

**ICT for Active Ageing at Work:
Reflection Paper for the i2010 eInclusion Sub-Group**

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1. Introduction

This paper presents initial reflections on the subject of ICT for Active Ageing at Work (AAW). It has been prepared for the i2010 Subgroup on eInclusion by MS Consulting & Research Ltd as part of a new support contract on ICT for AAW being undertaken for DG Information Society & Media, eInclusion Unit.

The paper positions ICT for AAW within the overall eInclusion and active ageing agendas, summarising recent research and policy developments. The focus is on *active ageing* within a *work context* and the potential role and impact of *information and communication technologies (ICT)* in addressing relevant issues. It sets some directions and priorities for the debate which will be pursued further over the coming months.

1.1 The Working Sphere and eInclusion

The working sphere is of great importance for eInclusion in Europe. Access to employment for all is essential for social cohesion, helping to ensure access to income, to opportunities for skills development. Work is also a part of our personal identities and contributes to self-esteem. While this is true for all age groups, the ageing of the population already underway gives work-related active ageing (or AAW) a new sense of urgency. New approaches to age-friendly working environments will be of fundamental importance for both Europe's competitiveness and sustainability.

ICT can contribute to help make the world of work more age-friendly in a number of ways [1]. They can assist and compensate for functional restrictions and therefore improve the *employability* of people who are at risk of being excluded from the labour market. The introduction of ICT can change the structural organisation of work, making it *more flexible* and offering opportunities for *innovative working environments* that better fit with individual responsibilities and restrictions that may increase with age. And the number of people retiring early could potentially be reduced by using ICT to improve the *quality of work*.

In addition to these potential advantages in the direct working environment, ICT can benefit older workers beyond the working sphere. The workplace is a key environment for developing ICT skills that can be transferred into other areas of life. For the majority of older people the workplace has become the setting where they gain experience in using ICT and develop adequate skills which can then be used elsewhere.

But ICT can also present new threats for older workers and unemployed older people. For instance, physical and cognitive functions change with age and may not be best suited to current modes of ICT, such as visual displays and mouse-type input devices. The pace of work often becomes more intense as a result of new ICT and some older workers may struggle to keep up. In addition the perception of older workers not being able or willing to cope with technical innovations and to develop adequate skills is still widespread. Already we see a prevailing age-divide in the information society (IS) that exists also in employment [2]. As the IS develops there is a risk this divide becomes permanent, leading to social stratification. Thus, inclusion of older people, including older workers, must be a key element of Europe's eInclusion policy.

1.2 ICT for Active Ageing at Work in an Economic Context

The ageing workforce is central to the economic and social challenges facing Europe. With the "baby boomers" heading for retirement, it will be necessary to retain older people in the labour market for longer, more productively and more flexibly. We will have to not only reach but exceed the objective in the Lisbon Strategy – an employment rate of 70% – to compensate for the expected drop in the working age population: employment participation will have to increase, and the retirement age will have to continue to rise.

Low levels of employment and/or reduced productivity in the 55-64 year old category create substantial pressure on the long-term sustainability of public finance and on the willingness of employers to keep older people at work. These trends partly depend on structural incentives to take early retirement. But they also arise from the presence of actual barriers for older people in returning to work or continuing to work while affording a better work-life balance.

At present, high unemployment strongly affects older workers, whose jobs are made precarious by increasing competition in traditional industries, by the difficulty to adapt to new knowledge-intensive jobs and cope with increasingly new generations of innovative technologies. ICT has a potential contribution here in allowing older workers to keep participating in the labour market productively, while allowing for new work patterns with better work-life balance and long life learning, positively impacting on motivation and quality of work.

Europe must value the skills of older workers and urgently needs the additional output they can generate. One study of the US economy estimates that this additional output could be worth between \$400 – 800 billion by 2030 [3]. This is at least as big as the projected savings from lower medical costs and less institutionalised living as a result of ICT. Although as yet there are no equivalent figures for Europe, it is clear that ICT for AAW brings major economic benefits and will be a significant market both within Europe and worldwide.

Like other applications of ICT for ageing, this market is characterised by a high degree of fragmentation, compounded by transparency, regulatory and technical barriers (see section 3.3). So far European industry has not exploited the full market potential of innovative products and services targeted at the mass market of older people. Fostering easy-to-access technologies and services designed around the needs of the ageing final user, including older worker, represents a substantial market opportunity, however. European industry has the opportunity to develop innovative ICT products and services that offer older people possibilities to use their skills and be retained at work.

