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Evaluation of BT Telecare Pilot Project

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Report of Findings

Evaluation of BT Telecare Pilot, Liverpool

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1 Executive Summary

Telecare can be defined as a mechanism for providing health and social services 'at a distance' – usually into the user's home – through the use of information and communication technologies. Through utilising affordable and uncomplicated technology, care providers can unobtrusively monitor the user's safety and security. In addition, more sophisticated Telecare systems - such as that developed by BT - afford the possibility of monitoring the user's physiology and activity over time, thus giving early indications of declining health and facilitating the increasing shift toward preventative, community-based care. Telecare can thus be seen to address a range of current government policies and, as a result, the Department of Health has outlined ambitious targets for such technology to be available in all homes that need it by 2010.

Working in partnership with BT, Liverpool City Council is one of very few authorities attempting to develop a sophisticated approach to supporting the wellbeing of elderly people. A defining feature of the Liverpool model is 'Careline' – a 24/7 contact centre staffed by trained operatives and social workers – which provides an effective and accessible interface between the public and healthcare service providers.

This evaluation found that the technology developed by BT is well conceived and powerful. Indeed, it provides a flexible infrastructure, which can help health and social care providers meet a broad range of forward-thinking objectives. The research shows that participants in the pilot considered that Telecare facilitated an increased sense of wellbeing amongst users, and served as a useful and flexible tool for healthcare practitioners.

The report also finds that, as with many other such initiatives – organisational barriers continue to impede the full implementation of Telecare technology. We suggest that this is partly caused by the Government's failure to promote and facilitate the funding of Telecare beyond the pilot stage. But it is also the result of the way in which pilot projects are conceived as the testing of fully formed systems on a small scale, rather than part of an inclusive, informed, development process. Therefore, whilst the pilot has been generally very well received amongst its participants, BT and Liverpool Direct Limited have missed important opportunities to engage key stakeholders in the pilot which may have an important impact as Telecare moves from development to full implementation.

We recommend that future pilot projects should be much more inclusive of key stakeholders, and be conceived of as integral to the local development process. Further, pilots need an effective 'champion' at a strategic level, such that developments are not marginalised during the course of the project.

It is also recommended that BT and Liverpool City Council rethink the notion of Telecare. We find that Telecare is currently conceived of as an 'optional extra' in the range of services offered within Liverpool. We suggest that it should be regarded as the central platform from which health and social care providers can develop the strategic shift toward preventative, patient-centred care.

2 Introduction

The provision of adequate care for a growing elderly population presents a significant challenge for healthcare practitioners and policy makers. From both economic and social perspectives, it is desirable that we should focus on keeping people healthy – on preventative care - rather than on reactively dealing with the sick. It seems clear that traditional pathways of care delivery - concentrated within healthcare institutions, and on rehabilitation must change as the aspirations of older people and their carers change and they seek healthy, fulfilling and independent lives.

As the locus of care delivery shifts away from institutions and is sited within the community there is a growing need to develop sophisticated mechanisms for long-term case management. Rather than dealing with emergent problems reactively, and from within isolated functional disciplines, healthcare professionals will increasingly concentrate on the collaborative, client-focussed, management of wellbeing.

We suggest wellbeing is as difficult to manage, as it is to define. Its manifestations can be physical and psychological, and it is facilitated by a complex and highly subjective range of factors – biological and social. The services required to keep a person safe, happy and well, will often be very simple – e.g. regular hot meals and a sense of security produced via a feeling that should something happen there is ‘someone watching over me’. Yet the efficient management of these services requires regular assessment of need, as well as the delivery of adequate services where, and when, they are needed, demands the effective collaboration of a complex array of professionals.

This is reflected in the way that health and social care bodies are beginning to reorganise their pathways of care: cross-boundary collaboration and service integration is becoming a more regular feature of care delivery at both strategic and front-line levels. Yet this remains uncertain territory: there are many questions – structural and economic – yet to be answered, and it will be some time before a clear picture of a future healthcare system emerges. It is into this emergent context that innovations such as Telecare and Telemedicine are being introduced and piloted. This is the context in which the Liverpool Telecare Pilot was first established in 2004, and it is with a realisation of this complexity that it has been evaluated – this report is the result of that evaluation.

