

SICSA MMI Workshop

**“Technology for Health and Wellbeing”**

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Workshop Report

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# SICSA MMI Workshop

## “Technology for Health and Wellbeing”

### Background

The First workshop on “Technology for Health and Wellbeing” (THAW) was sponsored by The Scottish Informatics and Computer Science Alliance (SICSA). The SICSA research working groups identified "Technology for Health and Wellbeing" as being an important sub-topic of the ‘Multimodal Interaction’ theme and as a result a workshop was proposed in this area to the wider ‘multimodal’ theme members. The THAW workshop was held at Glasgow Caledonian University on 12<sup>th</sup> October 2012 and this document contains a summary report from that event.

### Introduction

The workshop on Technology for Health and Wellbeing (THAW) aimed to bring together researchers, practitioners and government agencies in all areas of work and research related to technology that supports health and/or wellbeing.

We believed that the main areas of research of interest to this audience were:

- understanding the needs of end users and other stakeholders
- developing specific applications and interactive technologies,
- evaluating health and wellbeing technologies and systems in practice.

The technology for health and wellbeing can be quite broad and therefore all technology that could be used as an assistive technology related to telecare (social) and telehealth (health) was open for discussion. The use of mainstream technologies such as TV, mobile phones and internet in applications for health and wellbeing were of particular importance (as opposed to bespoke or single purpose equipment). It was important to include both health and wellbeing or social care applications to cover the wide range of applications and the growing trend to enable an ageing population as well as support wellness and wellbeing (rather than to focus on chronic illness and long term conditions alone).

The aims of the workshop were:

- To bring together the key players in Scotland in the area of technology for health and wellbeing,
- To get an overview of where we currently are in the area in terms of both research and practice,
- To actively seek out new collaborations and funding opportunities.

## Workshop Speakers

**Professor Vicki Hanson**, University of Dundee – **“Inclusive Design of Healthcare Technologies”**

Vicki Hanson is Professor of Inclusive Technologies at the University of Dundee. She has been working on issues of inclusion for older and disabled people throughout her career, first as a Postdoctoral Fellow at the Salk Institute for Biological Studies. She joined the IBM Research Division in 1986 where she founded and managed the Accessibility Research group. Her primary research areas are human-computer interaction, ageing, and cognition. Applications she has created have received multiple awards from organizations representing older and disabled users. She is past Chair of ACM's Special Interest Group on Accessible Computing (SIGACCESS) and is the founder and co-Editor-in-Chief of ACM Transactions on Accessible Computing. Prof Hanson is a Fellow of the British Computer Society and was named ACM Fellow in 2004 for contributions to computing technologies for people with disabilities. In 2008, she received the ACM SIGCHI Social Impact Award for the application of HCI research to pressing social needs. She currently is Chair of the ACM SIG Governing Board and is the holder of a Royal Society Wolfson Merit Award.

**Nessa Barry**, Scottish Centre for Telehealth and Telecare (SCTT)

Nessa Barry, originally from Ireland, trained as an RGN in London before moving to Aberdeen to undertake a BSc Health Science. Nessa worked as a researcher in Public Health in Aberdeen and Glasgow researching interventions in Public Health before moving into qualitative research (via an ESRC programme) on Telemedicine. Nessa worked for the SGHD and has worked at NHS Education for Scotland before joining the SCTT and NHS 24 in April 2007. Nessa's primary interests are how we achieve sustainable telehealth and telecare and the role of education and training in the pursuit of sustainable tele services.

**Vanessa Gaskell**, Intelligence & Research Analyst, Scottish Government

Vanessa Gaskell is an Intelligence & Research Analyst with the eHealth Directorate at the Scottish Government Health Department. Her talk focused on the ehealth strategy including the DALLAS initiative that the Scottish Government currently has for ehealth for the next five years.

