



European SeniorWatch Observatory and Inventory -
*A market study about the specific IST needs of older and disabled people
to guide industry, RTD and policy*

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Fall Detector

*A cooperation between The United Kingdom
and The Netherlands.*

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Contents

| | | |
|------------|--|----------|
| 1 | Introduction | 4 |
| 2 | Fall Detector. A cooperation between The United Kingdom and The Netherlands. | 6 |
| 2.1 | Description | 6 |
| 2.2 | Analysis | 7 |
| 2.3 | Acknowledgements and links | 8 |

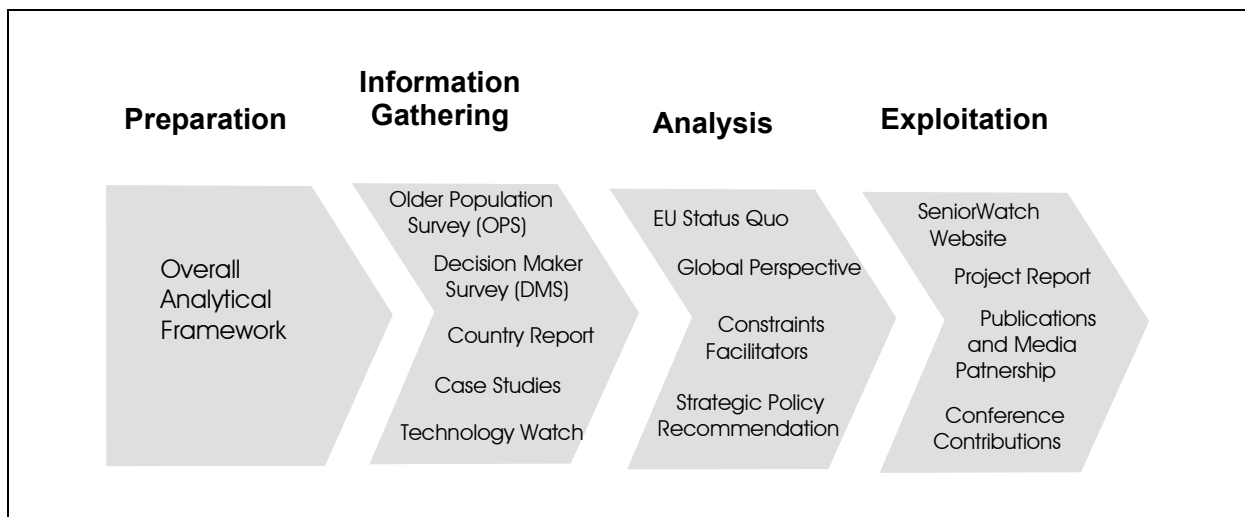
1 Introduction

The SeniorWatch project addresses the need to understand better and to monitor the market dynamics of Information Society Technologies (IST) applications and services targeted at older (and older disabled) citizens. Currently, there is insufficient empirical data about the needs of older citizens which could be met by IST-based applications and services, and a lack of awareness on the part of industry, users and politicians that hampers the rapid exploitation of new market opportunities arising from IST developments. In order to redress this state of affairs SeniorWatch will provide a European single source of empirical information on the market potential of IST-based products and services targeted at older people. The main objectives can be summarised as follows:

- to help and encourage European industry to address the market opportunities, and particularly challenge current competitive advantages of the US industries,
- to enable policy to really influence the current situation and to benchmark achievements between different European regions and countries and to make comparisons with competing world economies (Japan, US) most relevant to the field,
- to inform citizens about what is now possible with the support of IST and, thus, encourage them to demand IST products and services which meet their requirements.

As illustrated by Figure 1-1, these objectives require a comprehensive methodological approach to be applied. On the basis of an overall analytical framework, it integrates a set of complementary research methods such as European-wide surveys of older people and of decision makers in care services, best practice case studies, technology watch work shops and country reports. Synthesising the various types of empirical information gathered with help of these methods will finally enable the project to arrive at an holistic overview, to establish a technology and market observatory, and to derive policy recommendations to accelerate market development. Research results will be exploited by means of different measures.

Figure 1-1: The Project Phases of SeniorWatch



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As part of the project's overall methodological approach the SeniorWatch case studies aim at providing a useful source of information on how the IST-related needs of the target groups in question can adequately be served. They are also intended to help to understand - in a qualitative manner - more deeply specific aspects of the market situation related to IST

products and services relevant for older citizens. To allow a comparative analysis of real-life examples, a common approach for selecting and describing suitable cases was developed. The main selection criteria applied in this context include:

- suitability of the case to provide input to the overall understanding and analysis of the market for IST among older people;
- suitability of the case to serve as an example of a success story (or failure) that can guide and motivate others to take actions that will support the diffusion and take-up of IST by or for older people.

