Gerontechnology – the European Perspective

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INTRODUCTION

Given the increasing mechanization of private and public settings, as well as the shift in the age structure of the population, technological appliances will have to be designed with the older user in mind (Gerontechnology). The symposium aims to provide an overview on the efforts undertaken to face this challenge and the progress achieved in European countries with different levels of mechanization and technical advancement. J. Graafmans reflects upon the major goals of the European Gerontechnology movement set up by The Netherlands and Scandinavian countries, and the milestones that have been reached in order to achieve those goals. Then P. Topo and associates will describe the situation in Finland, which has emerged as frontrunner in the field of Gerontechnology. Their contribution will address the challenges which sensory disabilities and dementia present for the development of technology and ethical concerns. Elderly people's coping with changes in their material environment, are the focus of a comprehensive multi-disciplinary research programme being carried out in France. Results are presented by F. Bouchayer, who stresses the importance of a social science approach in technology research and development. F. Marcellini addresses some major trends in the gradual diffusion of new technologies in Italy, a less industrialised European country where family ties and informal support networks are still strong. The situation is again different in Hungary, a Central European country at the threshold of becoming a member of the European Union. Focusing on the linkage of gerontechnologies to social services, Z. Széman uses the example of alarm systems to illustrate how a technical innovation combined with social innovation can benefit a whole society. Finally, H. Mollenkopf presents selected gerontechnology initiatives from Germany, a country that has achieved an intermediate level of mechanization. She will conclude by reflecting on the major challenges, opportunities, and concerns arising from the papers presented in terms of future gerontechnology research and development.

The Emerging Field of Gerontechnology

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Throughout history, many groups have applied their technology to specific problems of elderly people. This activity usually was performed in a crisis-driven mode dealing mainly with imminent problems related to the sickly aged. Solutions often came from medical or assistive technologies. To that respect, gerontechnology is unique by virtue of its deliberate comprehensiveness.

The term gerontechnology was coined in 1989 at Eindhoven University of Technology. This name supplemented an existing term, *Technology and Aging,* which is still used and roughly parallel to gerontechnology. Bouma, in an article in the first book devoted to this field provided the first publicized definition of gerontechnology as being *the study of technology and aging for the improvement of the daily functioning of the elderly.* He pointed out that the terms *Technology and Aging*, in the context of ergonomics, then and still now, are intended as very encompassing designations including R&D, design, manufacture and marketing.

Currently a number of groups at universities, especially throughout Europe, North America and Japan, have formed under the rubric of gerontechnology. There are international conferences and governmental funding has been developed. COST-A5, a Europe-wide network for planning and investigating issues related to older people was established by European governments. Findings of this network indicated that specific training and education were needed to produce dedicated researchers and professionals.

The full paper will elaborate on international developments in this field during the past decade and will briefly discuss how gerontechnology may unfold in the future.

Gerontechnology in Finland

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The first objective of the presentation is to give a short overview on the gerontechnological research in Finland. The second objective is to describe the results of two studies. The first study was made among deaf people, deaf blind people and people with aphasia on how their needs to gain access to email and virtual information have been met. The second study is the ongoing research project *Assessment of and ethical guidelines for welfare technology. Multimedia in dementia care and Internet-based shopping services as examples.*
The methods used in data gathering of the research projects were questionnaire surveys and letters, participatory observation and observation, semi-structured and structured interviews. The multimedia is assessed in a dementia care unit, shopping services in a home services office of the city of Helsinki, and the ethical issues are studied within two assistive technology development projects.
The needs to use email and the Internet of deaf people, deaf blind people and people with aphasia are often not met. According to the first findings of our projects it is necessary to involve the users - in our case ageing people and social and health care professionals - in the technology and service development in order to get sustainable solutions.

For ageing deaf blind persons and persons with aphasia the access to the Internet and email is crucial. More attention should be paid to the value of access to virtual information and email of these user groups. The importance of user involvement in technology and service development should be emphasised more. Methods to encourage discussion on ethical issues in welfare technology development should be developed.