**Dr Chris Burton**, Senior clinical research fellow, University of Edinburgh

**“Solutions, world. World, solutions”**

Dr Chris Burton is a senior clinical research fellow at the Centre for Population Health Sciences at the University of Edinburgh. As a GP for 25 years he has been both an early adopter and a full-on avoider of a range of technological developments in primary healthcare. His recent and current research has included self monitoring of symptoms, interpretation of telemonitoring data and the development of the next generation of interactive e-health interventions for common psychological disorders.

## Attendees

We had over 57 workshop participants who had a diversity of backgrounds, as we had hoped, for example: SME's, Scottish Government agencies, Scottish Government officials, NHS staff, Scottish Enterprise, local government officials and community groups. Just over half of the participants were academics (e.g. 33) with 9 of the SICA universities being represented.

## Poster Sessions

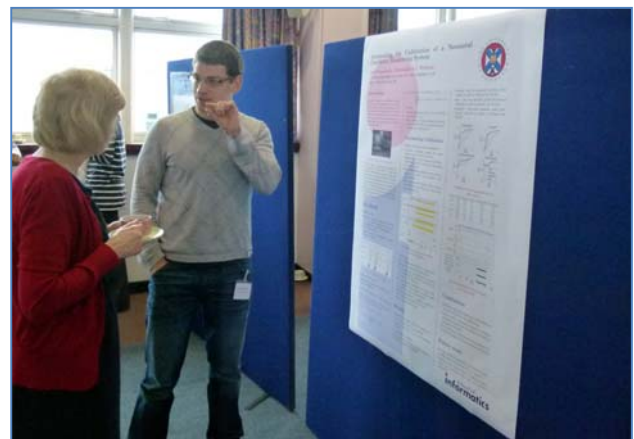
There were 6 posters/demos on display at the event covering a wide range of research in the area of technology for health and wellbeing. This provided a good opportunity for PhD students and RAs to showcase their work and sparked discussion during the breaks.

### List of posters/demos

Presenting Author	Organisation	Title
Mobolaji Ayoade	GCU	Home-based visualisation of rehabilitation exercises for knee replacement patients
Lucy McCloughan	University of Edinburgh	eHealth Group at Edinburgh University
Lee Morton	GCU	The Use of Wireless Inertial Motion Capture in Home Rehabilitation Scenarios
Ioan Stanculescu	University of Edinburgh	Automating the Calibration of a Neonatal Condition Monitoring System
Stephen Uzor	GCU	Senior Designers: Empowering Seniors to Design Enjoyable Falls Rehabilitation Tools
David Warnock	University of Glasgow	Notifications in Multiple Modalities. Part of the MultiMemoHome Project



**Figure 1: Poster presented by the Telescot research programme based at Edinburgh University**



**Figure 2: Ioan Stanculescu from Edinburgh University, presenting the poster on: Automating the Calibration of a Neonatal Condition Monitoring System**

## Workshop Activities

The workshop had two group break out activities to (i) map out the current state of the art in research and practice in the area of technology for health and wellbeing and (ii) to create a road map for directions for future collaborations and funding.

### Road map exercise 1: Current State of the Art & Where are we Now

In the morning we had an interactive group exercise to scope out the current research and activity in the area of health and wellbeing technology. In groups of 5-8 participants were asked to create a map of current research and/or practice of their group.

### Road map exercise 2 – Funding and the Future

In the afternoon, we had road-mapping exercise to establish future directions for health and wellbeing technology and to identify opportunities for collaboration and future funding.



Figure 3: Group Break-out Sessions

## Outputs

### Road map exercise 1: Current State of the Art & Where are we Now

Group discussions varied in the first mapping exercise. Some groups discussed the range of stakeholders in health and wellbeing and how they can be engaged and how they can better work together in the area (see Figure 4). Other groups focussed on the state of the art in technology solutions and what future directions for the technology might be (see Figure 5). Other groups focussed more generally on what they see as the research and practice issues in moving the technology and implementation forward (see Figure 6 and 7).

