

MATCH

MOBILISING ADVANCED TECHNOLOGIES for CARE at HOME



MATCH WORKSHOP

“Including Stakeholders in the Design of Home Care Technology”

Organised by



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1 EXECUTIVE SUMMARY

Venue

Tuesday 23rd October, 2007, Level 5, Computing Science Building, Lilybank Gardens, University of Glasgow.

Support

This event was supported financially by the Lloyds TSB Foundation for Scotland and endorsed by the Royal Society of Edinburgh. It was held within the MATCH project (SFC MATCH Project Grant Number: HR04016).

Focus

The theme of this MATCH workshop was to explore the benefits of including a variety of stakeholders in the design of home care technology.

This workshop was an opportunity to bring together stakeholders associated with home care to come together with a focus on how home care technology can support health and social care delivery at home. It provided a rare insight into alternative views and practices that could enhance the experience of designing, implementing, or using home care technology.

The event included a panel of invited presentations from experts in each of the stakeholder categories, followed by a group design exercise. The workshop concluded with an interactive session on the lessons learned within and between the stakeholder groups.

Target Audience

This event was aimed at those who considered themselves to be involved or interested in home care technologies, including:

- people living at home receiving formal or informal care (with or without technology)
- people who care or help to care for someone, whether formally or informally
- health professionals
- social care professionals
- technology manufacturers/suppliers/distributors
- technology researchers and designers
- policy/decision makers regarding the use of home care technology

Aims

The aims of this event were:

- to bring together the full variety of stakeholders in home care technology
- to identify and understand the full range of home care technology needs and goals
- to engage in a design exercise that demonstrates the potential of including stakeholders in the design of home care technology.
- To identify the main barriers and facilitators to the uptake of home car technology

Summary of Findings

The workshop successfully brought together 40 stakeholders in home care design. These stakeholders represented older users, informal carers, social care professionals, researchers and designers, and technologists working in or interested in home care technology. The delegates collectively believe that stakeholders that were under-represented were: health care professionals, policy makers, and older users and informal carers. The resulting discussions centred on the perceived barriers and possible facilitators to the uptake of home care technology now and in the future. The results presented in Section 4 can now be shared and used to break down some of these barriers and improve the design, implementation and uptake of home care technology.

A brief summary of the challenges and facilitators is presented here:

Challenges of Home Care Technology

- Multiple Stakeholder Requirements
- Lack of continuity across the 'supply chain'
- Lack of awareness
- The need for User Centered Evaluation
- Demonstrating cost benefit

Facilitators for Home Care Technology

- Reducing /eliminating cost
- Improved stakeholder engagement and requirements gathering methods
- Develop education, training and awareness
- Integrated care provision
- Further large scale trials and whole system demonstrators
- Collaboration and sharing of knowledge between stakeholders
- Promoting shared language & joint working.
- Targeting the right group of users

See Section 3 for the full summary of findings from the workshop.

Appendix 5.6 details the results from the final collaborative questionnaire on the perceived benefits and drawbacks of multi-stakeholder approaches to design and implementation of home care technology.

2 PREPARING AND RUNNING THE WORKSHOP

SFC MATCH Project Grant Number: HR04016

Workshop Funded By: Lloyds TSB Foundation for Scotland

Funding awarded by: The Royal Society of Edinburgh

Funding awarded to: Dr Marilyn Rose McGee-Lennon

Organised by: M. McGee-Lennon, J. Clark, M. Wolters, L. Docherty, N. Gil

Hosted by: The University of Glasgow and MATCH (<http://www.match-project.org.uk>)

Report compiled by: Marilyn McGee-Lennon and Julia Clark, Dec 2007

The preparation of the workshop was executed by the workshop team within MATCH. This was led by Marilyn McGee-Lennon and included Julia Clark, Maria Wolters, Liam Docherty and Nubia Gil. Other MATCH members who assisted on the day included Evan MaGil (group facilitator) and Chris Martin (Video Recordings).

The local facilities and catering were organised by The University of Glasgow and Marilyn Rose McGee-Lennon.

2.1 Participants

The invitation to the workshop was extended to:

MATCH academics

MATCH board members

MATCH external partners

MATCH users (older people and informal carers)

and

UK based academics

UK based carer groups

Local older people

UK based Health and Social Care professionals and practitioners

Attendance was free but registration was required and numbers were limited to 40 to ensure interaction.

A good representation of all the possible stakeholder groups was desired in order to gain a rich, representative overview of the barriers and facilitators to the successful design and uptake of home care technologies.

Attendance reached 40 and the split of attendees was as follows (see appendix 5.2 for full delegate list):

Social	13
Health	4
Research	10
Policy	4
Technology	5
Cared/Carer	4
Total	40

2.2 Workshop Programme

The workshop was made up of a stakeholder panel, design exercise and questionnaire which are described below (see Appendix 5.4 for the agenda).

2.2.1 Expert Stakeholder Panel

There were five short position statements given at the workshop from experts representing each of five different stakeholder groups within home care. Each panel member was asked to discuss what they believed to be the main barriers and facilitators to the uptake of home care technologies from their stakeholder perspective (see Section 3 for results). A short bio is given below for each speaker:

Nigel Barnes leads the Telecare research group within BT's Pervasive ICT research centre at Adastral Park near Ipswich. He has been involved in telecare research at BT for the last ten years, focusing on the use of non-invasive monitoring to provide proactive alarm and long term wellbeing monitoring solutions. He has led the Liverpool Telecare Pilot that BT has been operating with Liverpool City Council and Liverpool Direct Ltd. for the past three years. He now leads BT's involvement in the DTI collaborative project called SAPHE (Smart and Aware Pervasive Healthcare Environment).

David Boddy is a Research Fellow in the Department of Management at the University of Glasgow. He teaches courses for experienced managers on organizational behaviour and on the management issues raised by computer-based systems, which has been the main focus of his research. Books include *Management: An Introduction* (2008, 4th edition); *Management Projects: Building and Leading the Team* (2002, 2nd edition), and *Management Information Systems: An Organisational Perspective* (2008, 3rd edition). He has recently published in the *Journal of General Management*, *Journal of Management Studies*, *Journal of Information Technology*, and in *New Technology, Work and Employment*.

Margaret Gray is an active, independent older user of technology and has vast experience in informal care of friends and neighbours. She will endeavour to give an insight into the users' perspective.