In the following the SeniorWatch case study no.15 is described.

2 Fall Detector. A cooperation between The United Kingdom and The Netherlands.

2.1 Description

Falls are one of the greatest obstacles to independent living for frail and elderly people, and one of the biggest problems in healthcare.

The use of a reliable Fall Detector may reduce the fear for falling. It can provide the user with the reassurance and confidence necessary to maintain an independent and active lifestyle. Thus preventing the user getting in the spiral of reducing mobility and growing isolation.

Frequency of falls amongst elderly people is high. About 30% of independent living elderly persons (>65 yr) make at least one fall a year. Half of those over 80 fall at least once a year. About 10% to 15% of all falls in older people will result in some serious physical injury, e.g. fractures (in 5% of all falls). Fall-related injuries are reported to be the fifth most common cause of death in the elderly population and the most likely cause of accidental death. The fear of falling may induce adverse lifestyle changes like a loss of desire to go out and to walk any appreciable distance. This might lead to isolation, reduces mobility and increases dependency. The reduction of mobility in itself in older persons might increase the likelihood of a fall.

Targetgroup for the fall detector are frail and elderly people who live independently at home and who have a history of falls in their homes and/or who have a fear of falling in their homes. The product can also be beneficial for older people who live in a sheltered housing scheme or nursing home and who are still mobile. The product might be of interest for people of all ages with a history of falls; e.g. people suffering from epilepsy (seizures). The use of a reliable Fall Detector may reduce the fear for falling. It can provide the user with the reassurance and confidence necessary to maintain an independent and active lifestyle. As stated above this can contribute to a reduction of further falls.

The product is aimed at a reliable, user-friendly, miniature device which is compatible with the already existing infrastructure of community (social) alarm systems. The Fall Detector will be used in conjunction with a community alarm system. When an alarm call is activated by a fall, the control centre operator will know immediately where the call was initiated, the identity of the client, their case history and who to contact to provide help.

In Holland more than 70.000 independent living older people are connected to a community (social) alarm service. This service enables the user to raise an alarm manually by pushing the button of a neck or wrist worn miniature transmitter. The operator of the community alarm service control centre will try to talk to the 'caller' to ascertain the nature of the problem.

The Fall Detector must be worn on the body. The best location for wearing the device is about the waistline so that the device remains upright when the wearer is in a sitting position. The device is mostly worn attached to the wearer's belt or clothes. Other locations than the waist still may fail to register a fall, while certain locations may make the device more sensitive and therefore more prone to false alarms. The bathroom is well known as a high risk area for falls because the floor may be wet and slippery and because vision may be affected by condensation and by the removal of spectacles and of walking aids. Waking up at night and going to the bathroom might also be a situation at risk, because of the person still

being drowsy, improper illumination and again not wearing spectacles or using walking aids. In these high-risk situations for falls people most likely will not wear their Fall Detector, for the simple reason that they have to wear the device attached to belt or clothes. When worn in horizontal position the device might even raise a falls alarm.

User feedback has taken place in several stages of the design process. This has yielded a number of important design improvements including the shape of the device, sonic indication of impact detection, attachment methods and an increase in battery life.

Context

In the UK the Fall Detector seems to be successfully on the market since one and a half year now.

In The Netherlands a pilot project is under way to evaluate the use of the fall detector in practice. The Dutch pilot is suffering unforeseen delay. So far experiences with the device in the Netherlands are slightly disappointing. Only elderly persons who experienced a bad fall before are willing to wear the Fall Detector. The high sensibility of the device, leading to multiple false alarms on some of the wearers is an important reason for them not to wear the device any more. Falls might occur when people are not wearing the device for instance when they enter the house, not wearing the device because it is useless outside, or when performing housekeeping tasks while not wearing the device because of the likelihood of false alarms and/or the device being uncomfortable and restrictive in certain activities.

2.2 Analysis

Impact

Early detection of falls may reduce the fear for falling while being unable to call for help. The Fall Detector can provide the user with the reassurance and confidence necessary to maintain an active, independent and self-sufficient lifestyle. Thus preventing the user getting in the spiral of reducing mobility and growing isolation. On the other hand there is a fair chance that users will not wear the device when at risk, for instance when visiting the bathroom or when leaving bed at night, still being drowsy, or performing housekeeping tasks.

Lessons to learn

Use of the Fall Detector doesn't make reducing the risks of falling less important. Prevention of falls should always be number one (e.g. obstacles in living environment; use of homeautomation; medication, assistive aids).

Perspectives

In future, further miniaturisation will lead to more easy to wear and a more intelligent system, e.g. preventing false alarms. Also implementation of homeautomation (domotica) will help to the prevention of falls.

2.3 Acknowledgements and links

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