



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair  
Forum University  
and Heritage



UNIVERSITAT  
POLITÈCNICA  
DE VALÈNCIA



## Heritage Research

**Name:** Jamie  
**Surname:** DAVIES  
**Nationality:** United Kingdom of Great Britain and Northern Ireland  
**Language:** English  
**Title:** On-site Digital Heritage Interpretation: current uses and future possibilities at World Heritage Sites  
**Type:** Master  
**Supervisor:** Dr Mary Brooks. Course Director, International Cultural Heritage Management Masters, Durham University (UK)

**Institution:** Durham University (United Kingdom of Great Britain and Northern Ireland)

**Date of submission:** July 2014

**Thematic Structure :** *Information and Communication Technologies (ICTs) for Heritage*  
*Tourism : Cultural Tourism & Ecotourism*  
*World Heritage*

**Available at:** [http://universidadypatrimonio.net/Thesis/2014DAVIES268\\_MACompleted\\_EN.pdf](http://universidadypatrimonio.net/Thesis/2014DAVIES268_MACompleted_EN.pdf)

**Abstract**

In today's Digital Age, onsite digital interpretation is expected. Set within the context of the proliferation of mobile devices, wearable technology and increased connectivity, this paper will identify the latest onsite digital interpretation initiatives with a specific international focus on current uses at World Heritage Sites. The paper concludes by discussing the possible application of onsite digital interpretation at Durham WHS, both its possibilities and barriers. Specific technologies discussed and evaluated include QR codes, NFC technology, iBeacons, iBeaken, Apps and Augmented Reality. The paper aims to highlight the gap between the theory and practice and how onsite interpretation (outdoor) is slow to take advantage and integrate this new technology in contrast to museums. It is hoped that this research will provide an important resource for WHS's to make informed decisions about future investment in onsite interpretation which will fulfil their obligation for the 'transmission to future generations of the cultural and natural heritage' (UNESCO 1972:Article 4).

## Table of contents

Abstract .....	3
Acknowledgements ....	5
Glossary .....	6
Introduction .....	8
Aims and Methodology .....	9
Why Digital Interpretation? .....	10
QR Codes (Quick Response Codes).....	17
NFC (Near Field Communications) and iBeacon .....	32
Mobile Apps .....	40
Augmented Reality (AR) ....	46
Durham World Heritage Site Digital Interpretation Plan ....	57
Conclusion ....	65
Figures .....	66
Bibliography .....	70
Appendix 1: Ename Charter .....	79
Appendix 2: Technology Summaries ? .....	86