


# Chapter 15

## Accessibility Solutions for Visually Impaired Persons: A Digital Platform Conceptualization

**Rita Oliveira**

 <https://orcid.org/0000-0001-6041-9469>

*Department of Communication and Art, University of Aveiro, Portugal*


**Alcina Prata**

*School of Business and Administration, Polytechnic Institute of Setúbal, Portugal*

**José Carlos Miranda**

*Instituto Politécnico de Setúbal, Portugal*

**Jorge Ferraz de Abreu**

 <https://orcid.org/0000-0002-0492-2307>

*Department of Communication and Art, University of Aveiro, Portugal*

**Ana Margarida Almeida**

*Department of Communication and Art, University of Aveiro, Portugal*

### ABSTRACT

*This chapter aims to address a study in which it is intended to conceptualize, develop, and evaluate an aggregation platform of accessible solutions target to Portuguese people with visual impairment, incorporating not only an information layer but also a training layer using, for example, explanatory videos and tutorials. The platform contents will be nourished through a logic of volunteering and be available through an interactive television (iTV) application and a web/mobile application accessible to visually impaired users. In this chapter, a state-of-the-art survey is made to identify types of digital solutions target to visually impaired users. Based on this survey, an analysis is made to understand what features and functionalities the proposed platform can integrate and how it can become a powerful solution for people with visual impairment. In addition to the state-of-the-art survey and its analysis, the chapter includes the identification and description of the system architecture that will support the proposed platform.*

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## **INTRODUCTION**

Digital inclusion of citizens with special needs has become the basis of many public policies in Europe in recent years. Portugal is not an exception country, where various initiatives and actions are created to promote accessibility in various areas of society to equalize the opportunities of participation by this public. For visually impaired citizens (blind and with low vision), there are several information and communication technologies, systems and services in Portugal that follow the accessibility requirements applicable to visual problems. According to the 2011 Portuguese Census (INE, 2012), about 1 million persons have visual impairment: 97% of them have great difficulty in seeing and 3% are blind. However, this considerable number of citizens do not have mechanisms and tools to quickly search accessibility solutions, and these people are unfamiliar with the solutions they can use in their daily lives. The reason for this lack of knowledge often relates to the weak information and dissemination of these solutions to the final public.

The main project that supports the paper is based on the study of new strategies to promote the digital inclusion of visually impaired people in society, with the purpose of disseminating accessibility solutions of different types (digital, television, cultural, etc.) for this kind of users, and also the training of this audience in order to acquire skills to use these solutions. Therefore, this paper aims to address and discuss the initial key steps to conceptualize the platform of accessibility solutions aggregation for visually impaired people. It is intended that the platform integrates solutions of various types; however, this first study only analyzes digital solutions. In the near future, we intend to analyze solutions from other areas and verify if the functional requirements remain adequate or new ones need to be added.

The paper is organized as follows. In the next section, a theoretical background about inclusion, universal design and accessibility is performed. Next, a state of the art concerning digital solutions for people with visual impairment is presented. In the fourth section, the proposed platform is conceptualized and its features and functionalities are discussed. In the fifth section, the system architecture of the proposed platform is identified and explained. The final section presents the most relevant conclusions and the work to be done in the future.

## **THEORETICAL BACKGROUND**

As Castells (2007) argues, information technologies triggered a technological revolution that caused significant social impacts, such as the production of exclusion phenomena and the establishment of isolated communities. For the author, in the informational and global economy, individuals, companies, and regions are dependent on technologies, information and knowledge, making the economy more susceptible to the production of exclusion phenomena. In other words, for the author, the digital exclusion does not mean simply considering the lack of equipment or information systems accessible to citizens, it is also a process of social, economic and cultural exclusion. Thus, there is little space for people who are not familiar with technology, for people who consume less information and for territories not updated with communication, creating a boundary between people ‘with’ and ‘without’ access to information.

Similarly, Hamelink (2000) considers that the potential of information technologies is ambivalent. On the one hand, they can induce positive changes, but on the other hand, they can have heavy social costs, since despite the advocacy of free and universal access to ICTs, this scenario is still made up by a minority, which must become a large majority.

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