1.3 Focus of the Discussion

Active ageing at work is about older people staying active and productive for longer, with better quality of work and work-life balance. Easy-to-access ICT, innovative practices for adaptable, flexible workplaces, and ICT skills and competences can all contribute to this.

Specifically, ICT can contribute to access to work and employment in three main areas [1, 4]:

- *In general employment fields*, ICT can increase the flexibility and adaptability of work and working conditions in line with changing labour market requirements and individual needs and preferences.

- For carers, volunteers and those with other duties, ICT can help improve work-life balance and help equalise occupational chances, creating new employment opportunities.
- For ‘at risk’ groups, ICT can enable access to supportive resources and networks so as to improve their employability. Assistive technologies can also compensate for functional impairments of older workers or workers with special needs.

This last group is well addressed in the current debate on eInclusion. Hence, the focus here is on the general (rather than sheltered) labour market in relation to older workers and on mainstream (rather than assistive) technologies. The discussion focuses primarily on the concepts of active ageing, equal occupational opportunities and work-life balance.

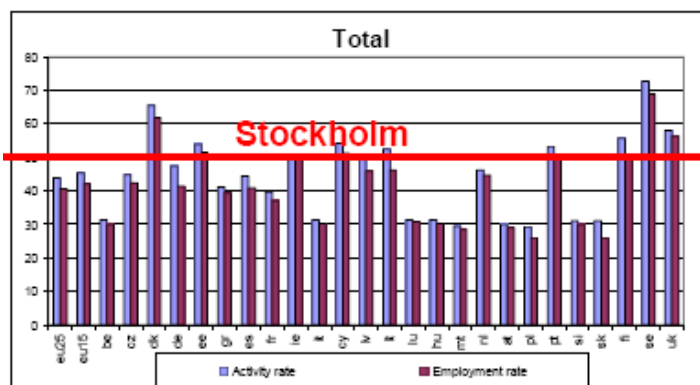
From a technological point of view, it is worth noting that ICT for AAW represents the next step in a well established trajectory which has been evolving over a number of years. Thus, we have moved from ‘technologies for disability’ through ‘accessible technology’ based on design-for-all concepts, to the current position of ‘all people included’, respecting every person’s rights to participate. This is made possible by the convergence of a number of technology trends: digital convergence (growth of broadband and associated ICT services accessible to all); ambient intelligence (smart environments which support the user); and ‘Web 2.0’ (use of the new web technologies to recreate social links).

2. Work and Older People

2.1 The Ageing Workforce

The long-term demographic change facing Europe is well known. Europe’s population is ageing and with it comes an ageing workforce. Average life expectancy has increased from 55 in 1920 to over 80 today. With the retiring baby boom generation, the number of people aged from 65 to 80 will rise by nearly 40% between 2010 and 2030. The projected share of 50-64 year olds in the European workforce will increase from 20% in 2001 to over 30% in 2021. By 2050 the EU working age population will be one-fifth below today’s and, according to Eurostat, the proportion of the EU-25 population aged over 66 will double to 30%.

Figure 2.1: Activity and employment rates aged 55-64, EU-25 2004



Source: Eurostat

At present activity and employment rates among the 55-64 age group vary considerably across the EU, from over 50% in Denmark, Sweden and the UK, to around 30% in countries such as Austria,

Belgium, Italy and many of the EU-10 (Figure 2.1) [4]. In most countries, participation rates are considerably higher for men than for women.

2.2 Business Attitudes to Ageing

This changing demographic profile has major implications for Europe's employers [5]:

- More older workers will be available than younger ones;
- Older workers will stay in the labour market longer;
- Education and training needs will change;
- More flexible working practices will be required;
- Opportunities for competitive advantage for those companies that become 'age-friendly' employers.

On the whole, European firms have yet to embrace these changes [6]. One recent survey found that while firms are starting to recognise demographic change as one of their biggest challenges after globalisation, many have not fully analysed their employee age structure and most still see personnel planning as a short term activity. On average, companies have a one-year time horizon in their staff planning. Most are not geared up to age-friendly employment policies in areas such as lifelong learning, career management, healthcare, knowledge management, and age diversity management.