Kathryn McNab is an occupational therapist and registered manager. She currently works with West Lothian Council as Team Leader of the Home Safety Service. The team provides a technology service to around 3000 clients of all ages who are vulnerable and living in the community and who have an assessed need for the service. The job constitutes an interesting mix of direct client contact, staff support / management and operational management / development.

Claudia Pagliari is a Senior Lecturer in Primary Care at the University of Edinburgh, where she chairs the eHealth Interdisciplinary Research Group. She is involved in a broad programme of research on healthcare ICTs, including horizon-scanning reviews, qualitative and survey studies and clinical trials. This includes studies of remote telemonitoring and telehomecare for the management of chronic disease, amongst other related topics. She is interested in the implications of emerging ICTs for the organization and delivery of healthcare, and for society as a whole, as well as their impacts on healthcare quality and safety and patient-centred outcomes. She has recently been appointed as academic director of the new international MSc in Healthcare Informatics run jointly by the University and the Royal College of Surgeons of Edinburgh.

Slides from each of the speaker's presentations can be found in Section 4.

2.2.2 Design Exercise

The afternoon session included a collaborative design exercise. We were interested in a multidisciplinary group approach to the task and therefore participants were split into mixed stakeholder groups for the purpose of the design exercise. In total there were 4 groups, each with 9/10 participants. The groups were each asked to read a scenario (see appendix 5.5) and to work as a team to:

- Come up with a concept/idea/prototype for home care technology
- Collaborate with a variety of stakeholders to try to reach a negotiated solution
- Reflect on the design process when multiple stakeholders are involved

Each group were asked to clearly present their concept/prototype/idea by:

- Giving details of design decisions made (even ideas that were rejected)
- Describing the collaborative design process followed

And to consider the following main issues:

- Identify the 3 most important functions/services the system should provide
- List three problems you anticipate that the project might encounter trying to design and implement your idea
- Rank the following issues (you can of course add your own) in order of importance for the success of the system: Aesthetics, Cost, Ease of use, Functionality, Obtrusiveness, Privacy, Reliability, Security, Others.....

The main findings from the design exercise can be found in Section 3

2.2.3 Stakeholder group questionnaire

Following the expert panel presentations and collaborative design exercise participants were grouped into their single stakeholder categories to:

- Reflect on the design exercise
- Identify the advantages and disadvantages of working in mixed stakeholder groups to design home care technology
- Identify ways of collaborating or negotiating conflicting goals or priorities in home care technology

These views/responses were collected using a questionnaire (see appendix 5.6) and the results are summarised in section 3.

3. Conclusions from the workshop

It is clear from the many discussions at the workshop that the domain of home care technology (HCT) is complex. There are many different types of new technologies emerging and therefore many different possible types of HCT intervention available. Knowing what technology can and can't do and matching that technology to the right person is in turn becoming an increasingly difficult research and real world problem.

Home care technology solutions should not be arrived at within a vacuum, and the importance of multiple stakeholders collaborations to help identify issues and work towards appropriate technology solutions was explored. In the workshop participants were given the chance to explore the multidisciplinary issues faced in this domain through a stakeholder panel, design exercise, questionnaire, group discussions and feedback. The stakeholder panel was beneficial to provide an overview of the main issues faced by each stakeholder group in the design and implementation of assistive technology (AT). The collaborative design exercise also gave an opportunity for awareness building between participants within the groups and to explore potential conflicts and arrive at negotiated solutions. For example, an intervention/solution that would benefit one stakeholder group may negatively impact upon other stakeholder groups. Identification of requirement issues interrelated across stakeholder groups were also identified. It is clear from this workshop that continued shared dissemination of knowledge and success stories is needed to improve the uptake and success of home care technologies now and in the future.

Participants expressed strongly that the individual's needs should always come first and technology should come second. The technology should be there to improve or support current care and enable and empower the user. There are still many mis-conceptions about AT being used solely to monitor the patient and often the end user finds it hard to see the real benefits to them. It is often a concern that technology will replace human care and it should be made clear that this is not the aim for HCT. Technology should fit into current assessment procedures, and the mapping between particular individual needs and recommended technologies need to be clear. If and when technology is identified as being a possible source of support in the care plan then it should be introduced with consent from the end users.

The benefit of the multidisciplinary stakeholder design exercise approach was clear. The technologists within each group were able to provide the other group members with information on the possible ways in which technology could be used to support care at home. Likewise the health and social care professionals, carers and older users were also able to inform the technologists, from their own perspective, of attitudinal issues, resource constraints, ethical concerns and policy guidelines that may limit the use of technology as part of a care package. Within this informal forum each stakeholder felt able to ask further questions of one another and to clarify any details they had not understood. During the short design exercise there was a notable shift in each group member's attitudes to how technology could be used to support a care package. This process resulted in the technologist refining his original technology point solution approach and looking towards more integration of these technologies. The non-technologist group members also become more open to a care package involving the use of technological solutions.

The importance of including multiple stakeholders, including the service users, in the design of HCT is clear. Knowledge and requirements must be shared and understood and potential conflicts negotiated and resolved before technology can be identified, prescribed, installed and ultimately used successfully.

Through the presentations and discussion at the workshop, we compiled a set of important research questions that should be addressed during the development and implementation of home care technology (3.1). We then present what we perceive as the current main challenges in the development and uptake of home care technology (3.2) and finish with summarising the emerging suggested facilitators to overcome some of these challenges (3.3).

Acknowledgement: To all the speakers detailed in Section 2.2.1 for allowing us to use their presentations and slides as a starting point for our discussions on the day and during compilation of our results.

3.1 Important Research Questions

- What are the different needs for the technology?
- Does the technology fit users' needs and lifestyle requirements?
- In what ways might it influence their lives?
- How receptive are the target users to technology (attitudes)?
- What processes may need to be (re)designed to accommodate it?
- Is it easy to understand and operate (usability)?
- What is the uptake of the technology? (implementation and use)
- What people & organisational factors can hinder the change & adoption process?
- What processes are required to maintain usage?
- How does it influence the lives of target users? (Daily routines, activities, communication, relationships)
- How does it influence the people/system around them? (processes, interactions)
- How reliable/dependable is the system? (+ other technical & maintenance challenges)
- What impacts does it have on objective outcomes? (e.g. clinical, cost)
- What impacts does it have on subjective outcomes? (e.g. enablement, QOL, attitudes, satisfaction)
- What are the unintended consequences (negative & positive)?
- What information helps you measure those aspects of patient's care needs?
- How do you receive it now?
- How would you like to receive it?
- What specifically would you hope for from an HCT project?

