SEVENTH FRAMEWORK PROGRAMME
INFORMATION AND COMMUNICATION TECHNOLOGIES

Project
Accessibility Assessment Simulation Environment for New Applications Design and Development (ACCESSIBLE, Grant Agreement No. 224145)

Deliverable
D4.1 – A set of formalisms and taxonomies for accessibility assessment procedures and their inherent meta models

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1 Introduction

For many people, the complexity and lack of accessibility and usability of software applications can be considered as a major barrier to information access, in particular for groups at risk of exclusion. We respond to this challenge by proposing a tailored accessibility assessment ontological framework, the ACCESSIBLE Ontologies, which affords the specification of user characteristics and their requirements, and associate them to specific accessibility assessment procedures.

The main goal of this document is to describe this ontological framework that provides support for the formal and unambiguous definitions of accessibility domains, as well as the possible semantics of the interactions between them. The ACCESSIBLE ontological Knowledge Resource acts as a registry of knowledge for all the other components of the ACCESSIBLE project. All ACCESSIBLE components access the knowledge base by interacting with the ontological knowledge resource through available interfaces. The framework aims to formalize conceptual information about:

- The characteristics of users with disabilities, devices, applications, and other aspects that should be taken into account when describing an audience with disabilities and developing tailored Web sites;
- Accessibility standards and associated checkpoints;
- Semantic verification rules (part of deliverable D4.2) to help describing requirements and constraints of audiences, and associating them to accessibility checkpoints.

In order to cope with these goals, the framework must comply with the following requirements:

- To be as formal as possible, thus providing all the necessary definitions in a concise, unambiguous, and unified form;
- Provide information that can be easily processed by software applications and integrated into accessibility validation processes;
- Easily implemented by software developers and other users involved in the software development process of Web accessibility tools.

One of the main issues in designing and developing the proposed framework was to make it maintainable and extensible, while assuring model consistency within the framework. Therefore, we have separated the ACCESSIBLE Ontology into three distinct dimensions: Generic Ontology, Domain-specific ontologies and Rules Ontology, as depicted in Figure 1. Each dimension is further explained in the following Sections. Moreover, it was decided that D4.1 document will be an ongoing document to be improved, revised and continuously completed by the end of the project. This is the reason that we have decided to make the OWL ontologies public to all.

This document is structured as follows.

- **Chapter 2** presents the detailed ACCESSIBLE ontology architecture and implementation technologies.
- **Chapter 3** provides an overview of the Generic Ontology.
- **Chapter 4** describes the Domain-Specific Ontologies (DSO).
- **Chapter 5** presents various standards for accessibility.
- **Chapter 6** specifies the Rules Ontology.
• Chapter 7 is dedicated to the conclusions.