Demographic change is not necessarily 'bad news' for business; nor will its impacts be the same across economic sectors. But it does imply major change, new rules and fresh challenges. Initial research suggests age-friendly employment practices can add up to 20% to a firm's competitiveness, innovation and productivity. **Paying attention to the issues can translate directly into business success, but first companies must build the business case.**

2.3 European Policy Context

2.3.1 Economic and Social Policies

The Europe-wide policy debate recognises the positive contribution older people can make to society and the economy [1, 4]. To date, the discussion has been framed in terms of socio-economic objectives, emphasizing the need for increased employment of older adults and pressures towards later retirement. Most of the EU Member States have already initiated measures to gradually increase retirement age. At EU level, targets have been set of an employment rate of at least 50% for the 55-64 years age group by 2010 (Stockholm European Council 2001 – see Figure 2.1) and to increase the average exit age by five years over the same period (Barcelona European Council 2002).

A Commission Green Paper on Demographic Change raised a number of questions on how EU policies can best facilitate the transition to a knowledge society while adapting the European social models to the challenges of long-term demographic change. This was followed, in October 2006, by a Communication on *The Demographic Future of Europe – From Challenge to Opportunity*. Improving work opportunities for older people and increasing the productivity and competitiveness by valuing

the contributions of older employees were identified as two of the five ways to address the ‘demographic timebomb’¹.

In addition, both the relaunched Lisbon Strategy and the Aho Report on innovation stress the need for Europeans to work longer and, amongst other measures, encourage Member States to adopt strategies for active ageing in order to make the labour market more attractive for older workers.

Older workers are therefore an important target group within European policy whose needs and requirements must be considered.

Technology is just one factor that could contribute to these objectives, but nevertheless has potentially high policy relevance (Table 2.1) [4]. Initial estimates show that even if only 10% of 55-64 year olds could be helped (back) into work by ICT, this would equate to around 3.5 million people in the EU. A 30% take-up rate would increase employment by 10.5 million. **Such figures would represent a major contribution to EU policy objectives.**

Table 2.1: Potential contribution of ICT to older employment

Percentage of population aged 55-64 inactive because of...		How ICTs could help	Indicative potential increase in employment rates of 55-64 year olds		
			Percentage that might be helped by ICTs		
			10%	20%	30%
Illness / disability	10	Assistive technologies, accessible ICTs and exploitation of the flexibilities of ICTs	1	2	3
Carer	7	ICTs to support flexible working, work-life balance and caring	0.7	1.4	2.1
Early retirement (job not attractive enough)	12	Better quality / more attractive work through ICT-related jobs	1.2	2.4	3.6
Unemployed	6	Increased chances of finding work through ICT skills	0.6	1.2	1.8
Total	35		3.5	7	10.5

Source: Work Research Centre, 2005

ICT play an important role in relation to work-related active ageing, but the possible interactions between ICT and the ageing workforce are complex. On the one hand, ICT can create new employment opportunities, facilitate access and create a healthier working environment. On the other hand, they can also pose new barriers. Only if ICT are shaped to maximise their positive opportunities and minimise the barriers and threats can EU targets be achieved.

2.3.2 Active Ageing at Work and Information Society Policies

Making use of ICT to enhance quality of life and eAccessibility, chiefly through market-oriented policies, is one of the main objectives of i2010, the Commission’s information society strategy. i2010 is a strategic framework to boost Europe’s digital economy and is a key part of the EU’s renewed Lisbon Strategy for growth and jobs.

¹ Others were helping to balance work-family-private life; harnessing the positive impact of migration for the job market; and ensuring sustainable public finances for social protection in the long-term.

The 'third pillar' of the i2010 strategy contains a series of actions to promote inclusion, better public services and improve quality of life. These include a flagship initiative on *ICT for independent living in the ageing society* and a *European initiative on eInclusion* in 2008. A further Communication on eAccessibility has been adopted and is being followed up by other actions on eAccessibility implementation, measurement and benchmarking.

The 2006 Riga Ministerial Declaration set the scene for a comprehensive policy on eInclusion across six areas, including ICT and ageing. To address the needs of older workers and elderly people, ministers agreed to work together to: stimulate the market for ICT services and products for the elderly; develop innovative ICT solutions to help older people stay in work longer and improve their work-life balance; and use ICT to enhance older people's active participation in the economy and society. By implementing their Riga undertakings, European countries will take a big step towards making eInclusion a reality.

A further Communication *Ageing Well in the Information Society* is expected to present an Action Plan on ICT and Ageing Well under the i2010 initiative. It sets out **ICT for active ageing as a social necessity and an economic opportunity**. The information society can enable older people – when and where they wish to do so – to participate fully in society and the economy, and to be active as empowered citizens. At the same time it can generate benefits for businesses and for the economy and society at large. The Communication is expected to identify actions across four areas:

- Raising awareness significantly and establishing consensus and common strategies;
- Putting enabling conditions in place;
- Accelerating take-up of and investment in validated solutions; and
- Coordinating efforts in preparing for the future through research and innovation.