3.2 Challenges of Home Care Technology

3.2.1 Multiple Stakeholder Requirements

Seven stakeholder groups were represented at the workshop. The participants included professionals from Social Care, Health Care, Research, Policy Makers, Technology Developers and Cared for and Informal Carers who represented the different needs, roles, and motives of their stakeholder group. It was clear from the workshop that if we try to meet all the requirements for only one stakeholder then this may make a solution obsolete for another. Therefore, all the stakeholders must be at least minimally satisfied with a policy or project, or it will fail. All stakeholders have power, although this may be disproportionately distributed. Therefore, it is important to recognise the level of power that each stakeholder has and whether that power will have a positive, negative or passive influence on the success of a technology uptake. This is particularly true of home care technology where the end users can be varied (carer for person or persons, friends and family, and social and health care professionals accessing patient data).

Methods for eliciting these multiple stakeholder needs are underdeveloped. Users need to be provided with information and then allowed to express their functional and non-functional requirements, otherwise the technology will either not be accepted in the first instance or not used effectively when it is taken up in the home. Many of these users will need some support for expressing these requirements in a way that can be translated into usable features of the technology being designed and prescribed. In addition, there are many practical, attitudinal and ethical challenges to conducting research in people's homes as it can be perceived as being obtrusive and/or intrusive. Ethnographic research is more frequently being conducted in the home in order to inform the design of home care technologies. Methods for gathering requirements should be developed and incorporated into current care models. These methods also need to be developed to allow multiple needs and requirements to be captured and negotiated from the various stakeholders of HCT.

3.2.2 Lack of continuity across the 'supply chain'

Researchers in the home care technology domain and technology developers tend to have a long term focus which can sometimes be perceived as being too idealistic and outside the realms of the current delivery mechanisms. Care providers, on the other hand, are often focussed on immediate delivery and what they can provide with what is currently available to them and their clients. The workshop highlighted that those who give an assessment for health and social care technologies are often unaware of the full range of devices available to them within their authority. Therefore, unless they have a HCT 'champion' within their organisation they are often lacking in the knowledge required to prescribe the technology effectively and in turn make their clients aware of the HCT that might benefit them. In turn potential home users tend to be very technology unaware as a result.

Some HCT researchers can be driven by the advanced technologies emerging and often aim to fit advanced solutions to emerging care problems without necessarily having the required care knowledge or expertise. This is yet another reason that joint working has to continue such that those developing the technology and interaction are aware of what will and will not be acceptable in the current care models and state of play in AT in people's homes. Manufacturers and distributors can often have a much shorter termed focus than those involved in research, keeping in line with current products. Researchers sometimes view the current technology suppliers as lacking innovation. Manufacturers are bound by standards and as a result their aims have to be very pragmatic.

Across the supply chain, the language used can also vary and even conflict and this will have to be resolved if joint working is to improve. Participants highlighted the need for the development of a common language to be used when describing the home care technology domain. This would promote shared knowledge and make it easier to improve education and awareness among for end users and practitioners.

3.2.3 Lack of awareness and education

As mentioned in 3.2.2, care providers and indeed end users are not always aware of what is possible with HCT. Social care budgets are often constrained and have a limit on the resources they have to spend on acquiring newer technologies and finding out about those technologies. Therefore, if this stakeholder group's priorities are primarily safety and security there is often a lack of awareness of, or confidence in, new technologies. This lack of awareness and education was perceived as a significant barrier to prescribing these devices.

A lack of awareness in the care profession can also lead to negative attitudes that may act as a barrier to technology being integrated into normal care practice and routines. There were many such anecdotes that the attendees revealed at the workshop such as:

"Why spend an already limited budget on technology?"

"I am just concerned that technology will replace the human element of care"

"I just don't know what the technology can actually do for me anyway?"

"What about security and privacy?...who will be able to see all my health data?"

"Great – the technology will be able to take care of me if I lose my mind".

We believe that improving awareness and education of HCT will be a major way to break down some of the negative attitudes and many of the other current barriers to the successful uptake of HCT. We are currently working with other agencies to develop awareness raising and educational materials to combat this problem.

3.2.4 The need for user centred evaluation

There is often insufficient involvement of end users in technology design and evaluation. Methods for eliciting needs, and assessing if these needs are met, in such a complex setting are relatively under-developed. There is still a lack of full understanding of home life, patterns of care services and how the technology will interact with these. Different stakeholders have a different experience of the technology (it serves different functions for e.g. social workers, the patient, the GP, call centre) and each of these needs to be evaluated. Even within stakeholder groups different individuals have unique needs (for example, cognitive, experiential, attitudinal and physical differences). Furthermore, just as technologies change during the design-evaluation life course, users' needs change over time & the challenge is finding ways for research and development to understand & respond to these.

Implementations are often highly pragmatic and not designed around evaluation at all. If there is no real outcome assessment, and no base line measurement, it is very difficult to demonstrate cost benefit (see 3.2.5). It was also highlighted that current evaluations are usually conducted at the end of a trial. It is important to assess the impact pre, post and during technology intervention in order to assess its full impact. We believe that evaluation should be planned for throughout the lifecycle of the project or intervention.

3.2.5 Demonstrating cost benefit

It is ultimately desirable but difficult to demonstrate the cost benefit of HCT projects and implementations. There is currently a lack of quantifiable evidence for the benefits offered by the deployment of home care technologies that is attributable to the technology itself. This is due to various factors. Study numbers are often small and outcome measures are often poorly defined and inconsistently applied. There are also more complex issues such as the need to change care provision practices to accommodate the use of technology. The resultant changes in practice are often beneficial in their own right and hence the benefit from technology cannot be shown in isolation. This leads to difficulties in creating a business case for the technology investment. However this does offer an opportunity; most would agree changes in care delivery practices are required and the introduction of technology may be used as a spur to necessary change.

