

# **The Social/Non-Technical Challenges in Developing Technology to Support Elderly Care ”The TeleCARE Experience”**

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**Abstract:** One of the biggest challenges facing European society in the years ahead is the fact that our population is aging at an alarming rate. If by the year 2020, current forecasts prove accurate, then by that time we will see a ratio of 1 adult below pensionable age to 4 elderly people. It is not surprising therefore that, initiatives such as raising the retirement age are under debate. But this will not address the issue of elderly care. New approaches must be found to providing easily accessible, affordable, quality care so that the elderly in our society do not become isolated and marginalized. Advances in network technologies can provide new opportunities for development but such developments, if to be successful, must consider the social issues involved. This article presents the approach to addressing social/non-technical issues, and some conclusions drawn by the partners involved in IST project, TeleCARE.

## **1 Introduction**

During the last three decades, the number of people aged from 60 years or more has risen some 50%. Today, more than 25% of Europe’s population is aged 60 years or more and this trend is set to continue. Within 20 years approximately a third of Europe’s population will be over 60 years old, a total in excess of 100 million citizens. The percentage of people over 80 years is growing even more rapidly: an increase of 300% has been forecasted for the period, 1960 to 2020. Moreover, the ratio between the working and elderly population is dramatically declining. In 1995 there were almost seven adults of working age per one elderly person (aged 65 or more), by 2025 the ratio is expected to decrease to close to four. These trends present a real challenge for European society in the years ahead and underline the importance of developing new and more cost-effective ways of providing care and support to the elderly.

Ours is not a society which values the elderly, and old age is often viewed negatively, being associated with chronic illness, fear of crime, senility, and a general state of dependence. This negative image of the elderly is itself a threat to older people because it can act as a powerful self-fulfilling prophecy. Marginalisation increases isolation and reduces opportunities for interacting with other people in the

community. Anxiety about lack of money, together with loneliness, can lead to depression and personal neglect. Lack of exercise or an inactive lifestyle can result in poor physical condition and thus decrease the elderly person's ability to live an independent life. Therefore, it is in the interest of society in general and the elderly and those with an interest in their care in particular, that new approaches to providing care are found which support the concepts of "active aging" and "care in the community".

With ongoing advances in information and communication technologies, new and innovative approaches to care provision are possible which could address the need to promote independence whilst addressing the issue of disintegration of families and the marginalisation of the elderly as a sector in society.

## 2 Approach

In developing the TeleCARE concept, the project partners were aware from the outset that the major challenges involved were not solely technical in nature, particularly given the fact that the elderly (care) sector is one which has always been somewhat technology averse. With this in mind, and given the demographic trends outlined above, the aims and objectives of the project were summarised as follows:

*Project TeleCARE aims to design and develop a framework for tele-supervision following a multi-agent approach, including both stationary and mobile agents, and applied to facilitate independent lifestyles among elderly people using remote services.*

The first step in addressing the social/non-technical issues was to define user groups and user requirements. As a result of preliminary research 3 key user groups were identified, i.e. care providers, elderly, and relative of the elderly, and four prototype services were chosen to demonstrate the feasibility of the software systems developed. Since the elderly themselves often struggle to cope with technological advance as well as having to cope with the disintegration of faculties and senses, a factor inevitable with the onset of age, the way in which the elderly user interacts with the system is of crucial importance.

With TeleCARE, the elderly user accesses services available through a television and remote control, whilst the care provider will manage the provision of services from a computer terminal. The use of the Internet allows care support to be provided remotely in instances where the elderly person needs supervision rather than 24 hour care. The system allows the development of on-line communities of elderly, their families and care professionals.

The 4 services developed are as follows:

### □ **Agenda Reminder**

The aim of the "Agenda Reminder" Service is to improve the quality of life for the elderly person by using a system for recording and issuing reminders of events and/or appointments which must not be missed. The care provider manages the diary and the system itself reminds both care professional and elderly user of appointments scheduled.