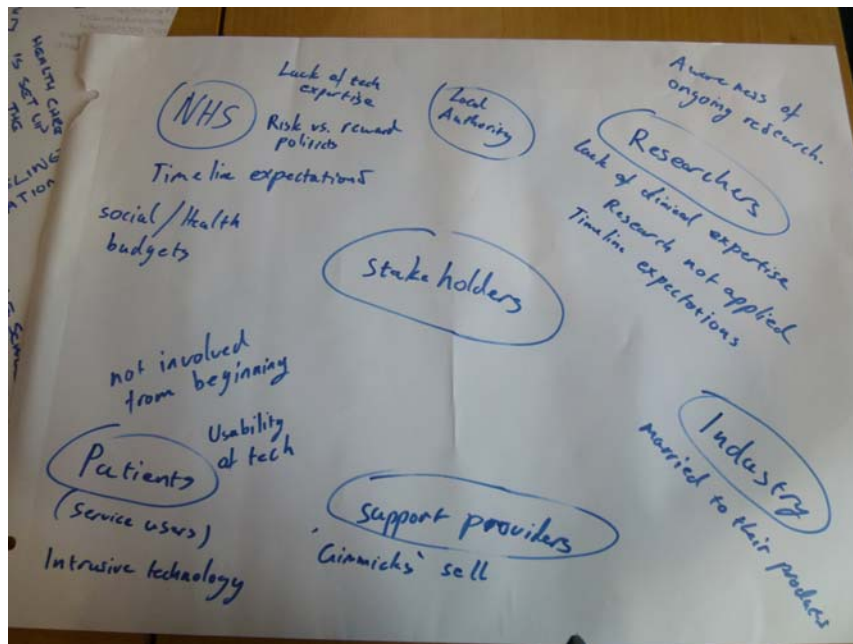


Figure 4: Mapping the Stakeholders in Technology for Health and Wellbeing

**Stakeholders** include patients (health focus) and/or or service users (social care focus) which are end users and their families (tech focus). It was considered extremely important to include these users in the design, and evaluation of products and services. The NHS and local authorities are other key stakeholders. Issues around these stakeholders include ways to encourage 'buy in' and joint working between health and social care as well as making sure they are kept up to date with current state of the art (joint working with research). Industry is another key stakeholder and the main issues were around encouraging standards and interoperability. The other key stakeholders identified are academics/research and the main issues to resolve here include lack of clinical knowledge or expertise and lack of understanding of, or inclusion of patients, carers and end users.

The discussions around **technology** focussed on (a) Multimodal interaction, (b) sensing, (c) activity monitoring (d) mobile apps, (e) mainstreaming technologies, (f) standards and interoperability, (g) interpreting data, (h) displaying data (visualisation), (i) robots and rehabilitation, (j) video conferencing and skype, and (k) social interaction and sharing of data (See Figure 5).

More user centered discussions of the technologies focused on acceptability of technology, fears and misconceptions, security and privacy of data, financial costs and implications around ‘replacing’ human care.

