

Designing ICTs for an ageing society

Human factors research conducted over more than two decades has shown that, to be successful, ICT based products and services should be:

- user friendly
- accessible and usable
- intuitive
- adaptive and ‘personalisable’
- seamless
- embedded (“hidden”) functionality where appropriate
- transparent and easy to upgrade and administer

These attributes become particularly important to older and disabled ICT users facing age-related changes in their capabilities. In recognition of this, the Sus-IT project has focused on two key design challenges:

- How can ICT innovators and developers be encouraged to take into account the circumstances and needs of older people in their designs?
- How can the impact of capability change be reduced for older users of ICTs?

Encouraging ICT innovators and developers to design for older people

To achieve this objective requires innovators, developers and designers to have:

- greater awareness of the potential market of older people
- better understanding of the needs and characteristics of older users
- clear specifications of requirements – informed by older users
- knowledge of the hopes and aspirations regarding the products older people would like to use.

To help to meet these needs, outputs from the ‘sandpits’ or co-design workshops (described in Briefing Paper 3) have been refined and documented in a Design Concept catalogue of 40 innovative product concepts. This catalogue, intended for ICT innovators, designers and developers, serves to stimulate new ideas for products aimed at the older market that are based on older peoples’ interests and preferences, and also demonstrates the creativity of older people when provided with the chance to ‘have their say’ in design.

Reducing the Impact of Capability Change

This aspect of the Sus-IT research arises from the following evidence-based observations:

- as we age, we may experience a gradual change in our ability to access familiar technology or to learn new technologies, for example due to declining eyesight, dexterity or memory;
- technology and advice exists to help people who are experiencing difficulties arising from these changes, by making changes to the way information is presented on the

screen, or how the mouse behaves. However, people who need this support may be unaware that they need it, or unaware that it exists, and so small frustrations build and may evolve from an annoyance to a very real access barrier.

- the result is that problems can go unaddressed for significantly longer than they need to, leading to reduced ability to use ICT, or even abandonment.

The research challenge that the Sus-IT project has explored is how to connect accessibility solutions to the people who need them, at the time they need them, thereby helping them to retain their independence and potentially prevent disengagement caused by capability change. The approach taken has been to develop a software “adaptivity framework” that can monitor and profile users’ moment-by-moment interaction with a computer or other device, identify short-term or longer-term problems and suggest (or even apply) an appropriate adaptation based on those that the host device can already provide. For example, a machine could notice that a user is constantly changing the zoom level for text documents and will suggest to the user that the system could magnify not just the text, but the entire contents of the screen, including menus and buttons. The system and user can negotiate and balance the ‘pros and cons’ of any change. Taking the above example, a side-effect of enlarging screen contents is that the computer user will have to use their mouse more as they scroll/move around the document. As this could be a problem for people with difficulties using a mouse, the option exists for the user and the system to work together to find a best-fit compromise between mouse movement and screen enlargement or to choose a different adaptation altogether such as reading-aloud the screen contents.

The software is currently being trialled and evaluated by a sample of older people. Initial feedback suggests that it has helped users to become aware of accessibility features within their computers and the possibilities for adapting the interaction to meet their individual needs and preferences:

“It certainly opened my eyes to what can be done and what options there are.”
(Elaine, aged 83)

In addition, users could be put in touch with remote mentors at particular moments in an interaction, either pre-recorded tutorials or voice or text conferencing links. The opportunity also exists to provide “cut-down” interfaces for people with difficulty learning the intricacies of a new technology. While this would initially prevent users from having access to advanced functions, it will allow them the chance to use the main functions of a technology without being overwhelmed by “bells and whistles” increasing the chance for a less intimidating learning experience.

In due course, a portable profile of individual accessibility needs should facilitate easier access to a wide range of technology based services, not just ICT in an individual's familiar environment. For instance, for someone experiencing a problem with readability of text, devices with the adaptivity framework could adapt to this need by resizing the text without the individual having to master finding and changing settings across multiple devices and with potentially different methods of accessing and utilising such settings.