Social Science Approaches in France

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How do elderly people, in their daily life, face changes concerning their material environment? This is the central topic of a social science research programme carried out in France by MIRE and CNAV in1997-2000. In total 20 studies were completed in sociology, anthropology, ergonomics, economy, housing, domestic and leisure appliances, transport, health, ICT, banking services, etc. Elderly persons' points of view were collected by qualitative interviews and in situ observations.

Results reveal that:
1. To use, as well as not to use technological products participate in the process of identity adjustments and assertions linked to age an ageing. Then, to qualify as *reluctance* attitudes of people that prefer not to use technical goods can be a comprehension error.
2. An important part of the difficulties encountered by the elderly is due to unsuitable products. Products and services dedicated to the whole population are most frequently designed for young and users who are able in every sense.
3. The relationships between elderly persons and their relatives, friends, professional carers, play a central role. Departure of children, retirement, widowhood, and demotorisation, constitute transition periods that determine changes in the use of technical devices.

To conclude, we have to consider the risk of technological illiteracy in industrialised societies, where elderly people are mainly living in common daily life environment. Products and services specifically dedicated to dependant and frail elderly are of course useful but they only partly concern the field of elderly people and of ageing.

The Situation of Gerontechnology in Italy

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In recent years technological solutions have become more diffused in Italy. They are becoming important also for elderly people, even if they are not as widely used as in Northern European countries or the USA. The level of education plays an important role in use and acceptance of technology: in Italy 75% of people aged 60 and over have 5 or less years of schooling, and also their income is often low.

Nevertheless in Central and Northern Italy, which are more industrialised than the South, it is possible to find innovative applications, even if some of them are in an initial or experimental phase. In the health system, Telecare and Alarm Systems are well diffused; telemedicine is used for connecting hospitals with homes, resting houses or nursing homes. TED project is a recent example of technology for persons with dementia. But, since the family has still a strong role in caring for older persons in Italy, the need for technological support is probably less felt.

High technology for developing innovative products for living independently is created by *Research Centres of Excellence*, such as the Scuola Superiore S. Anna in Pisa. In housing, only recently public dwellings for elderly people have been built with IT domotic solutions.

In conclusion gerontechnology is not widespread in Italy. Modern appliances are often a hindrance for elderly people, even when surfing the Internet, Italian websites for older persons, and the use of cellular telephone are slowly becoming popular. It is thus necessary to improve the acceptance of technology.

A New Technology and its Ripple Effect in Hungary

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The paper shows the far-reaching changes, affecting even public administration units, which are achieved by a single civil organisation in the introduction of new technologies and their linkage to social services.

The first attempt to improve the poor infrastructural situation of the elderly in their own home by introducing an alarm bell system was made in 1993. The model with units linked to a central computer, and a 24-hour duty service was introduced in a district of Budapest with an ageing population. Parallel with the installation of the units, the civil organisation also undertook to provide care for these elderly persons in the frame of a contract.

The model proved successful; it was developed between 1994 and 1998 in the capital. Then the civil organisation set it up also in smaller settlements. 150 settlements have so far been successfully provided with the technology that has been developed and adapted to local conditions. Now the Ministry of Family and Social Affairs would like to incorporate the system into the basic services.

The paper presents data showing how a Western initiative which was first embraced by a civil organisation shifted to the competence of local authorities and how the civil organisation finally succeeded in having the technical innovation combined with social innovation of benefit for the whole society included in plans for the expansion of basic services for the elderly in Hungary.

Gerontechnology – Challenges, Opportunities, and Concerns. The German Perspective

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This paper provides an overview of the main topics discussed in Germany in relation to gerontechnology: accessible technical devices for older people, tele-care and tele-rehabilitation, and seniors and the Internet. Prototypical research projects and initiatives are presented as examples from each domain: (1) the *Sentha* project (Everyday technology for senior households) conducted by an interdisciplinary research group at the Technical University of Berlin; (2) the *TeleReha* study, conducted at the Berlin Geriatric Center, examining telematic applications in geriatric-rehabilitative contexts; and (3) the *Silvermedia* Computer & Internet Club for older adults run by the Berlin Institute for Social Research (BIS).

The second aim of this paper is to draw conclusions from the results of the different European approaches to gerontechnology with regard to future research and development. The knowledge obtained in these different approaches should be used to maintain a high quality of autonomous living for older citizens and to prevent their exclusion from technological opportunities and advances.