❑ **Life Style Monitoring**

The aim of the “Living Status Monitoring” service is to improve the quality of care provision and support an independent lifestyle for the elderly. The system will monitor the elderly person through a number of devices such as sensors, panic alarms mechanisms and, where appropriate, cameras to ensure that the elderly person is well looked after. The care provider manages the information relayed and the system alerts in the case of irregularities.

❑ **Time Bank**

The aim of the “Time Bank” service is to offer the elderly person a way to feel useful, to share their experiences with others and to remain active. Already an established concept, the time bank is a system through which people help each other with jobs that need to be done.

❑ **Entertainment**

The aim of the “Entertainment” service is to provide the elderly person with access to leisure activities and interaction with others so that their feelings of loneliness and isolation are addressed. The prototype service offers the elderly user access to on-line “E-bingo”, Music Library and Audio (books) library.

Developing innovative systems and services to support elderly care is not in itself a guarantee that such technologies will be used. It is therefore necessary to investigate the social implications arising from such an approach. To address this issue, the consortium adopted a two-pronged approach.

Encourage feedback from the 3 target groups through a series of public meetings where the feasibility of the TeleCARE concept could be debated. Relevant interest groups could then, to some extent, influence the progress of developments

Launch a socio-organisational study to determine the extent of impact of the technology on the three target groups so that pertinent issues could be identified and addressed to facilitate technology take-up.

Let us now consider each of these in turn.

### **3 The TeleCARE Public Events**

The TeleCARE Public events were designed with two objectives in mind. Firstly, to disseminate the TeleCARE concept and secondly, to generate input from those people who have a good knowledge of the elderly (care) environment. To date, three key meetings have been held, Pamplona, May 2002, Sevilla, December 2003 and London, January 2004.

From the discussions held, there are a few recurrent themes, which can be summarised as follows:

- ❑ New approaches to elderly support services are needed but technological advance can often be confusing. Finding the best way to move forward for all concerned is of key importance.
- ❑ The elderly do not find it easy interacting with modern devices and systems and services designed for them must be simple and easy to use.
- ❑ Consideration must be given to issues such as security, both in terms of personal safety as well as security of information.

- Elderly people's privacy should not be compromised. The elderly themselves, or someone nominated by them, must have full control over what, and how, services are used.

#### **4 The Socio-Organisational Assessment**

The TeleCARE socio-organisational assessment survey population consisted of a database of 2000 organisations involved in the provision of care to the elderly across the United Kingdom. This sample was approached using a paper-based questionnaire as assessment instrument, which was sent out through the post. Furthermore, a selection of interviews with 50 elderly people and their relatives were also carried out. For this sample, each elderly person and each relative were interviewed. The basis for interview was a questionnaire designed for the purpose.

With respect to the structure and content of the assessment instruments, the design was based on the vision and objectives of the project, namely to provide expert supervision and care facilities to improve the quality of life for the elderly person and their families. The content of the assessment instruments focused on the following 8 key parameters:

1. Quality of life - Routine
2. Independence – Care Support/Self esteem
3. Socialisation – Socialisation – Loneliness/Family/Leisure
4. Security - Safety
5. Care and Support – Access/Quality
6. Privacy - Intrusiveness
7. Work/skills – Activities/Opportunities
8. Costs

Each case in the sample was asked to assess the impact of each of the 4 vertical services detailed above, on each of the 8 key parameters. Following an analysis of returns, the key findings can be summarised as follows:

In general, the view amongst the three target groups is that computing technology will inevitably become as ubiquitous in the elderly care sector as it is in many others. However, this will only happen in future generations since tomorrow's elderly will not be so unfamiliar with the technological revolution. There is a fear amongst many respondents that providing care services remotely could increase instances of isolation and loneliness if not combined with more traditional methods. Moreover, the TeleCARE approach to care provision is only relevant in situations where the elderly person is already quite independent. Once the elderly person becomes quite frail, then 24 hour nursing care must be the only option. Therefore, respondents from the elderly care provision sample underline the fact that TeleCARE as an approach must not be seen as a substitute for instances where care necessitates human contact.

## 5 Summary of Outcomes

The TeleCARE socio-organisational assessment has been carried out in the UK and it must be understood that the outcome of the assessment can not be considered representative of a situation in other countries and regions around the European Union. However, if run in other countries and regions, similarities are probably likely. To run this assessment in the wider European context would require more time and resources than were available to the TeleCARE consortium for this purpose, during the course of this project.

