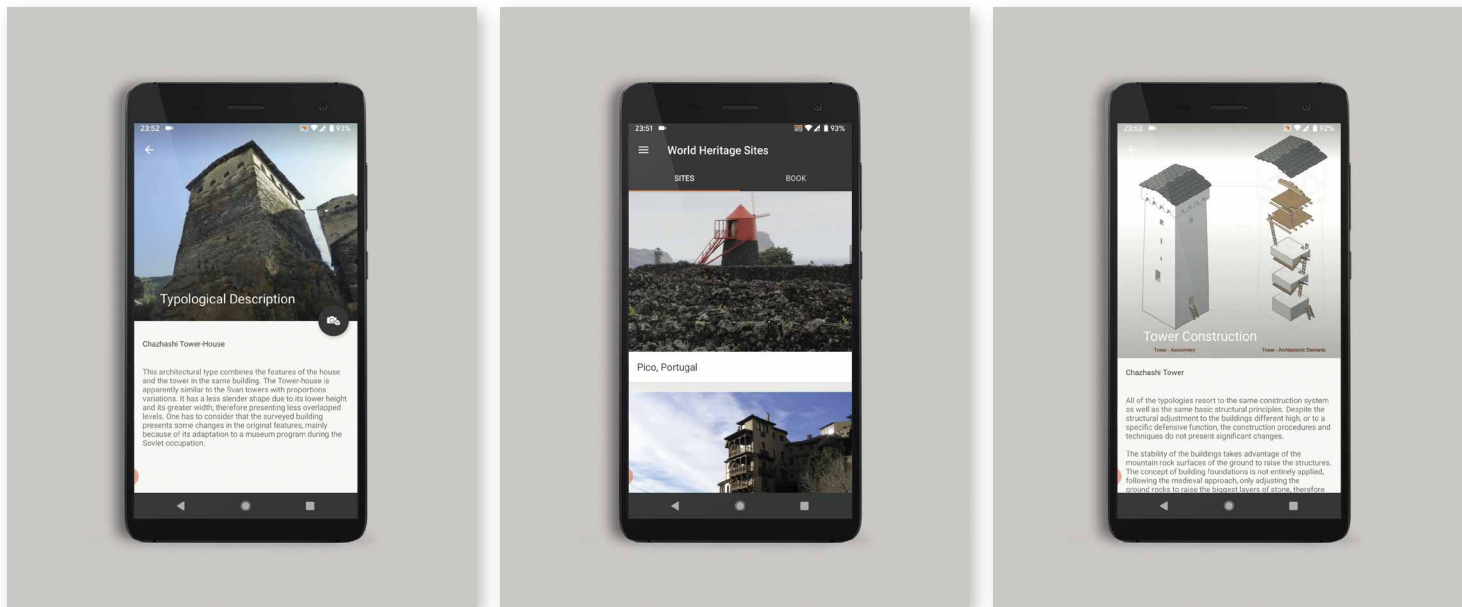
### Communication and Dissemination strategies

*Living and virtual visiting European World Heritage* project, known as 3DPAST, was developed to enhance vernacular heritage, the character of its architecture, historical building traditions, and building cultures knowledge, which is still alive in several of these sites, through the use of new technologies. The project contributed to the increase of cultural interest for vernacular dwellings by different audiences. This is the case of World Heritage sites travellers that *in situ* are able to use 3DPAST App and experience technology and augmented reality. It will also give a chance to non-traveller audiences, which by visiting 3DPAST website (www.esg.pt/3dpast) and platform, will be able to experience (e.g. through virtual reality) the exceptional significance of the World Heritage properties. Communication and dissemination activities can promote and enhance this unique and valuable vernacular heritage. 3DPAST project contributes to its worldwide diffusion, through different tools and outputs.