The other complexity with cost benefit is related to integrated care provision. Telecare is typically seen as a social care (community alarm) technology and yet one of the greatest potentials it has is in a preventative role to detect, for example, changes in behaviour that may be indicative of a change in wellbeing. In this role the benefits stack up heavily in favour of health care services with little additional benefit to social care. Telecare should therefore be seen as both a social care and health care service that requires integrated working and budgets.

3.3 Facilitators for Home Care Technology

There is a clear need for education, development, and joint working along the 'supply chain'. There is a need to raise awareness of the short term and longer term capabilities and benefits Telecare may offer throughout all stakeholder groups. We should move beyond Telecare being seen by care providers purely as what they can buy today from community alarm manufacturers. End users and providers should be educated to be able to request what they really want and need, with manufacturers and researchers working together to develop and bring to market those solutions for today and tomorrow.

Below is a summary of the main facilitators (in no particular order) to the uptake of HCT as recognised at the workshop:

- Reducing /eliminating cost
- Collaboration and sharing of knowledge between stakeholders
- Promoting shared language & joint working.
- Targeting the right group of users
- Develop and improve stakeholder engagement and requirements capture methods
- Education, training and awareness raising materials and activities
- Integrated care provision and budgets
- Large scale trials and whole system demonstrators with user centred evaluations

Overall the workshop participants were hugely in favour of the future development of e-health and home based care technologies. However, there was a clear desire for more and better evaluations, including costs/benefit analyses, improved training, and better dissemination of results from large scale trials.

In addition, for home care technology to become part of routine service delivery there needs to be:

- Involvement from all stakeholders at design and throughout the life of the intervention and evaluation
- Cost effectiveness and benefits established more clearly
- Availability of the technology as a care option (providing this is adequately assessed for)

3.4 MATCH Future Plans

Given the findings from this workshop and are continuing stakeholder engagement, the MATCH project are continuing to focus their work in the following areas:

- Awareness raising
- Integration of technologies and interaction methods
- Demonstration
- Education and training materials
- Development of techniques and methods to support:
 - Advanced requirements methods
 - Advanced sensing technologies
 - Advanced interaction methods
 - Advanced dynamic configuration options
 - Advanced lifestyle monitoring
 - Advanced visualization methods for users to explore the health related data

4 Presentations at the workshop

4.1 A technology research perspective – Nigel Barnes

Barriers and facilitators to the uptake of home care technologies

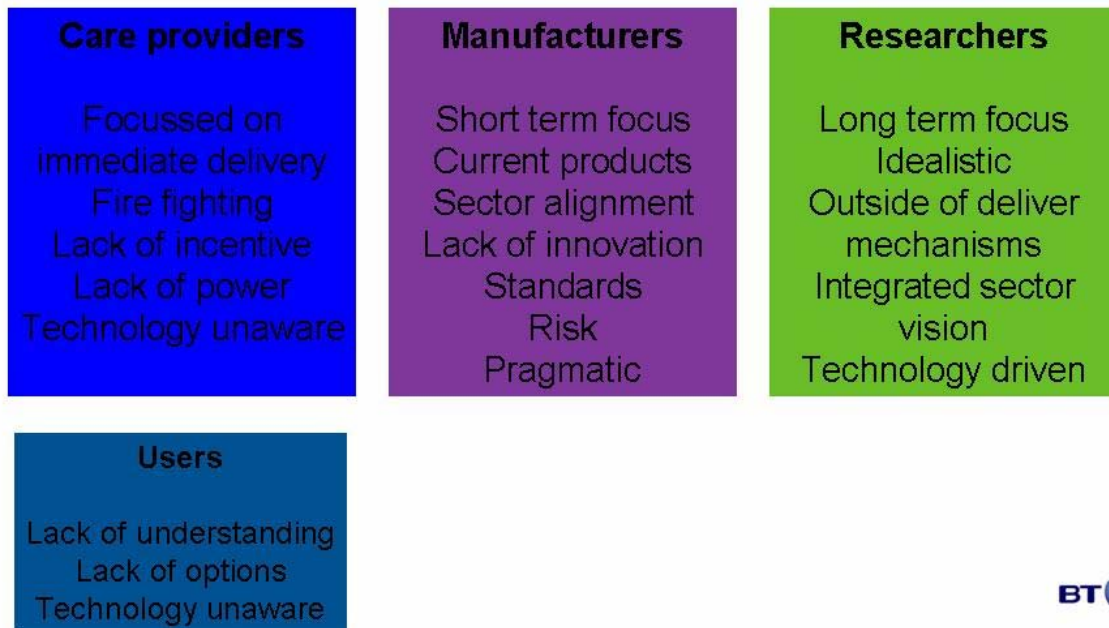
Nigel Barnes, BT



Barriers

- Lack of continuity across 'supply chain'
- Lack of awareness
- Lack of cost benefit

Lack of continuity



Lack of awareness

- Care providers are not aware of what is possible.
- Immediate focus / fire fighting
- Budget constrained
- Technology unaware
- Protective

- Need reorganisation
- Need cross sector working - integration

Lack of cost benefit

- Where is the proven cost benefit in home care technologies?
- 1st generation – accepted by default
- 2nd generation?
- 3rd generation????

- Telecare = social care provision
- Preventative = health care benefit

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Facilitators

- Education and awareness
- Integrated care provision and budgets
- Large scale trials
 - Whole System Demonstrators
- Development continuum
 - All discipline collaborations

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Target users...

- **Are we targeting the right group of users?**
 - Should we adopt a longer term view?
- **Today's users**
 - Embedded within system
 - Complex cases
 - Technology unaware
- **Tomorrow's users?**
 - More accepting
 - Self managing
 - Technology aware

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Challenges of HCT

- Designing applications which meet the interests of stakeholders sufficiently well to ensure they use their power to support, rather than to block, implementation
- Managing the barriers to implementation which arise from
 - the surroundings (immediate and wider)
 - the processes of implementation

Stakeholders' interests

- 'people or groups who have a claim on an organisation or who are affected by it'
- must be at least minimally satisfied with a policy or project, or it will fail
- projects most likely to succeed if promoters:
 - attend to the interests of stakeholders whose support they need
 - design to diminish barriers and encourage facilitators

e.g. an Electronic Patient Record project

- Sponsoring hospital – high interest but low power to implement
- Pharmacies and GPs – low interest but high power to block
- System not accepted: implies identifying
 - interests – what is their interest (e.g.) in home care technology
 - power – what is their power to affect implementation?