The findings show that Telecare is an exciting concept and an additional service that users and carers welcome. The technological aspects of the project have worked very well. The unobtrusive nature of the technology (the system does not require the wearing of pendants or the pulling of cords, for example) allows users to quickly ‘forget’ the sensors and comfort themselves with the more straightforward emotional response that ‘someone is watching over them’. In part due to the success of the technology, many of the complex organisational issues that sustain the delivery of Telecare have also become less visible and therefore more easily overlooked. The evaluation highlights these important elements and the barriers that require attention if a Telecare service is to develop from successful pilot to mainstream service.

This report has four major sections: First a brief background, outlining the make-up of the Telecare Pilot project and its major stakeholders. The identification and highlighting of the stakeholders is undertaken against the dynamic and fast-changing context of the City of Liverpool as it shifts its image from a ‘Seaport to E-port’.

Secondly - a wide ranging review of the growing literature surrounding Telecare, from a number of perspectives: technological, organisational, political, economic, ethical and cultural. It is important to emphasise that Telecare, as a service, is much more than a technological achievement. As a new and innovative way of offering support to people in their own homes, the setting up of a Telecare service will illuminate and ask challenging questions across a wide spectrum of service provision. Thirdly - to report the findings and feedback from discussions held with users, carers, professionals and managers closely involved with the pilot. The collecting and presentation of the wide-ranging discussions allow for the development of a 'rich description' of the complex and dynamic - if sometimes contradictory - context in which the stakeholders operate.

The final section brings together the 'general' - represented by research and other work outlined within the review of the literature, with the 'particular' - feedback gathered from the local stakeholders. By bringing together these two perspectives we show that the Telecare Pilot project carried out in Liverpool is part of a much wider move towards the use of technology to meet the changing needs of older people. Within this wider context the Liverpool pilot has much to share with the rest of the country – not least the realisation that a successful pilot project can present a very demanding set of challenges to those charged with managing the transition from pilot to mainstream service provision.

2.1 A note on our methodology

The original research brief called for an evaluation of 'the customer experience' to be provided by the successful contractor, with financial and technological analyses being simultaneously examined by Liverpool City Council and BT, respectively. The brief called for an exploration of the views of four distinct stakeholder groups: the users, their carers, the healthcare professionals and strategic management staff. At this early stage, it seemed likely that the roles of professionals and carers would, in some sense, be transformed through an engagement with the technology - just as would the lives of users. In responding to the brief we considered that it would be important to contribute somehow to the way in which Telecare was collectively constituted or 'made sense of' by participants. In other words, we would help people a) to collectively debate what they wanted 'Telecare' to become, and b) to reflect upon the questions and challenges posed by an engagement with 'Telecare', as the pilot unfolded. We considered that this kind of developmental, interventionist approach would potentially offer more interesting and beneficial results than would be achieved through a simple 'market research' style collection of stakeholder views.

Unfortunately, due to imposed changes to the timescale of the evaluation, we eventually had to adopt a more detached and retrospective approach to the research. Being unable to usefully contribute to the development of the technology (the pilot was effectively completed by the time we were able to begin our research), and finding that some participants in the pilot felt themselves similarly disenfranchised, we considered that the technology was in some sense presented as 'a solution in search of a problem'. Indeed, in the absence of any meaningful discussion of the collective objectives sought from 'Telecare', we found that the technology had become many different things to many different people. As we will suggest later in the report – this can be seen as one of the technology's greatest strengths, but with Telecare no nearer to mainstream implementation in Liverpool – it is also arguably the pilot's most significant weakness.