### Communication tools and outputs

#### Development of 3DPAST Website and interactive platform

The development of the project's website and platform was an activity transversal to the entire timeline of the project, focusing on the project's aims, activities and outcomes. It provided an opportunity to document the missions; disseminate workshops, conferences and seminars; mirroring findings and the results of the project. Moreover, the website included a digital platform addressing the different project dimensions, displaying the reconstitution of some of the dwellings. The vernacular buildings deconstruction was also available through virtual reality at the project's platform, shared with other websites



and local platforms (e.g. local tourism interactive points). Both are relevant outputs for didactic purposes to different audiences. The website and the platform were created, maintained and updated by the project leader. Following the conclusion of the project, both outputs will continue active. The access to the platform is free, and can be reached at: [esg.pt/3dpast/platform](http://esg.pt/3dpast/platform)

### Development of 3DPAST App

To enable enhanced *in situ* visits with added information regarding the tangible and intangible heritage of each site, the project team developed the 3DPAST App, which is available for IOS and Android Platforms. This App provides photos, in-depth texts, detailed drawings and 3D models of selected heritage. Using augmented reality (AR) technology. It allows the visitor to experience a richer visit, with exploded 3D deconstructions of selected buildings, using georeferenced location and target image markers. Through the juxtaposition of historic images and current visualisation, it is possible to understand the site heritage evolution. The 3DPAST App also connects with the project book, enabling AR content from the publication images.

### Multimedia communication tools

Several multimedia communication tools were produced throughout the project, namely an interactive digital e-book; an interactive digital e-booklet; an interaction design and underlying code for Apps; interaction design and code for virtual reality included in the multimedia platform of the project website; Videos of the selected World Heritage sites gathering the 3 dimensions of the project; but also videos of the different outputs, as well as the 'making of the project'.



**D1. Architectural Vernacular Heritage**

Inhabited dwellings: a unique legacy requiring maintenance

Dimension 1 focuses on built architectural heritage, that is, the vernacular dwellings which continue to be inhabited today. The peculiarity of these dwellings is that they are part of a set of built heritage which has been declared World Heritage by UNESCO. This declaration highlights the particular interest of these constructions and the importance of maintaining and conserving this heritage as part of local constructive culture. However, despite the exceptional nature of these constructions, it is also important to recognize that these enclaves are residential.

This translates into careful practices for maintenance, updating functions and compatible technical actions which are at times difficult to carry out.

The life of these enclaves in the future is dependent on striking a balance between owners' legitimate need to provide use, dignity, conditions and optimum means to these dwellings and the difficulties caused by architectural, constructive, functional or landscape regulations.



16

### Material conservation

After learning and studying all the aspects relating to the site, the second step is the series of actions geared towards the conservation of heritage in material terms. These actions affect the different scales of architecture, from the urban scale to that of the architectural or constructive element. They also include the actions for the promotion of the conservation of historic goods. The main criterion to be taken into account in the different levels of these strategies is the compatibility of the actions executed.

Conservation of the remnants	Compatibility of actions
S.2.1 Conservation of historic urban layouts	
S.2.2 Conservation of historic architectural typologies	
S.2.3 Conservation of historic constructive structures	
S.2.4 Conservation of historic techniques	
S.2.5 Conservation of historic arts and crafts	
S.2.6 Compatibility of materials and constructive techniques	
S.2.7 Structural compatibility	
S.2.8 Compatibility of uses and functions	

#### S.2.5 Conservation of historic arts and crafts

Esta estrategia consiste en la implementación de acciones constructivas dirigidas a la conservación de la arquitectura tradicional constructiva, entendida como el conjunto de arte y oficio histórico que deben ver en su que hacer su continuidad constructiva. En estos casos, la conservación se refiere a la conservación de los materiales, técnicas, procedimientos constructivos, artesanos, etc. Este tipo de acciones se refieren a la conservación de los materiales, técnicas, procedimientos constructivos, artesanos, etc. Este tipo de acciones se refieren a la conservación de los materiales, técnicas, procedimientos constructivos, artesanos, etc.

#### S.2.6 Conservation of historic arts and crafts

This strategy implements actions geared towards the conservation of the traditional wisdom ingrained in the historic arts and crafts which have given life to what is now considered heritage. These are related to local constructive techniques for walls, roofs, floors, paving, carpentry, surface finishes and architectural details, as well as the production and extraction of materials such as stone, ceramic, lime, gypsum or earth. There is a need for the promotion of traditional constructive techniques and local materials in intervention and new construction processes in order to conserve these arts and crafts.

A fundamental aspect of the conservation process is the dissemination and promotion of the transfer of traditional knowledge through the generations. This exchange of information is brought about mainly through learning processes which valorise its characteristics and intangible aspects.