As stakeholders, how would HCT support your interests?

- What are your goals – the end-point of your work? How do you, or others, assess the quality of patient care at home?
- What aspects of home care help you to achieve those goals (the things you focus on)?
- Which are the (3) most important of those aspects to you?

How could HCT support care?

- What information helps you measure those aspects of patient's care needs?
- How do you receive it now?
- How might HCT improve the flow of that information?
- How would you like to receive it?
- What specifically would you hope for from an HCT project?

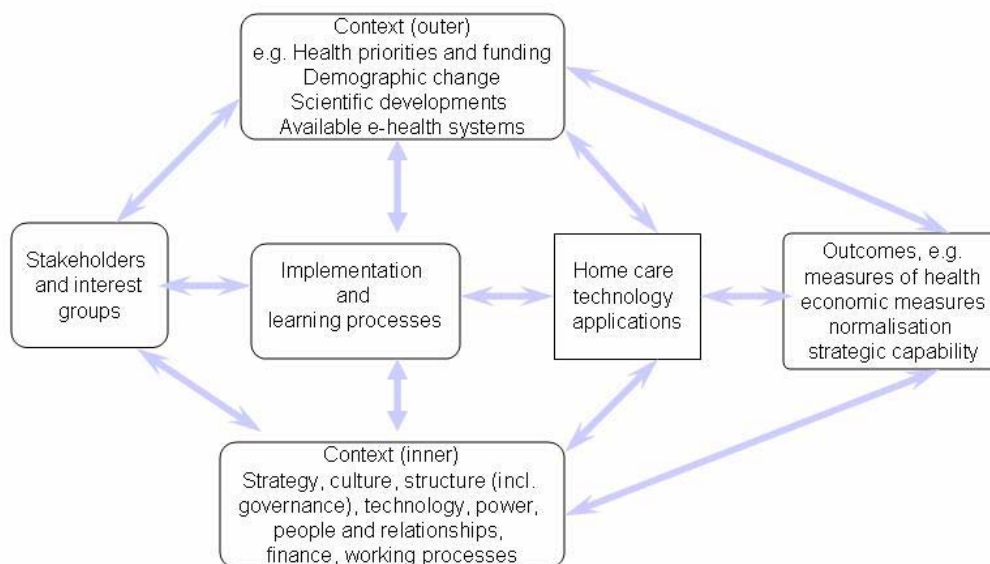
HCT and other stakeholders

- Which other stakeholders will your proposal affect?
- Do you expect them to support the idea, or to try to block it?
- To what extent will they be able to block a proposal which they oppose?
- How might you be able to deal with that, and gain their support?

HCT in its surroundings

- How might the surroundings facilitate, or obstruct, HCT implementation?
- Immediate factors (this unit)
 - E.g. Competing priorities, professional cultures, finance, working processes, user involvement
- Wider factors (trust, national)
 - E.g. Senior management support, technical developments, finance, ethical policies

Stakeholders and HCT – the big picture



4.3 An older user's perspective – Margaret Gray

Not available

4.4 A social care perspective – Kathryn McNab

HOME SAFETY SERVICE

West Lothian Council

Kathryn McNab

Team Leader / Occupational Therapist

CURRENT POSITION

- 3000+ service users with core package of technology at home. 300+ clients with additional technology
- Team of 8 support workers to process new applications and support existing service users. A tall order!
- 61 households for whom we provide emergency response

HISTORY

- Began with pilot project of 75 clients
- Mainstreamed service and implemented charging policy
- Financial assessment
- £4.87 per week
- In 2006 service went free of charge

MAIN BARRIER TO THE UPTAKE OF TECHNOLOGY

- In our experience it was cost to the service user.
- People were refusing the service
- Concerns about people being vulnerable
- So service was made free of charge
- Criteria had to be implemented

WHAT HAPPENED NEXT?

- Word spread like wildfire!
- Immediately less complaints on the application process
- Applications increased significantly both from individuals and professionals
- Now average 70 applications per month
- Resources (staff, equipment, etc.) under pressure to cope with the demand

CONCLUSION

- It would appear that making the service free to those in need has vastly increased its' profile amongst service users and professionals alike.
- This is supported by the rate of applications doubling since January 2006.

4.5 A health research perspective – Claudia Pagliari



Complexity

Intervention
(technology, objective)

Context
(structures, processes, incentives)

People
(needs, roles, motives)

Time
(stage of development, stage of integration into self care)

C Pagliari MATCH 23.10.07



Design-evaluation life course

- Research may take place at many stages during the planning for, design, assessment and implementation of new assistive technologies, each of which presents different challenges for stakeholder engagement

C Pagliari MATCH 23.10.07



Multiple research questions

- Is there a need for this technology?
- Does the technology fit users' needs and lifestyle requirements?
- In what ways might it influence their lives?
- How receptive are the target users to technology (attitudes)?
- What processes may need to be redesigned to accommodate it?
- Is it easy to understand and operate (usability)?
- What is the uptake of the technology? (implementation and use)
- What people & organisational factors hinder the change & adoption process? (including influence on power dynamics)
- What processes are required to maintain usage?
- How does it influence the lives of target users? (Daily routines, activities, communication, relationships with others)
- How does it influence the people/system around them? (processes, interactions)
- How reliable/dependable is the system? (+ other technical & maintenance challenges)
- What impacts does it have on objective outcomes? (e.g. clinical, cost)
- What impacts does it have on subjective outcomes? (e.g. enablement, quality of life, attitudes, satisfaction)
- What are the unintended consequences (negative & positive)?