Our methodological approach then, has been to unpick the historical construction of the Telecare pilot and consider how success might be achieved through a reconfiguration – not of the 'technology' – but of the 'notion' of Telecare. Whilst this differs considerably from the methodology outlined in our original proposal, we feel it nonetheless offers some important and worthwhile insights.

3 Background to Telecare

Telecare is typically defined as the use of a combination of communications technology and sensing technologies to provide a means of manually or automatically signalling a local need to a remote service centre, which can then deliver or arrange an appropriate care response to the Telecare service user.

From this perspective, it is not a new phenomenon. Indeed Telecare has been available in the UK for some 30 years, in the form of the 'social' or 'community alarm' network. Operated by a number of providers from the commercial and charitable sectors, these Telecare systems comprise equipment – often special pendants worn around the neck or on the wrist - linked to the telephone network, enabling users to raise an alarm at the touch of a button. As a result of the activities of social alarms service providers, it is estimated that some 1.5 million people in the UK currently benefit from Telecare services (www.ageconcern.co.uk).

However, more recent developments in Telecare can be understood from two perspectives: Firstly, as a solution to challenges of geography in countries with widely dispersed populations - such as Sweden, Canada and Australia; secondly, as a logical new application for emergent information and communication technologies in densely populated countries such as the U.S. and the U.K. In the U.K., technology developers have received further incentives by a perceived need to respond to the potential crisis of a rapidly expanding elderly population.

In understanding the potential for the new generation of Telecare technology, it is useful to locate these developments within a broader context of healthcare reform in the UK.

3.1 The wider policy context.

A number of government strategies and policies support the development of Telecare and illustrate its importance in helping to deliver improved services. These include:

- * **NHS Improvement Plan**
- * **Green Paper on Social Care – Independence, Well-being and Choice**
- * **National Service Framework (NSF) for Older People**
- * **NSF for Coronary Heart Disease**
- * **NSF for Diabetes**
- * **NSF for Long-Term Neurological Conditions**
- * **White Paper, Valuing People:
A New Strategy for Learning Disability for the 21st Century**
- * **Social Care Long Term Conditions Model**
- * **Expert Patient and Self Care Programmes**
- * **Carers (Equal Opportunities) Act 2004**
- * **The Choosing Health Delivery Plan**
- * **Delivering 21st Century IT Support for the NHS, 2002**

Other Government strategies include:

- * **Supporting People**
- * **Quality and Choice for Older People's Housing – A Strategic Framework**
- * **Improving the Life Chances of Disabled People**
- * **Opportunity Age**

These initiatives represent a firm policy commitment to the shift toward preventative, community-centred care provision, as well as a desire to support healthcare practitioners in working together across professional and organisational boundaries.

4 The Pilot Project

4.3 Background to the Telecare Pilot Project

In this section we present a brief exploration of the historical background to the Telecare pilot, highlighting the ways in which Liverpool City Council and BT came to collaborate on the Telecare pilot. We also chart the associated policy developments in healthcare delivery across the UK.

4.3.1 Liverpool: From Seaport to e-Port

Liverpool City Council serves a population of around 450,000. Once a major seaport and industrial centre, the city saw a decline in fortune during the second half of the last century. Like many Northern cities, however, Liverpool is now enjoying something of a renaissance, as new possibilities for regeneration – focussed on leisure, tourism, retail and new media industries - are pursued. The city's recently successful bid to be the European Capital of Culture 2008, has underpinned a new sense of optimism within the city.

An earlier indication of the city's ambition was the inception of Liverpool Direct Ltd – a £300m partnership between Liverpool City Council and BT – in 2001. It was intended that in founding LDL, the Council would be afforded an opportunity to utilise BT's expertise in the technologies of the digital networked economy, in order to deliver a state-of-the-art call centre and associated e-Government initiatives. The LDL call-centre would improve the Council's accountability to the public, whilst bringing citizens closer to the Council 24 hours per day, seven days per week:

"As a council we are playing a leading role in shaping the city's transition to a modern business centre... Our goal is to empower Liverpool's citizens by improving the quality of the services we offer them, while at the same time reducing costs and lowering council tax charges. The Council is also committed to making its services available online by 2005, in line with the Government's modernizing agenda."