#### S.2.5 Conservazione di arti e mestieri storici

Questa strategia consiste nell'implementazione di azioni costruttive volte alla conservazione dell'architettura tradizionale costruttiva, intesa come l'insieme di arte e mestiere storico che hanno dato vita a quanto oggi è considerato patrimonio. In questi casi, la conservazione si riferisce alla conservazione dei materiali, tecniche, procedimenti costruttivi, artigiani, ecc. Questo tipo di azioni si riferisce alla conservazione dei materiali, tecniche, procedimenti costruttivi, artigiani, ecc. Questo tipo di azioni si riferisce alla conservazione dei materiali, tecniche, procedimenti costruttivi, artigiani, ecc.

#### S.2.5 Conservação de artes e mestiers históricos

Esta estratégia consiste na implementação de ações construtivas voltadas para a conservação da arquitetura tradicional construtiva, entendida como o conjunto de arte e ofício histórico que devem ver em seu fazer sua continuidade construtiva. Nestes casos, a conservação refere-se à conservação dos materiais, técnicas, procedimentos construtivos, artesãos, etc. Este tipo de ações referem-se à conservação dos materiais, técnicas, procedimentos construtivos, artesãos, etc. Este tipo de ações referem-se à conservação dos materiais, técnicas, procedimentos construtivos, artesãos, etc.

17

Images from the booklet  
© Universitat Politècnica de València, 2020

**Edition and publication of 3DPAST From Vernacular to World Heritage book**

Following the analysis, revision of the literature and content development, the systematisation of knowledge regarding the 3 dimensions of the project was produced. It was presented in a scientific book that gathered the main results developed by 3DPAST research teams. The findings emerged from the elaboration of fundamental data collected at each site: through drawings, laser scanner data, digital images, interviews, tangible and intangible knowledge documentation, etc. The scientific book was sent to key-institutions working on vernacular architecture and World Heritage, which also play a key-role for the project's dissemination in Europe, and around the World. The book has also been designed to interact directly with digital contents. The 3DPAST App uses the camera of a smartphone or tablet, to recognise selected printed images of the book. Then, it overlays media on the top of the images, in the form of videos, 3D models, galleries of pictures and web pages. The digital book was produced for dissemination and it was made available for free download, contributing to open access and free transfer of knowledge.

**Edition and publication of a booklet, digitally and in paper**

Technical strategies for conservation of vernacular architecture, looking for to enhance best practices, were gathered and presented in a booklet, approaching, particularly, study and knowledge, material conservation, policy and management, and dissemination. This publication was produced through a printed booklet and a digital e-booklet, in five European languages: English, Spanish, Portuguese, Italian, and French. The booklet is also available for download, at the website of the project (www.esg.pt/3dpast/), contributing to the free transfer of knowledge, regarding the preservation of World Heritage, and, in particular, of vernacular dwellings.

### **Digital and Technical workshops for broader local and regional impact**

This activity encompassed the identification of intangible knowledge regarding traditional techniques and materials, as well as its maintenance, still in use by local craftsmen. It also became an opportunity for international networking and transfer of knowledge regarding multimedia, virtual and augmented reality. This was just possible by the development of local digital and technical workshops, an indicator of capacity-building and knowledge transference as aforementioned.

Hands-on workshops on stone, wood and earth construction, aiming at the transfer of knowledge among high-school and university students, and involving craftsmen, architects and professors, were developed among the university institutions involved. This activity was also relevant, as it created a network of entities working on tangible and intangible heritage, but also on digital tools. As a result, technical and digital workshops in some of the World Heritage sites were developed, enhancing the knowledge transference, the capacity building of students, and interested people.

### **Dissemination of results**

The results and outcomes of the project are intended to be disseminated in Europe and world-wide, as they were digitally developed and produced, thus breaking barriers and crossing frontiers in nowadays digital era. These outcomes are also devoted to the development of audiences, as they are intended for major interested people, such as: inhabitants of World Heritage Sites; architects and heritage professionals; traditional building and vernacular architecture experts; interaction designers; local developers; craftsmen and technical representatives from the municipalities. The project results are also intended to reach the general public, and to disseminate results across adults, elders, people with disabilities, students and children. It is also meant for tourists, or people interested in travelling or discovering new sites, who can personally find and rediscover this unique heritage through the digital produced contents on virtual and/or augmented reality.

### **References**

ICOMOS 1999, *Charter on the Built Vernacular Heritage*, <[https://www.icomos.org/images/DOCUMENTS/Charters/vernacular\\_e.pdf](https://www.icomos.org/images/DOCUMENTS/Charters/vernacular_e.pdf)>