

## Chapter 13

# Requirements on System Design to Increase Understanding and Visibility of Cultural Heritage

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### ABSTRACT

*How can technology be used to increase visibility and understanding of numerous sites that are not yet able to attract the amount of people they deserve? Focusing on this question, the authors report on their activities started with MUSE, a project started within the Italian National Research Program on Cultural Heritage PARNASO and continued within the “Mobile and Ambient Systems” Work Group of the European Network of Excellence in Open Cultural Heritage as part of the CIMAD project. The authors use their experience on a 7th Framework Programme project called SOFIA within the ARTEMIS Joint Technology Initiative to consider future and prospective research directions and present a vision of how Cultural Heritage would benefit from making “information” in the physical world available for smart services.*

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## INTRODUCTION

Cultural Heritage (CH) is a great attraction factor for tourism worldwide and many countries aim to offer low cost, high-value content and services that can provide better visibility to their museums, sites and landscapes. Culture is a sign of human civilization and - luckily - the culture sector is well developed on our planet. In Italy, for example, there are over 3200 Cultural Heritage sites, 402 of which are National Institutions visited by over 30 million people per year (34 millions in 2007, 33 millions in 2008) (MiBAC, 2008; Touring Club Italiano, 2008). But visibility of the large majority of sites is very low, and so is the level of “understanding” of CH (Antinucci, 2007). Solutions to these issues require services that involve many co-operating actors and are well integrated in the territory (Raffa et al., 2007). In this scenario, Information & Communication Technologies (ICT) may play a significant role, by providing the tools to reach people with relevant and appropriate information. Therefore, the market of digital services and multimedia content for cultural tourism might have a significant impact on the ICT industry in the future and may become an increasing source of new jobs for the Information Society. As stated by the Europe’s Information Society (2007), to “fully profit from the European internal market, digital content and services should rely on interoperable technologies, allowing them to reach all the users. The Information Society brings benefits to European business, society and culture only because it delivers useful services, where and when they are needed. Digital content and services are therefore crucial to delivering the Information Society’s benefits to Europe’s society and economy, ... and also represent a potentially major source of new jobs and growth”. Content and services should be discovered and delivered in the most suitable format, optimized to the user situation, profile and environment. “*Docere, delectare, movere*” are the motivations for this multimedia content as it was for the orators of

the ancient Rome (Bolzoni, 2002): content and services should be compelling enough to increase the knowledge level and excite the users at the same time and they should be delivered nearly spontaneously on the most appropriate available medium. Many requirements should be met to turn this potential market into reality. A lot of research has been dedicated in the last decade to meet some of these requirements separately, but research to meet all of them in a harmonized way is still a new horizon in the CH domain.

In this chapter, the authors report on their research carried out over nearly a decade (2000-2008) within two projects: MUSE (MUseums and Sites Explorer) and CIMAD (Common Infrastructure/Context Influenced Mobile Acquisition and Delivery of Cultural Heritage Data). The former was about making the visit to a museum or archeological site more enjoyable and fruitful by means of a novel mobile sensory-augmented context-aware multimedia guide called Whyre®. The latter investigated on a common software framework to simplify the development process of CH applications.

MUSE project revealed a relevant aspect, such as the need of big investment, both for the device design and for the content production. In order to improve CH perception in a cost-effective way, many actors should be involved, i.e. tour operators, service providers, CH sites owners, telecom operators and technology providers, and many integrated services should be provided, i.e. site management, data collection, content delivery, and they should be smoothly accessible from everywhere and integrated on the territory. To reach this goal, a structured approach on using technology in CH is required.

The European Network of Excellence EPOCH – Excellence in Processing Open Cultural Heritage (2004-2008) has taken on this challenge of “overcoming fragmentation in open cultural heritage” (EPOCH, 2004) and it has devised a reference architecture for all CH related tasks from data collection to data presentation. Within

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