C Pagliari MATCH 23.10.07



Challenges around demonstrating cost: benefit

- General lack of information about cost-benefits
- Implementation often highly pragmatic, not designed around evaluation, no outcome assessment, no base lining
- Study numbers often small
- Evaluation often conducted at the end & with satisfaction measures or interviews
- Outcome measures poorly defined & inconsistently applied
 - Some have argued for a standard taxonomy (e.g. Jutai)
- However, RCTs may be unfeasible

C Pagliari MATCH 23.10.07



Challenges for product quality & evaluation

- Insufficient involvement of end users in technology design, but questions around how best to do this
- Methods for eliciting needs in such a complex setting are relatively under-developed.
- Lack of full understanding of home life, patterns of care services and how the technology will interact with these
- Different stakeholders have a different experience of the technology (it serves different functions for e.g. social workers, the patient, the GP, call centre)
- Even within stakeholder groups different individuals have unique needs (cognitive, experiential, attitudinal, physical)
- Just as technologies change during the design-evaluation life course, users' needs change over time & a challenge is finding ways for research and development to understand & respond to these

C Paglari MATCH 23.10.07



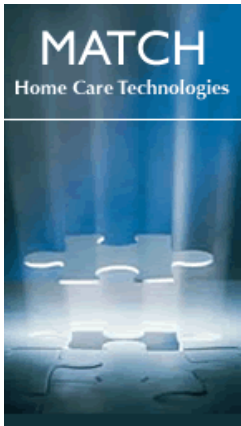
Methodological challenges

- Practical, attitudinal and ethical challenges to conducting research in people's homes (obtrusive).
 - Ethnographic methods developed in workplace research may not be appropriate in the home setting
- Just as technology can enable users it can also be the cause of disablement and low self-concept (dependency)
- Need for new methods of user-engagement & user-evaluation
- Poor stakeholder communication/mutual understanding – client, developer, researcher (also different users/stakeholders)
- Different incentives e.g. of developers (commercial models) & evaluators which can compromise the quality of evaluation (and hence design). Need for interdisciplinary working
- Considerable overlap in methods & concepts across developers and researchers (e.g. in healthcare) – promote shared language & joint working

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5 APPENDIXES

5.1 Workshop Flier



UNIVERSITY
of
GLASGOW

The
Royal Society
of
Edinburgh



MATCH Workshop

Including Stakeholders in the Design of Home Care Technology

23rd October 2007 (10:00 - 16:30)
Senate Room, University of Glasgow

This MATCH workshop is an opportunity for the various stakeholders of home care technology to come together to explore some of the challenges faced. It will provide a rare insight into alternative views and practices that might enhance our own experiences with designing, implementing, or using home care technology.

Stakeholders that will benefit from participation include:

- the person(s) receiving care at home
- the carers (both professional and informal)
- health and social care workers
- technologists
- researchers
- those involved in making policies or guidelines for the provision of home care

There will be a panel of invited speakers from each of the stakeholder groups and a rare opportunity to interact with different stakeholders in a hands on design exercise. This workshop is an ideal opportunity to share and learn different stakeholder needs, goals, and perspectives and use this knowledge to improve our own experiences working with home care technology.

Registration deadline: 12th October '07. Numbers limited to ensure interaction.

To register please visit our website:

<http://www.match-project.org.uk/events/workshop.html>

or contact:

Dr Marilyn McGee-Lennon
Email: mcgeemr@dcs.gla.ac.uk
Tel: 0141 330 6034

Post: 14 Lilybank Gardens, Computing Science, University of Glasgow, G12 8QQ.

5.2 Delegate List

Surname	First Name	Position	Organisation	City	Category
Anderson	Sandy				Research/Cared
Bhachu	Amrit	Research Assistant	University of Dundee	Dundee	Health/research
Barnes	Nigel		BT Exact		Tech/Res/Des
Bissell	Rona	OT	NHS Tayside	Dundee	Health
Boddy	David		University of Glasgow	Glasgow	Policy
Cassidy	David	Services Manager	Glasgow City Council	Glasgow	Tech/Social
Cavina	Laura			Edinburgh	Cared
Clark	Julia	Research Fellow	University of Stirling	Stirling	Research
Cleary	Chris	Social Care Organiser	Dundee City Council	Dundee	Social
Docherty	Liam	Research Student	University of Stirling	Stirling	Research
Duncan	Alan		Dementia Support Project	Glasgow	Policy/Social
Forsyth	Molly	MECS	Falkirk Council	Falkirk	Social
Gil	Nubia	Research Student	University of Dundee	Dundee	Research
Gray	Margaret	Informal Carer		Borders	Cared
Hatton	Eve		SURE	Stirling	Tech/Research
Kominos	Andreas	Lecturer	Caledonian University	Glasgow	Research
Lang	Alistair	Services Manager	Glasgow City Council	Glasgow	Tech/Social
Laughlan	Alison		North Lanarkshire Council	Motherwell	Social
Leavett	Rosie		Age Concern Scotland	Aberdeen	Policy
Lesslie	Karen		Dundee City Council		Social
MacIntyre	Geraldine		The Highland Council	Fort William	Social
MacKenzie	Moira	Telecare manager	Joint Improvement Team	Edinburgh	Policy
Madden	Joan		The Highland Council	Fort William	Social
MacGill	Evan	Lecturer	University of Stirling	Stirling	Research
Martin	Chris	Research Assistant	University of Dundee	Dundee	Research
McDade	Elizabeth	Development worker	VSA Carer Centre	Aberdeen	Cared
McGee-Lennon	Marilyn	Research Fellow	University of Glasgow	Glasgow	Research
McLoughlin	Donna	Head Occupational Therapist	NHS Tayside	Dundee	Health
McNab	Kathryn	Team Leader OT	West Lothian Council	Edinburgh	Social
Murray	Pauline	Housing and Social work Dept	Falkirk Council	Falkirk	Social
Ohare	Robert	Information Officer	West of Scotland Seniors Forum	Glasgow	Cared
Pagliari	Claudia	Senior Lecturer	Primary Care, Univ of Edinburgh	Edinburgh	Health/Research
Pollard	Amanda		North Lanarkshire Council	Motherwell	Social
Smart	Gayle		The Highland Council	Fort William	Social
Sproul	Debbie		North Lanarkshire Council	Motherwell	Social
Thomson	Grace	Project Manager	Glasgow Social Work Dept	Glasgow	Social
Wang	Feng	Research Associate	University of Stirling	Stirling	Research
Webster	Billy	Social Care Organiser	Dundee City Council	Dundee	Social
Wignall	Bernard		Halliday and James		
Wolters	Maria	Research Fellow	University of Edinburgh	Edinburgh	Research

5.3 Budget Summary

Lloyds TSB Foundation for Scotland donated, and The Royal Society of Edinburgh awarded £2500 for the running of the workshop.

