A New Framework for Accessible Tourism
Mobile Application Development

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ABSTRACT

Recent years have seen an increasing realization of the importance and potential of accessible tourism. To support it, the ICT industries have provided many different applications, especially for mobile computing frameworks. An analysis of these applications allows us to identify some issues that are not yet fully addressed. These include the absence of collaborative features; the lack of involvement of all stakeholders; the inexistence of synergies; the lack of widely accessible geographic databases and the limited scope of focus within the disability range. To tackle some of these issues, the authors propose a common framework for development of tourism accessible related applications. This framework stores and manages tourism information and makes this information available to be used by mobile applications developers through specific web services. This approach can represent an important contribution to accessible tourism, by decreasing the cost and facilitating the development of new applications supporting new products and services.

KEYWORDS
Accessible Tourism, Common Framework, Integration and Sharing, Stakeholders Involvement, Tourism Services

1. INTRODUCTION

Travel & Tourism is one of the pillars of the global economy, generating US $7.2 trillion (9.8% of global GDP) and supporting 284 million jobs worldwide (“Travel & Tourism: Economic Impact 2016” (WTTC, 2016)). While the importance of this area is already substantial, its growth prospects (3.5% rise in 2016) indicate that it should continue to increase in the next years. The European Union also follows this global trend, with 17 million people working in the Travel & Tourism sector, which accounts for almost 10% of the EU GDP (EWORX, ENAT, & Team, 2015).

Inside this huge sector, Travel & Tourism, one of the specific markets with highest growth forecast is the one of accessible tourism. Accessible tourism in an inclusive concept, since many specific groups can have specific needs that may not be fulfilled by current tourism products and services. These groups include not only people with disabilities, but also the elderly, families with

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young children and other people with specific needs (e.g., suffering from food or pollen allergies). Accessible tourism is a right for all these people, and its goal is to allow them to travel and relax in the best conditions allowed by their specific circumstances.

Illustrating the importance of this specific tourism market, some studies estimate that, by 2020, 25% of travel and tourism spending will be from people with disabilities or other specific needs (Graham, 2013). Investing in this subsector can create new markets and business opportunities for tourism operators; reduce seasonality, since people with disabilities or specific needs can easily travel out of season; create more jobs and growth for regions and municipalities that become accessible. For tourists with specific needs, the development of accessible tourism will help them fully enjoy their travel and touristic activities. Bringing all these stakeholders together is essential to achieve the synergies needed to make accessible tourism grow.

Similarly to what already happens in the general tourism industry, Information and Communication Technologies (ICT) can be an essential facilitator in the development of this submarket. In fact, many difficulties encountered by tourists with specific needs are related to physical accessibility barriers, including transportation restrictions. ICT can be used to allow these groups to access relevant information, customized to their specific needs or disabilities. If a group has communication difficulties, ICT can frequently help by providing information in a more appropriate way.

For people with disabilities, ICT applications can even be more important than for the common tourist. This class of users must receive fully reliable information about accessibility before booking travel and accommodation. If the information provided is found not to be reliable or proper, the consequences can be significant harder than for other tourists, making part, or even the totality, of the planned activities impossible to complete.

Fortunately, the generalized use of mobile computing devices, with ever increasing abilities in terms of communication, collaboration, mobility and interaction, has created many opportunities for software developers to provide reliable and easy to use applications to assist people, and specifically people with disabilities, in their tourism and travel activities. These applications have the potential to leverage the access to vast data resources and provide users with relevant and accurate information, tailored to the specific needs of the user, and presented with interaction mechanisms adequate to any existing disability.

1.1. Motivation and Objectives

An analysis of current applications that offer support for accessible tourism (see section 2), shows them to be limited to specific regions or cities, with several applications covering overlapping areas. This suggests that much of the information needed by each application (e.g., points of interest) must be repeatedly inserted in the corresponding database, in an effort that may inhibit the participation of some of the shareholders. Many functionalities are also common between applications, needing a new implementation for each app.

We believe that a common knowledge base and development framework, shared between apps, could facilitate the gathering of information relevant to the accessible tourism area, by reducing the effort needed to insert and update all information over multiple databases. Collaboration mechanisms, like ratings and opinions, could also produce more accurate results if aggregated over different sources. Access to data, as well as common functionalities, could be offered by the development framework as web services or framework specific API. This approach could lead to an increase in participation from institutional and business stakeholders, by decreasing the effort of information insertion and update. It could also remove some entry barriers to application development for disabled tourists by providing developers with access to an accurate and vast knowledge base, as well as implementing simple functionalities needed in different apps.

The main objective of our work is to develop a shared framework that offers centralized access to the management of tourism information and supports the development of new mobile tourism applications through the implementation of common functionalities and access to a large, shared,
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