Specific actions and priorities identified for ICT for AAW will feed into this Action Plan.

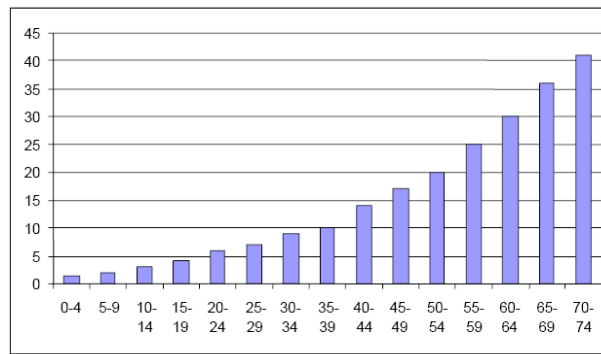
2.4 Active Ageing and the Labour Market

2.4.1 Older Workers' Attitudes to Work

Research shows people in their 50s and 60s are more contented and more motivated than younger workers [8]. People in their 60s are happier, less restless and are less likely to think of their jobs as 'boring'. Around 30% of over-50s and 40% of over-60s say they would be willing to work until they are 70, more than any other group. Still, around 20% of over-50s say they are 'dreading retirement'. There is also some evidence for gender differences, with women more likely than men to say they have been put off applying for their job because of their age; and clear evidence of a gender gap in managerial positions.

Evidence from the UK, based on a number of surveys, shows older people like work and want the right to continue after 'normal retirement' [9]. They want to work longer but more flexibly, with greater part-time or occasional work; for some continuing work is a financial necessity. Many of the retired wish they had stayed longer, yet retention is easier than re-entry. Often older workers do not think their skills are recognised and well used. Other factors emerging as important in the context of older people's employment are personal control and autonomy, social contact and health. At least 25% of over-55s have some form of disability or chronic illness (Figure 2.2).

Figure 2.2: Incidence of disability and chronic illness with age



Source: Grammenos, 2003

Still we need to know much more about older people's attitudes to and demands on work and employment. Important policy questions here include [9]:

- What is the real economic impact of older workers?
- Is the priority keeping workers in or helping the older unemployed back?
- Is the focus pre- or post- normal retirement ages?
- What do older people themselves want to do? Which people?
- What do we think 'retirement' should be in future?
- What is the impact in other policy areas (health, civic engagement, social care)?

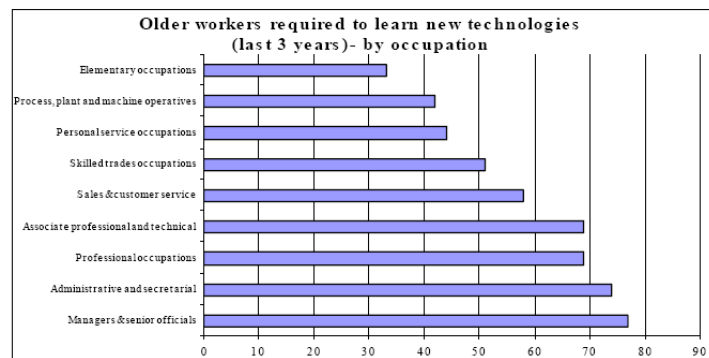
Some variables to examine include: social class, occupation, differences between the public and private sector, social partnerships and industrial relations regimes, pensions regimes, and generational effects.

2.4.2 Older Workers' Use of and Attitudes to Technology

Recent work has started to give a clearer picture of older workers' use of and attitudes to information and communication technologies [1, 2, 4, 10].

Occupations of older people vary widely. Many need to learn new ICT for their work and the likelihood of this varies by occupation (Figure 2.3). Usage of computers at work declines at age 55+ but many older workers use computers. Use of computers at work varies by country, by age and by gender.