The main costs were as follows [approximate]:

Room Hire:	£ 230.00
Accommodation for speakers:	£ 100.00
Travel costs for speakers:	£ 300.00
Lunch for delegates:	£ 350.00
Tea/coffee:	£ 150.00
Water:	£ 50.00
Design Exercise prizes:	£ 20.00
Stationary:	£ 50.00
Printing:	£ 50.00
Published proceedings:	£ 840.00
Postage:	£ 60.00
TOTAL:	£2200.00

5.4 Agenda

- 09:30 Registration
10:00 Overview of Workshop
10:15 Introduction to the MATCH project
- Stakeholder Experiences with Home Care Technology**
- 10:30 Stakeholder Panel
- Stakeholder-Inclusive Design of Home Care Technology**
- 11:35 Introduction to Design Exercise
12:00 Lunch
12:30 Design Exercise in Mixed Stakeholder Groups
14:00 Coffee Break
14:15 Group Presentation of Design *(5 mins per group)*
15:15 Stakeholder Group Discussions *(separate)*
16:00 Lessons Learned (report back per stakeholder group)
16:30 Workshop Ends

5.5 Design Exercise

A Company has commissioned the manufacture of a system to support older residents living at home with care needs. Your job is to serve as consultants to the development team. You must provide a report outlining the main features of the new home care system. You have been provided the following scenario:

“Sheila and Charlie are both 72 and live an active life in their own home. Sheila has developed arthritis and is finding it difficult to operate devices due to mobility problems. Charlie on the other hand is still very agile but has increasing difficulty remembering things – especially remembering appointments and sequences of actions required to operate things around the house. Charlie also has his blood pressure checked regularly by the community nurse when she visits their home or at his own GP. Friends and family often pop by for visits. Lately friends and family and even the community OT have mentioned home care technology and how it might help both Sheila and Charlie and keep them as active and independent as they would like”.

This design exercise should be carried out in your mixed stakeholder groups.

The aims of the exercise are to:

- Come up with a concept/idea/prototype for home care technology
- Collaborate with a variety of stakeholders to try to reach a negotiated solution
- Reflect on the design process when multiple stakeholders are involved

The output should be a prototype or ideas that you can present or pitch to the rest of the groups later this afternoon. You can do this presentation how you like but it should only take a few minutes to communicate all your main ideas.

For your group presentation you should consider the following:

Each group should clearly present their concept/prototype/idea by:

- Giving details of design decisions made (even ideas that were rejected)
- Describing the collaborative design process followed

NB - To structure the exercise you should to address the following main issues:

- Identify the 3 most important functions/services the system should provide
- List three problems you anticipate that the project might encounter trying to design and implement your idea
- Rank the following issues (you can of course add your own) in order of importance for the success of the system: Aesthetics, Cost, Ease of use, Functionality, Obtrusiveness, Privacy, Reliability, Security, Others.....

If you have time you may also want to:

- Name your product
- Sketch a rough prototype of the device(s) or system
- Come up with an advertising slogan
- Describe how you will market it

5.6 Stakeholder questionnaire

Stakeholder Category:

What were your experiences of working with other stakeholder groups towards producing a solution in today's design exercise?

.....

Do you think there are any differences in between stakeholder groups and their conceptions of home care technology?

.....

What **advantages** do you see in different stakeholder working together in the design of home care technology?

.....

What **disadvantages** do you see in different stakeholder working together in the design of home care technology?

.....

Were there any stakeholder groups that were not represented at this workshop?

.....

What do you think the current barriers are to the successful implementation of home care technologies?

.....

What changes do you think will have to be made for these barriers to be removed?

.....

5.7 Stakeholder group questionnaire results

Group	Category	Experiences of working with other stakeholder groups
1	"Players"	<p>Interesting</p> <p>Different experiences/ideas useful</p> <p>Useful to get up to date information</p> <p>[useful] getting information on using the technologies for different client groups</p>
2A		<p>Unaware of level of technology available in market today</p> <p>very person centric approach</p> <p>very frustrated with lack of framework to deliver appropriate services</p> <p>very aware of barriers of [???] systems - which would prevent routes to market/delivery</p> <p>we need to high [???] and benefits Vs technology features</p> <p>Stakeholders looking for solution now....technologists generation ahead</p> <p>Is technology always a solution?</p>
2B	Service Managers	<p>Strong personalities made it difficult to be heard</p> <p>Personalised agendas of individuals</p> <p>no problem in each person being heard</p> <p>Good to share different perspectives on situation / case study</p>
3A	O.T.s	<p>Came hoping to get information</p> <p>Different priorities</p> <p>Wherever in the process is different</p> <p>Multi-agency assessment</p>
3B		<p>Important that users are at the center of assessment process</p> <p>users should be at centre of social network</p> <p>assessment process to include all relevant disciplines (social, medical, technical)</p>
4	Service Users	<p>Everybody wants / needs something different</p> <p>Made us aware of other requirements / issues</p> <p>A positive mix of different ideas / suggestions / solutions</p>
5	Researchers	<p>Too much 'today' - not enough 'tomorrow'</p> <p>Need to look to the future more</p> <p>Need more research into what the problems are</p> <p>Need to recognise diversity</p> <p>Need to predict future lifestyles and issues</p> <p>Researchers need to change start viewpoints - not technical - as this can avoid current issues</p> <p>Other stakeholders need to know what is [technically] available</p> <p>Need to look at new uses for existing technology</p>

Group	Category	Differences between stakeholder groups
1	"Players"	<p>Yes</p> <p>Technologists look at it from the technology side and practitioners see the assessment first before considering the technology</p> <p>Different levels of technology depending on where you are</p> <p>Some practitioners are unsure of what is available</p> <p>The main differences of HCT is not about the HCT but more about the ethics around consent and the purpose of using information collected from technology</p>
2A		<p>Developers look at needs of groups of people (to make it cost effective)</p> <p>Carers (e.g. social workers) look at individual needs (to make it meaningful)</p> <p>Technologies are part of overall care model</p> <p>we sell solutions - should be toolkit</p> <p>Carers not really aware of how to maximise technology into solution</p> <p>responsibility of individual is a care manager and it is key that technology providers work with them to position technology appropriately in the [care] model</p>
2B	Service Managers	<p>YES</p> <p>Business perspective</p> <p>Cost benefits</p> <p>Varying knowledge of what assistive technology is available</p> <p>Those suggesting assistive technologies should be aware of assessment process and what's available</p>
3A	O.T.s	<p>YES</p> <p>Technologists think more about implementing the technology and the wonderful things it can do</p> <p>O.T.s think about how it can help more</p>
3B		<p>Home care staff see it as a possible threat to jobs</p> <p>Medical staff see assessment as social work task</p> <p>GPs appear luke warm about telemedicine</p> <p>Mixed response from service users - some very positive</p>
4	Service Users	<p>YES</p> <p>We all have pre-conceived ideas</p>
5	Researchers	<p>Researchers work from the top down - is this the wrong way?</p> <p>Is their a middle ground between bottom up and top down design?</p> <p>There is a need for continuity</p>

