

# Chapter 3

## Elderly People, Disability, Dependence and New Technologies

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### ABSTRACT

*The potential impact of new assistive technologies to help people stay in their own homes for longer, age well and independently is a crucial challenge for future empowerment of the elderly. The main goals of this chapter are to draw attention to the characteristics of the elderly population and their situation regarding the increase in life expectancy and aging-related aspects, increasing the risk of disability and dependence. Notably, the role of information and communication technologies as supportive tools can help the elderly to improve their quality of life and independence. Services adapted to this population, e.g., tele-health, domotics or robotics, are examined in the text. We also look at the most relevant future opportunities and challenges to society towards new products and services.*

### INTRODUCTION

The change in health conditions, related to the increase in quality of life has generated an important social change. One of its key elements is the increase in the proportion of elderly people in the total population. These elderly people enjoy

perfect perceived health in general but in many cases, they will develop diseases that lead to disability.

Dependence is directly connected to disability and has been defined by the Council of Europe as “that situation in which people, due to a physical, psychical or intellectual autonomy loss need significant assistance or help to be able to manage themselves in their daily activities”. Put simply,

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it is the need for technical or personal help in carrying out an activity.

Facing this situation, in which more and more people reach old age with the risk of presenting a lack of functional capacity and the need of a third person as a carer, it is necessary to look for new attention alternatives. The combination of aging, disease and disability places a considerable burden on the capacity of individuals to live independently. Adaptation to the environment and the provision of technical aids should facilitate mental autonomy and physical independence, given that new information and communication technologies are a key element in the present society.

This chapter focuses on new Information and Communication Technologies (ICT) as a new tool offering applications and services to society and, more specifically, to elderly people with dependence. From the tele-alarm devices to the most advanced robots, there is a wide range of technological resources that are being developed by different research groups and which have their application in the field of the elderly as the reader will find through the different sections of this chapter.

## **BACKGROUND**

### **Situation of the Elderly Population**

One of the clearest achievements of human development has been the increase of life expectancy that at present reaches the age of 80 in developed societies. However, it has not always been like this; back in 1900, life expectancy for Spanish people was no more than 40. A drastic change in people's life conditions and particularly in their health conditions has been necessary to reach the current situation. Advances in prevention and health promotion together with those referred to as the therapeutic diagnosis and intervention techniques have succeeded in decreasing mortality

in all life stages, hence facilitating people to reach ages inconceivable one century ago.

According to the Eurostat (European Statistic Agency), the increase in life expectancy will continue, which, together with the decrease in fertility, will lead a further increase in the mean age of the population. The population above 60 who constituted 17% in 1960 has increased up to 21% in 1997 and is predicted to reach 30% in 2030.

However, this change in health conditions, related to the increase in quality of life has also generated an important social change. One of its key elements is the increase in the proportion of elderly people in the total population. These elderly people enjoy perfect perceived health in general but in many cases will develop diseases that lead to disability.

### **Disability and the Elderly**

Disability is the external sign of health problems. It is necessary to know the affected population in order to carry out the suitable support measures and look for a more fair society where those less integrated will be the beneficiaries of more resources. Nowadays, disability is one of the biggest worries in developed society. The different levels of public administration are trying to establish the real dimension of this problem not only for the elderly, but also for people of all ages.

Knowing the prevalence of disability will allow us to know one of the well-being indicators relating to the concept of "quality of life", which is a basic element in the search for an egalitarian society where all people will have the same opportunities. In particular, when referring to young people suffering congenital problems or accident sequelae, or to elderly people needing long-term care.

Since the situation in most developed countries (Western Europe and North America) is quite similar, we will take the case of Spain as an example of this phenomenon.

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