Figure 2.3: Older workers required to learn new technologies



Source: UK Department of Work and Pensions

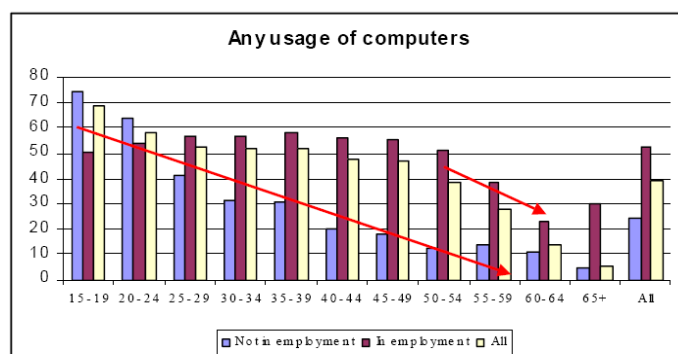
Many factors which mediate the impacts of ICT on older workers are age-related: health and disabilities; work capacity, performance and ability to learn; adaptability and receptivity to change; and family commitments and requirements for work-life balance. Others are related to equality and other external processes: equality of treatment in the workplace; accommodation of older workers' needs; preparation and support for change; and sectoral characteristics.

2.4.3 Impacts and Benefits of ICT for Older Workers

As noted above, ICT can contribute to making work more age-friendly in a number of ways [1, 2, 10]:

- *Quality of work & employment:* Jobs involving ICT tend to be better quality, involving non-repetitive, non-monotonous tasks and low levels of physical strain. Introduction of ICT is often associated with improved job quality, provided there is proper preparation and support. However, there is evidence for some intensification of ICT-based work, making older workers using computers less likely to have a relaxed workspace compared to other older workers. Excessive hours, information overload and increased complexity can lead to stress, while reduced human and social contacts can lead to feelings of isolation. Physical impairments (e.g. repetitive strain injury, musco-skeletal injuries and eye strain) can also increase.
- *Workability & productivity:* Likelihood of disability – whether major or minor – increases with age. For instance, a study for Microsoft found that around 65% of the US working population aged 50-64 had some impairment with accessibility and usability implications. Nevertheless, the majority of older workers are just as capable and productive as their younger counterparts, especially if ICT, training and organisation of work are designed in an age-friendly manner. Other research showed computer users were much more likely to think they could do the same job when they were 60 than non-computer users. Older workers are less likely to have had ICT training. Yet the majority of older workers do not have difficulties learning new technologies, although learning styles may be different.
- *Employability:* ICT can help older workers to get a job (if unemployed), to return to work, and to change job with the same or to a different employer. In terms of occupational mobility, ICT skills can be an important factor in enabling older workers to move to better or more suitable work. Among the unemployed ICT skills decline sharply with age, especially for those aged 50-64 (Figure 2.4). This cohort is much less likely to engage in eLearning for skills development and lifelong learning, or to use online job-seeking. Closing this dramatic ICT skills gap for the older unemployed could help improve their chances of returning to work.

Figure 2.4: Usage of computers in the EU workforce



Source: Eurostat

- *Engagement in the labour market:* There is mixed evidence on whether diffusion of ICT has encouraged early retirement of older workers. So far any direct effects appear relatively small. Lack of ICT skills may discourage some older workers from seeking to return to work. And as noted above, quality of work is strongly linked to decisions to remain working or to stop. Links may increase in the future, as recruiters place a higher premium on older workers' ICT skills and workers themselves recognise the value of these skills within the labour market. ICT can also play a role in helping to capture the knowledge and expertise of senior workers when they do retire.
- *Caring & other informal work / work-life balance:* While we will not consider this issue in detail, it is important to note that the flexibility offered by ICT can improve work-life balance for carers and those involved in other informal/unpaid work. Among other opportunities, it offers them the possibility of teleworking and of using ICT for providing care remotely from their workplace.

3. Status of ICT for AAW

3.1 Market Aspects of ICT for AAW

Like other aspects of ICT for ageing, work-related active ageing can be considered as a specific market, with a related value chain for ICT-based services and products. In this case, the employer is the main market actor. Assessment of needs and solutions is more likely to involve a service that is either part of the company or contracted by the employer (e.g. in-house human resource management and medical departments). Solutions are purchased not by the employee but rather by the employer. Insurance schemes and possibly public schemes for workplace adaptation may play a role in reimbursement and in promoting innovation and adaptation of work-spaces.

From the employer perspective the market is at least partly conditioned by public policy (e.g. in fostering innovation and by imposing workplace conditions), but otherwise it functions largely as a normal market where employers are mainly motivated to adapt work-environments with user-centric ICT-enabled solutions to realise productivity, efficiency, and effectiveness benefits.