Group	Category	Advantages working with other stakeholders
1	"Players"	holistic approach multi-disciplinary approach better understanding of respective roles Increases trust between partners
2A		understanding barriers understanding [???] systems understanding way systems need to [???] Real need for intervention is [???] just technology Processes and procedures to be removed more complete system understand the complexities around delivering individual healthcare Insight to background issues
2B	Service Managers	Gives a better understanding of needs Flags potential Issues More readily Stakeholders need to be in the process Should get better information Ideas sharing Service user involvement can be promoted
3A	O.T.s	Get a workable / useable product
3B		If more people design the HCT the more likely to encourage it's use More people designing HCT will ensure that it's useful in helping a user
4	Service Users	it brings viewpoints together makes you aware of things you did not know before (legal issues, economical aspects etc.) sharing the legal side of things especially
5	Researchers	Access to experience Different viewpoints Gain focus on real cases and scenarios - more accurate

Group	Category	Disadvantages working with other stakeholders
1	"Players"	Too many viewpoints can delay consensus Too complicated hidden agendas Who shares the information How objective is the process with the companies producing the technology/equipment
2A		Slows process up Stops innovation speaking different language and this can lead to confusion Fear, uncertainty and doubt about role of technology and impact on jobs unrealistic requirements - want to get them to [???] functionally
2B	Service Managers	Individuals have their own agendas Some stakeholders lack of understanding of process can inhibit constructive discussion which may lead to realising outcomes Too large a group can become inhibiting
3A	O.T.s	Differences in opinion wrong group of stakeholders would equal not good system
3B		Trying to meet everyone's expectations runs the risk of meeting none and being very expensive and creates delays
4	Service Users	power struggle between each of the stakeholders fear to expose knowledge against people's knowledge
5	Researchers	It is very difficult Different languages Different Issues

Group	Category	Missing stakeholder groups?
1	"Players"	Users More health professionals Housing professionals
2A		Clinical NHS input Allied health care groups Technologists in NHS Environmental control BSc health group (health informatics) Telehealth community
2B	Service Managers	Service users People who use the technology People who don't use the technology
3A	O.T.s	Service Users Didn't get a list of all the attendees
3B		Budget holders Users and their social networks
4	Service Users	Specification of "service users" could have been made If you are planning to employ AT as tools for cognitive training you need to include neuropsychologists
5	Researchers	Carers and cared for (not just the elderly) were under-represented Future users

Group	Category	Barriers to HCT
1	"Players"	<ul style="list-style-type: none"> Money Education/knowledge Fear Acceptance Responsibility Joint working
2A		<ul style="list-style-type: none"> Technology providers need to take more ownership of understanding the support infrastructure the technology requires Current work practices Training The way technology is integrated into systems - the NHS model
2B	Service Managers	<ul style="list-style-type: none"> Lack of knowledge / understanding accessing equipment assessment tools cannot be a replacement for people who have a working knowledge of the technology available and how it works Service users perceptions of their own care needs do not always match that of the assessor
3A	O.T.s	<ul style="list-style-type: none"> Finances
3B		<ul style="list-style-type: none"> Government cut backs Evidence of cost benefits Lack of understanding of implementation issues
4	Service Users	<ul style="list-style-type: none"> Costs acceptance by the users (e.g. elderly) who don't think they need AT Technical issues of ASR, Speech Synthesis etc. AT aren't personalised enough to be easier to accept
5	Researchers	<ul style="list-style-type: none"> Ways of thinking Lack of consistency (assessment, advice, technology)

Group	Category	Change to remove barriers
1	"Players"	Training Knowledge and education Involving more professionals (GPs etc) Joint working
2A		Total restructure of the NHS Pro-longed co-operation between stakeholders pressure to standardise systems fast track assessment process Education across all carers programmes Communication channels strengthened
2B	Service Managers	Awareness raising Ongoing training for assessors more money more trained staff
3A	O.T.s	Increase in resources - money and technology
3B		More informed decisions made by involving front line staff More education about the potential of equipment by interactive websites
4	Service Users	have technologies available for hire rather than buy where possible, present AT to relatives - it is them that might be able to convince the real users that AT are useful / needs etc for them try to come up with products designed to be easily personalised
5	Researchers	Ways to interpret between thoughts Provide common guidelines

5.8 Workshop photos



Marilyn McGee-Lennon (University of Glasgow) introducing the workshop aims



Margaret Gray (end user), Kathryn McNab (West Lothian Council), David Boddy (University of Glasgow), Claudia Pagliari (University of Edinburgh) and Nigel Barnes (BT) in a panel discussion



Breakout Design Exercise group including Evan Magill (Stirling) and Nubia Gil (Dundee) from MATCH



Andreas Kominos (Glasgow Caledonian University), Marilyn McGee-Lennon (University of Glasgow) and Julia Clark (University of Stirling) presenting results of stakeholder design exercise

5.8 MATCH Stakeholder Workshop Committee - Contact details

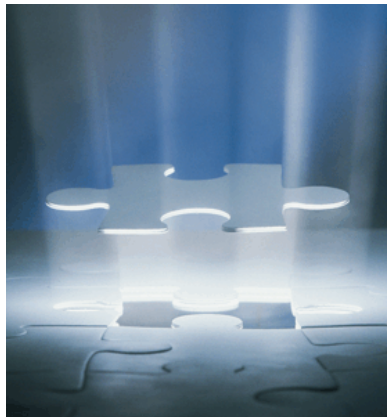
For details on the workshop or further a hard copy of the proceedings please contact the workshop organizer:

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MATCH
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<http://www.match-project.org.uk>