In considering the outcome of this assessment, and before conclusions are drawn and recommendations made, the following important points must be kept in mind:

- ❑ The elderly care sector in the UK is a sensitive one. There have been many high profile cases reported by the press underlining the weaknesses in the current system of care provision.
- ❑ With costs of care provision increasing, and the current trend towards encouraging “Care in the Community”, in the past couple of years, many care homes have either had to close, or switch to caring for people with disabilities.
- ❑ The respondents to the socio-organisational assessment, care providers, elderly people and their relatives, as a group, are relatively technology averse, when compared to other sectors in society.
- ❑ The respondents to the socio-organisational assessment, have assessed the impact of the TeleCARE technology without having actually experienced it first hand.

The elderly care sector is an area of great sensitivity. The elderly, as a sector in society, are all too often overlooked when developing both public and private investment strategies for the future. This is not to say that investment provisions have not been, or are not being made, but rather, levels of investment are not adequate given the demographic trends.

If we assume that the sample of care providers, elderly and their relatives, who contributed to the TeleCARE socio-organisational assessment is representative of the care providing sector as a whole, then the following conclusions can be drawn.

- ❑ Although the use of personal computers in managing day to day business is prevalent with penetration rates exceeding 70%, the idea of using network technologies such as the Internet to support care provision, is not.
- ❑ The suggestion that advances in network technologies can improve care provision is one with which the care provider views with suspicion. In this sector, as is the case with many others, the introduction of new technologies is considered as an attempt to reduce costs by reducing the number of care providers required.
- ❑ The uptake of new technologies will require new approaches to elderly care. Care providers will need to re-train since the skills required will change.
- ❑ Whilst it may be beneficial to encourage an independent lifestyle amongst elderly people, we may run the risk of further isolating the elderly person within the community.
- ❑ The TeleCARE proposition would only prove appropriate amongst elderly people who enjoy good health and can live independently already. Elderly who

suffer from sensory deterioration and increasing frailty would not benefit from this approach.

- ❑ Supervision of elderly people in their homes using appropriate appliances and agent technologies is not elderly care. Although, methods of remote supervision may prove useful in the right circumstances, elderly care can only be provided by care professionals who develop a close personal relationship with the people in their care. Elderly care requires human contact.
- ❑ The TeleCARE approach is quite intrusive in that it compromises the elderly person's privacy.
- ❑ The elderly, as a group, are very technology averse. They feel alienated, and to some extent frightened, by advances in network technologies. They do not feel so inclined to re-train, if this proves necessary.
- ❑ The services offered through TeleCARE, in particular those services giving rise to virtual communities of elderly and their relatives, should be seen as a compliment to, rather than a replacement for, community groups.
- ❑ Since there could be a perceived threat to the elderly person's privacy, particularly with regard to the Lifestyle Monitoring service, it is of vital importance that the elderly user him/herself retains the right to choose the service options available through TeleCARE as well as the use to which such services are put.
- ❑ As to the issue of privacy, it is worth noting that many elderly respondents remarked on the fact that with the ubiquitous deployment of CCTV technology throughout our communities, privacy is already compromised. If the question is one of the ethics involved, then crucial issue is the nature of the intent to which the technology is put. In other words, if the intent is to support the elderly person in their desire for a better quality of life in a safer environment, and the elderly person retains some control over the use of the technology, then privacy is not such a critical issue.

## 6 Conclusion

It is clear that if the elderly, as a growing sector in society are to benefit from the development of the Information Society, then they must have access to systems and services which have been designed to meet their specific need. In developing such services, we must give careful consideration to the social issues involved. This is more acute with the elderly than with other sectors of society since the elderly are vulnerable and experience deterioration in to health and welfare with the onset of age. The concepts of active aging and care in the community are ways of addressing the challenges ahead and technology has a role to play.

However, future developments must bear in mind that solutions are not simply a matter of designing innovative technology based solutions. Such developments must give careful consideration to the social issues involved if success is to be achieved.

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