Characteristics of the ICT for Ageing market in general include:

- *Weak or vulnerable users*, leading to information asymmetries and ethical concerns.
- *Intrinsic or persistent diversity*, as a result factors such as the diversity of users, national reimbursement schemes and public policies. This inevitably leads to fragmentation.
- *Political and legal frameworks* which can strongly condition service provision in some areas.
- *Investment-benefit mismatch*, with significant time-lags between when and where the investments are made and the benefits that eventually accrue.
- *Technology: access, eAccessibility and technological change*, with accessibility and usability being preconditions for the success of ICT-based services. The market is also exposed to the rapid technology evolution affecting ICT markets in general.
- *Interoperability*: a lack of which impedes the growth of markets for ICT-based systems and services for ageing.

Other factors that influence market development are: ethical conditioning (new ethical questions constantly emerging), market coordination (coordinating actors to enable the market to function better); and market maturity.

The extent to which these characteristics apply to and influence the market for ICT for AAW will be the focus of further investigation.

3.2 Aspects of AAW in Practice

3.2.1 ICT Training & eSkills of Older Workers

ICT training and eLearning are key elements to enhance the productivity and upgrade the skills of all workers. They become even more crucial when linked to older age workers. However, testing of innovative training and eLearning schemes for older age employees and job seekers is important given the reduced attitude to use training in this age range. Economic studies show that training for *life long learning* has increasing private returns which provides the necessary incentives for companies to invest in training and re-training older workers.

Strategies and programmes offering older workers opportunities to acquire and maintain ICT-related skills and competences are found in most EU countries [11]. However, hardly any stipulate legal obligations and duties of employers. One exception is Portugal, where article 168 of the Labour Code gives workers the right to ongoing training and learning if the employer does not provide it for three consecutive years. The training chosen by workers has to relate to their professional activity, basic ICT competencies, foreign languages or health and security at work. Other countries with comprehensive strategies linking ICT, ageing and training/e-skills for older workers include Estonia, Finland, Poland, Slovakia and Slovenia. In Hungary, tax deductions are given to older workers who are trainees or learners.

Most of the good practice initiatives reported are implemented nationally by the state; much less is being done locally, by firms or on a self-organised basis.

Volkswagen Level 5 Initiative: Equipping Employees for Work and for Life

Volkswagen GmbH set up the Level 5 Internet initiative to improve the basic internet skills of all employees [12]. After having successfully passed the Level 5 test employees receive a certificate and are allowed to use the internet up to 10 hours per month for free (via the Volkswagen portal). The course covers skills such as searching, security, downloading and email. The programme is delivered in-house through a subsidiary company responsible for vocational training. By 2005 90,000 employees had passed the Level 5 test.

The initiative has effectively integrated elearning processes into the learning culture of Volkswagen, offering a target group oriented training and applying the concept of blended learning (i.e. a combination of online learning, learning in groups, seminars, etc.). Employees were able to study in working rooms set up at each factory, as well as at home. Modules of the European Computer Driving Licence (ECDL) were integrated into the programme, ensuring the initiative offered a Europe-wide certification.

Although the motivation was initially commercial, the efforts made to ensure all employees have basic eSkills have significant personal and social value. The initiative shows the importance of the provision of different learning channels and personal support during the implementation of eLearning processes, especially for untrained users.

3.2.2 ICT-enabled Age-friendly Working Methods

Despite some inevitable decline in mental and physical abilities in old age, there is growing evidence that older workers can rely on their professional experience to adapt and compensate, and so maintain their productivity, if assisted by suitable workplace adjustments. Innovative working methods entail various aspects of work organisation (including labour laws) to ensure *equality of opportunity* for older workers, through access to work that is 'age-friendly'. There are also opportunities to exploit ICT so as to make work more *flexible*, for instance through tele-work.

Best use and diffusion of age-friendly ICT combined with exchange of best practices in this field can play a substantial role in improving the skills of older workers at all levels and in all sectors, so as to best contribute to overall productivity of enterprises and the public sector.

At present, the debate about flexible and individual pathways to retirement seldom refers to ICT: its positive shaping potential is not recognised and reflected in most European countries [11]. Exceptions here are Finland² and Portugal, each with a number of national programmes for older and ageing workers. Most of the reported good-practice projects are employer-based, but without an explicit link to ageing and older workers: On the contrary, many firms are proud of their universal personnel policy for all-ages.

SWAN: Motivating employers and employees on the potential of ICT

The Scottish Work-Life Adaptability Network (SWAN) is a partnership between a wide range of Scottish companies, their employees and other organisations interested in exploring new approaches to employment [5, 12]. It works with company management in helping them to understand the impacts of future demographic change and to comply with the UK's age discrimination legislation. It supports the development of age-related employment practice, ICT training and enhancing work-life balance and adaptability.