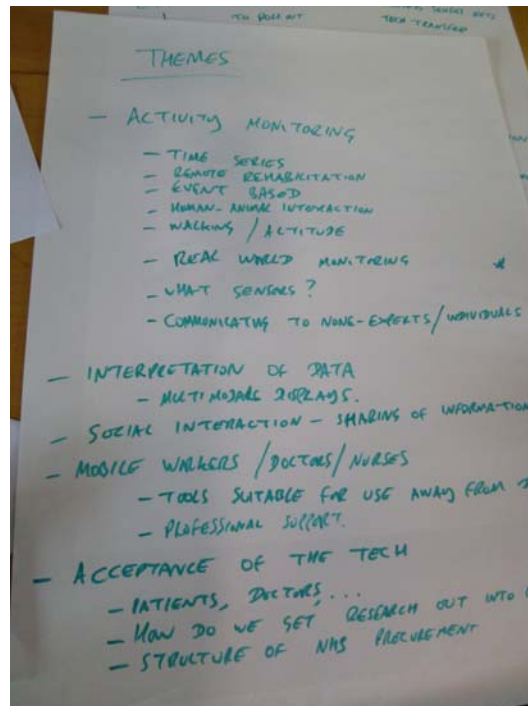


Figure 5: Discussions around Technology Themes and Directions



Figure 6: General Issues in research for technology for health and wellbeing

**General issues** discussed by the groups included:

- Decision makers lack knowledge of the technology
- Technology is often ahead of the NHS and social care
- Health professionals need an easy way to find out about new technology developments
- Users must be involved in the design
- Poor past technology solutions (negative expectations)
- Health care is set up for the service and not for the patient
- Technology should be adaptable
- Research not being applied in practice
- No good model to work out the economic cost or benefits that include health, social costs etc.
- No sharing of what research projects are running
- Large scale procurement schemes
- Need to take into account cognitive abilities
- No strategy for using technology
- Implementation
- Access to technology
- Adoption levels
- Acceptability & perceived usefulness
- Interoperability
- Health economics for whole life measurement
- Infrastructure
- Broadband speeds
- Testing/piloting/marketing
- Personalisation
- User champions
- New business models for health care delivery
- Acceptance of the technologies
- How do we get research out into products?
- Structure of NHS procurement
- Adaption of systems in place
- Mining health data to support care into the future
- Pace of technological change- solutions are out of date before they are rolled out.
- Is technology the solution? Do we understand the problems?
- Health outcomes/impact/ economic assessment
- Education/training to support health care workers- low technology literacy
- Interoperability/integration



## Road map exercise 2 – Funding and the Future

In the afternoon, we had a road-mapping exercise to establish future directions for health and wellbeing technology and to identify opportunities for collaboration and future funding. Outcomes from the groups is summarised below.

### Directions

- Standardisation of telecare/telehealth solutions
- Self monitoring, self determination, improved care and monitoring
- Mobile and ubiquitous devices
- Fitness and wellbeing
- Educating users
- Motivating users - persuasive interfaces
- Condition specific sensors and integrated systems (e.g. smart phones with wearable sensors)
- Holistic assessment and solutions
- Should we use the pharmaceutical model for healthcare?
- Need for evidence
- Blue sky vs applied
- Need to demonstrate impact
- Group platform for research
- Social networks for support of homecare technology
- Leveraging all the data we have, can we use it better?
- App store/Market for GP's/ Social Care providers/NHS
- Popular themes: stroke, mental health, cognitive degeneration,
- Assistive tech for feeling, thinking being

### Funding

- Need evidence
- Need to demonstrate impact
- Finding right partners
- Visibility
- Continuity of personnel is an issue
- Killer apps to fund your research
- Incorporate impact into proposal – patient, client benefit
- Moving away from Pilot studies?
- Venture ready grants
- Sources of grants government (RTB/FP7/ DALLAS/ NESTA)
- Sources of grants companies: BUPA, gyms, Kellogs?
- Engaging with politicians
- Super collaborator group e.g. Uni/Business/Practitioner/Patient, user.
- Journalists/PR
- Online portal/knowledge network/telehealth?
- Proposal on function specific not condition specific this will help to find multiple condition solutions

## **Actions for the future**

- Create mailing list for THAW group
- Group platform for research
- Social networks for support of homecare technology
- Leveraging all the data we have - can we use it better?
- App store/Market for GP's/ Social Care providers/NHS
- Follow on cross-community discussion (using the participants here as a starting point) on funding that involves academics, government, SMEs etc.
- Multidisciplinary teams
- More networking events
- Directory of experts
- Directory/listing of research projects
- Act as a lobby group
- More user led design and evaluation
- Turning research prototypes into commercial systems
- Cost effective sensors/gadgets
- Better links between health and social care
- Collaboration- industrial involvement, multidisciplinary teams, understanding and communication
- Patient Empowerment

**For further Information please contact:**

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