David McElhinney, Executive Director for Liverpool City Council, 2004.

Technology, then, was seen as a catalyst for significant reform in both the structure of the City Council, and the way in which it delivered its services. Indeed, Liverpool sought to become a recognised pioneer of e-Government within a European context. Specifically, the council envisioned the following outcomes from a joint venture with BT:

- Cost savings
- Increased Efficiency
- Reduced Bureaucracy
- Increased accountability
- Increased accessibility - 24/7
- Lower rates of council tax
- Additional revenue
- Better services

Importantly, it seems that the LDL call centre, and therefore the Telecare service, was also considered as an opportunity to

- Create additional revenue – through marketing the template to deliver e-business solutions to other public sector bodies and private companies.

Thus Telecare was envisioned as affording political, economic and service delivery benefits in Liverpool. The role and development of the people working in Careline is one of the most important areas in the efforts to successfully move from Telecare as a pilot to Telecare as a mainstream service (see section 6.8 - for further discussion).

4.3.2 The Telecare Technology

The technology has been developed by BT Research, as part of a programme of research and development aimed at utilising information and communications technology in facilitating preventative models of care.

The technology placed into the homes of the users can be described as unobtrusive, as it requires no 'action' on behalf of the users. Users are not required to wear pendants or to activate alarms when they are in distress. The activity sensors and monitors situated in user's homes are linked to an Intelligent Data Analysis (IDA) centre. This centre constructs activity thresholds for individual users and when these thresholds are breached a call is issued to the user to check on their situation via an automated call. If this fails to contact the user and establish an explanation, the Careline call centre is automatically contacted and they then try to establish links with the user. If this is unsuccessful, the Careline centre will contact carers or the relevant emergency services. As the IDA collects a great deal of data on the activity of users there is also the potential to monitor 'in time' the activities of users and for the Telecare system to operate as a 'pro-active' monitor of wellbeing, monitoring 'at a distance' the subtle changes in activity that may mark important changes in the functioning of users. This pro-active monitoring is the subject of a different but overlapping DTI funded research project involving some of the users of this pilot project. The potential of such a system to support developments into these areas, coupled with the unobtrusive nature of the technology marks out this technological system from those more commonly in use in other pilots.

Interestingly, during the evaluation, the technology was largely overlooked by the users and carers, who after an initial fascination seemed to almost forget that it was a novel addition to the familiar landscape of their home. This could be taken as a mark of the success of the 'unobtrusive' nature of the technology, as it appears to have little negative impact upon the user's day-to-day lives.

4.4 Stakeholders

The original research brief sought the views of four stakeholder groups:

- **Users**
- their **Carers**
- **Healthcare Professionals**
- **Strategic Management**

We have further broken these groups down into subdivisions, in order to better represent the diversity of interests. These will now be described in turn:

4.4.1 Users

The pilot originally comprised 20 older people. Most were referred by NHS community occupational therapists; with the remainder referred by social workers from the Supported Living team within the Social Services Directorate. Referrals were made based on a pre-defined idea of suitable candidates. Most users lived alone and were in the early stages of dementia. Most could rely on the support of at least one informal carer.

4.4.2 Carers

The pilot comprises a variety of individuals who would be described as 'carers'. Typically, these are family members, but might also include neighbours, friends, or volunteers. The term is ambiguous, in the sense that 'care' from this perspective need not be active in any sense. One may 'care' about a family member from two hundred miles away, yet be unable, or unwilling, to actively provide 'care'. A carer then, is often simply someone who can be called upon to 'make decisions' or 'take responsibility' should the user's health or behaviour deviate significantly from the norm. However, many carers take a much more active role in supporting the user, and will often develop a working relationship with social services professionals and other formal care practitioners.