The SWAN project has developed online learning tools for company managers, human resource specialists and older workers. These cover three levels of support: IT for beginners, online learning and specialist training. A form of peer-assisted learning, known as 'computer buddies', has been very successful in developing older employees' ICT skills. Computer buddies are volunteers with reasonable basic skills who teach employees of the same age. Normally each participant receives four hours of training and ongoing buddy support. This approach has proved highly effective in helping older employees to get over the initial confidence and skill barriers and provides flexibility in response to individual needs.

The project has confirmed an unexpectedly high resistance to the adoption of ICT in the working process by some companies, and that many employers are not adequately aware of the potential to increase the work-life balance of older employees. It has developed an Age Diversity toolkit, a series of learning modules and diagnostic tools addressing age audits, age profiling, recruitment, retention, retirement policy and work-life balance.

SWAN pursues a combined approach, catering for the requirements of older people on the one hand and of increasing efficiency and productivity of enterprises on the other. This dual approach is of particular relevance in motivating enterprises to promote age diversity while at the same time encouraging older people to stay in employment. It is essential that both parties have a sense of ownership, with companies and employees working together to develop programmes to meet their needs. Use of trusted intermediaries, such as chambers of commerce, to support participating company managers has also been a factor in the project's success.

² For instance, the National Programme on Ageing Workers and the National Workplace Development Programme.

Danish firms are making the strongest efforts to retain and attract senior employees. There is also growing awareness of the positive potential of work force diversity and age-management in Finland, Norway, the Netherlands and the UK. The concept of work-life balance and reconciliation generally seems to play an important role in English speaking countries.

Senior Profile: A Danish Programme of Career Development for Seniors

Senior Profile is a Danish programme offering companies and employees guidance on late-career development [13]. It has been developed by the DaneAge Association, a stakeholder group for older people, and Study & Career Ltd, Scandinavia's largest private publishing company.

The programme is based on reflection, inspiration and action. Employees are encouraged to think about their life and in particular the relationship between private life and working life. Then they are encouraged to look to others for inspiration: what do other people do? What are the possibilities for the employee in their later career? Finally, they are helped to take action: What now? What will be changed? What will go on as usual? To support this, employees are provided with a variety of tools that help them to assess their life and their influencing style and to plan the road ahead. Employers have access to the whole package for their senior staff on CD-ROM or online.

3.2.3 Quality of Work and Good Working Conditions

ICT have the potential to make work and employment more age-friendly and hence to promote high employment rates and good quality of work for older workers. Some of the features of ICT suggest that this may be a real possibility, for example, by exploiting their functionality and flexibility to design work in ways that adapts to the physical and cognitive changes that occur with increasing age. Some features may also pose new risks, however. For example, the heavy reliance on visual displays, keyboards and mouse-type input devices might be at variance with some of the age-related changes in physical and cognitive functioning.

While health and safety features in most national regulations on working conditions, there is usually no explicit reference to ICT and older workers [11]. The exceptions here are Malta, with its National ICT Strategy 2004-2006, and Finland, with the National Workplace Development Programme. Again, almost all reported projects are public and at national level. There are very few employer-based projects and private self-organised initiatives, and almost no reference to positive ICT-potentials.

3.2.4 Knowledge Management

Knowledge management is another important issue [6]. As older staff leave, firms often lose vital expertise, customer relationships and internal networks – all of which can affect their ability to produce, innovate and compete. Often they fail to capture this expertise through formal knowledge management tools, either because they don't have the tools in place or they don't recognise the need to map the expertise. Firms can renew and retain such critical 'intangibles' through a systematic approach to knowledge management and better cultural appreciation of people's know-how and experience.

3.2.5 Sharing of Good Practices

While good practice examples already exist across each of these areas, they are still largely anecdotal and isolated. Their positive results are not sufficiently shared and there is a substantial

lack of awareness among both employers (e.g. SMEs and public services) and older workers on the opportunities for best use. Testing of new ICT-enhanced working methods for older workers and sharing of best practices is necessary for Europe to fully realise the potential of its ageing workforce.

This suggests awareness campaigns as an important first step in the exchange of knowledge on the potential for age-friendly ICT solutions and working environments for employers, workers and public service providers. This should be coupled with the development and replication of age-friendly training activities and methods.

