

## 2. Current examples of existing products and services for people with disabilities

### 2.1 Introduction

*Julio Abascal and Patrick Roe*

This chapter brings together a number of examples of good practice that have been chosen with the objective of providing some insight on the possible evolution from current telecommunication technologies to future “intelligent environment” services. The main aim is to give a snapshot of current trends in services that are accessible to people with disabilities and to discuss the possible impact on people with physical, sensory or cognitive restrictions (that may be due to a disability, ageing or to the special conditions or equipment they use). The emphasis is on presenting current services and how they are likely to evolve in the future to show what the potential impact could be on people with disabilities and elderly users. This will also serve as a baseline of what is the current situation in comparison to the possible future scenarios discussed in chapter 4.

The chapter is structured into four main sections (apart from this introduction): 2.2. New technologies to help people with disabilities and elderly people; 2.3. New remote services; 2.4. Evolution of text telephony; and 2.5. User participation in technology. A summary of the contents is given below.

#### **Section 2.2 New technologies to help people with disabilities and elderly people**

Technological advancement in the field of robotics has provided devices and techniques for sensing, positioning, mapping, navigating, etc. These techniques have made it possible to develop devices to help people with physical, sensorial or cognitive restrictions to navigate both outdoors and indoors. The section “Safe navigation with modern technology” makes a detailed description of current technology to support human navigation and discusses the possibilities for the near future.

It is known that speech is the main means of communication between people. Nevertheless a number of users with disabilities experience restrictions in their speech capacity that limit their communication skills. Current speech technology is able to translate text-to-voice and voice-to-text (the latter still without enough quality and reliability), enabling the design of diverse mediation devices and

## 2. Current examples of existing products and services for people with disabilities

---

services. These include, for instance, reading texts aloud for people with sight restrictions, and controlling devices in a more natural way through the voice. The section entitled "Speech processing for people with disabilities" reviews current and more particularly, future applications of speech technologies that can enhance the communication of elderly people and people with disabilities.

### Section 2.3 New remote services

Broadband communication technologies are already available. They can sustain advanced services to support people with disabilities and elderly people. Relay services, virtual communities, enhanced communication, etc., are being successfully tested in a number of countries. The section entitled "Novel broadband-based services: new opportunities for people with disabilities" describes seven trials of advanced broadband-based support services, conducted by the National Post and Telecom Agency in Sweden (Post- och telestyrelsen, PTS), to test the validity of current and future broadband telecommunications services in providing remote support that is tuned to the needs of specific groups of people with disabilities.

Relay services usually act as communication mediators between users, one of whom at least has a disability that prevents them from using standard communication devices or services. These services are able to translate from signs-to-voice (and vice versa), from text-to-voice (and vice versa), etc. They can also provide other services such as the description of a received image to a blind person. Some pre-existent relay services may be enhanced, universalised and made less expensive by means of the currently available advanced telecommunication technologies. The section entitled "Access to video relay services through the pocket Interpreter (3G) and Internet (IP)" presents two experiences developed by the Swedish National Post and Telecom Agency: The IP access project, a video telephony relay service based on IP and the pocket interpreter for mobile video communication, both for signing deaf people.

Efficient use of relay services requires that a number of steps be closely followed in order to speed up the service. The section entitled "Convenient invocation of relay services" describes the best way to invoke various relay services currently existing in Sweden. These experiences may be taken as examples of good practice that help optimise the design of the access to future relay services.

The rise of Short Message Services (SMS) tied to the expansion of mobile telephony, is frequently associated in our minds to young people. Short messages are cheaper than voice calls and don't require that both interlocutors are simultaneously engaged. Nevertheless, SMS can be also useful for other groups of the population. A remarkable application of SMS is shown in section "Ways of

## 2. Current examples of existing products and services for people with disabilities

---

using mobile telephones by people with dementia", revealing that elderly people with cognitive restrictions can take advantage of this technology for verbal, text or symbol communication and support.

SMS technology is also used in the "Implementation of an SMS-based emergency service in Finland" to allow not only deaf people, but any other user, to contact the universal 112 emergency service sending emergency text messages. After making contact the user receives an acknowledgement message and can be located for assistance.

### Section 2.4 Evolution of text telephony

Text telephony is currently the basic means of communication for many people with disabilities, such as deaf people. The technology supporting mobile telephony does not allow the extension of traditional text telephony. For this reason, many users substitute mobile text telephony by the use of SMS messages, but they do not allow full interactive communication, hence the need to develop novel mobile text telephony services.

Since the next generation of text telephony in Europe is under development, it is necessary to establish basic design guidelines that guarantee the quality of the service. "The recommendations of the Nordic countries regarding functionality for text telephony" section compiles criteria that include mobility, interoperability, continuity, accessibility from the internet, and availability of relay services.

Diverse experiences have been developed to provide mobile text telephony through the access to internet servers. The section entitled "Mobile & IP-based text telephony" shows the deployment of such a service in Sweden, while "Mobile text telephony based on GPRS communications" explains the results obtained by a Spanish project.

### Section 2.5 User participation in technology

With the attraction of a growing market, there is a greater likelihood that more and more companies will be marketing devices in the near future that can be accessed by elderly people and/or people with disabilities. Since these concepts can be interpreted in diverse ways, consumers may find that devices advertised as fully accessible, straightforward and easy to use, do not really fulfil their needs. It is within this context that the availability of functional specifications of terminals becomes essential, so that products can be checked and certified in order to give to the customer a guarantee of the appropriateness of a given product or service

## 2. Current examples of existing products and services for people with disabilities

---

in relation to his or her needs. The section entitled "Functional specification for terminal procurement" presents an example of good practice from Sweden in what will become an important area for the future.