3.3 Towards a Barrier-Free Market in ICT for Active Ageing at Work

At present, the market for ICT for AAW fails to fulfil its full potential for reasons mostly related to the market characteristics listed previously. An initial analysis by the Commission identifies a number of market barriers and market failures in ICT for Ageing, which can be grouped as follows:

1) Regulatory barriers

- Without proper regulatory approaches and replication of initiatives at EU level, potential ***tailor-made solutions*** from local authorities combined with differing national certification and reimbursement schemes for ICT solutions might only ***add to the technical and regulatory burden*** of the sector with no benefits for the final users. Lack of legislative support for interoperability and standards is a barrier.
- **Differences in reimbursement schemes** within and between countries hamper the introduction of innovative solutions and are seen by industry as a main obstacle. **Uncertainties** exacerbate this, e.g. about what should be financed collectively rather than by the individual.
- Given the strong linkage between age and prevalence of impairments slow progress in accessibility of ICT is a key issue, but questions remain about the effectiveness of **eAccessibility-related legislation** and fragmented approaches.

2) Market visibility/transparency, fragmentation, and basic access barriers:

- **Lack of awareness** has been a key factor in why the senior market for ICT has not been adequately addressed so far by the European ICT industry, intermediate and final users of assistive technologies for older persons.³
- **Market and industry fragmentation** leading to a niche approach by industry. Lack of apparent market size, exacerbated by lack of interoperability of assistive and health-related ICT with mainstream technologies, gives rise to sub-optimal dimensions of the market which results in higher prices for users and lower total profits for suppliers and service providers.
- Despite, growing demand for ICT for ageing, there is still a lack of widespread realisation of the potential for profits and **only limited systematic approach to market development**. Companies are still acting on a trial-and-error basis, which increases their costs of technology development.

³ For instance, a major study published earlier this year offering guidance to firms on age management neglects to mention it [14].

- Solutions can only bring benefits if users have access to basic ICT facilities. Lack of motivation, buying power, or skills are **barriers to information society access** that are more prevalent amongst older than younger people. Only 10% of people over 65 use the Internet.

3) Technical barriers:

- The diffusion of ICT applications and services for older and disabled people is limited by **initial high economic costs linked to investments in research and in technology uptake**. Public and private partners need to share innovative funding schemes.

In addition there are market barriers and market failures due to lack of coordination and involvement of stakeholders and unresolved concerns as regards ethical issues. A result of the barriers is stagnation in the maturation of markets.

The extent to which these barriers apply in the market for ICT for AAW and their implications will be the subject of further investigation.

4. Directions and Priorities

This paper has presented a first synthesis of the literature on ICT for Active Ageing at Work. The issues raised will be explored further in the coming months as part of the current support contract. This will include an extensive consultation with stakeholders through workshops and online through the new ipolicy.eu website [15]. It is anticipated that the findings will feed into the Commission's *ICT for Ageing Well Action Plan* in relation to work and employment aspects.

The following are considered to be promising angles for further investigation and discussion:

- 1) **Understanding Market Characteristics and Barriers:** Work by the Commission services has identified a number of characteristics and barriers in the market for ICT for Ageing (sections 3.1 and 3.3). It will be important to disaggregate how these apply and influence the specific market of ICT for AAW. Which factors are most significant in the work and employment context? What special circumstances apply in this market? What actions need to be taken to address them, and by whom?
- 2) **Assessing Economic and Commercial Value:** If active ageing at work is "*a social necessity and an economic opportunity*" then the scale of that opportunity needs to be clearly spelt out in economic and commercial terms. For firms to invest in ICT as part of their age diversity policies they need a clear business case. Similarly for ICT suppliers to invest in developing AAW-related solutions and services. At present data on the **value of ICT for AAW investments** is lacking both at the level of the enterprise and the economy as a whole. Firm estimates are needed to illustrate the economic and commercial value.
- 3) **Raising Awareness and Motivating Stakeholders:** It is clear that at present ICT is largely peripheral to the AAW debate. A concerted effort will be needed to **raise the profile of ICT** amongst both employers and employees. Both groups need to be **motivated** to think about ICT as part of the solution rather than as part of the problem (or worse, not think about it at all). A strong economic and commercial case (as sought under 2) above) will be part of this but other factors could also contribute. Strong case studies on best/good practices will be

essential but are largely lacking at present. Such case studies should take a user-centred approach taking account of both employers and employees. They should consider the messages needed to motivate each of the different categories of older people in the labour market: 'white-collar' employees (knowledge workers); 'blue collar' employees; the unemployed; returners, etc.

- 4) **Prioritising Innovation and Research:** The above can be expected to highlight issues relating to future research as well as to the deployment of current technologies. Such issues will help inform the agendas for research and innovation actions in this area under the 7th Framework Programme and the CIP.

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