The role of Telecare in supporting carers is timely. The number of elderly people requiring active care from their spouse, children or other non-professional persons is increasing dramatically. In response, the Government is attempting to better support carers through legislation such as the Carers Act and associated policies. Telecare, as defined by BT, can offer increased peace of mind for carers, as well as actively supporting and informing their role.

4.4.3 Service Providers

Service providers include a range of organisations – professional and commercial. These include NHS, Social Services, Careline, domiciliary care agencies, care homes and so on. In particular, our evaluation concentrated on the central role of the Careline call centre in operating the Telecare service and the nature of its links with domiciliary care providers – both privately and council operated. Both the past and future role of Careline was highlighted during the evaluation. The expanded role of the Careline workers as part of the 're-engineered' council services facilitated by LDL has played a central role in the way that the Telecare pilot project has progressed. The initial vision of LDL for Careline to be more than just a call-centre would appear to have paid dividends with regards its role in supporting the Telecare pilot. The skills needed and developed by the staff to facilitate their central role of being the interface between the citizens of Liverpool and their city council, has allowed them to support Telecare in ways that could prove much more difficult for other less specialised workforces. (See 6.8 - for further discussion of this).

4.4.4 Technical

The technical stakeholders are BT, whose technology forms the basis of the pilot study. In particular we refer to the group of technologists within BT Research, based in Martlesham, Suffolk, who are in turn part of a wide community of researchers within the Centre for Care in the Community (<http://dticareinthecommunity.com/>) including scientists from the universities of Bristol, Dundee, Liverpool and Loughborough, Liverpool City Council and BT

4.4.5 Social Services/Supported Living

The Social Services Directorate in Liverpool is divided into functional divisions, focussed on particular client subgroups. The Telecare pilot was particularly concerned with supporting older people, and so demanded the co-operation of professionals within the 'Supported Living' team. Social workers within Supported Living are primarily concerned with providing relatively short-term packages of care for elderly people leaving hospital and returning to their own homes, or otherwise finding placements in residential care.

4.4.6 NHS Primary Care

The main participants within this subgroup came from the community-based older people's services teams. Several users of the pilot services were referred by Occupational therapists from within this grouping.

4.4.7 Liverpool Direct Ltd and Careline

The joint venture company, Liverpool Direct Ltd., and particularly the Careline call centre is situated at the centre of the network that makes up the Telecare Pilot project. Their main interest in the pilot is in developing Telecare as part of the portfolio of services, both 'back-' and 'front-office', that will enable Liverpool City Council to continue to develop and move forward. The Careline call centre is a strategic asset for Liverpool City Council and central to their ability to develop successful e-Government solutions. LDL hopes to market its services to other public sector bodies and commercial organisations, and a particular strength would appear to be the way in which Careline was conceived and is now operating. Many call centres operating within the public sector would see their role as having developed from a customer relations perspective they are in effect managing the interface between citizens and the providers of services – an extended and updated switchboard facility if you like. Careline, was from its conception intended as something different. The Careline call centre acts as a 'triage' service and as such has a specific service they offer to the people ringing in seeking help and advice. They do not simply transfer calls to relevant service providers, although they may do so. Their role is much expanded and requires the deployment of a wide range of skills. This expanded role has had considerable benefits when the Telecare system was added to their range of responsibilities. Careline staff are used to talking to users and carers and due to their role as constructors of case files are very knowledgeable about services available and service users. (See 6.8 – for further discussion).

4.4.8 Domiciliary Care Providers – Private and Public

Private care agencies are beginning to play a greater role in providing domiciliary care in Liverpool, but the council still employs a significant team of domiciliary care staff. These individuals will often have the clearest view of how the technology operates within the domestic context and are able to offer valuable advice and assistance to users and their carers. With the wide spread introduction of systems of Direct Payments for the care of older people, a possible application of a Telecare system such as the one piloted in Liverpool can be envisaged. The need for local authorities to manage any such scheme of Direct Payments for work done relies upon a system of monitoring and accounting for such work undertaken. The Telecare system as piloted in Liverpool is very well situated to provide data to enable such monitoring as a by-product of its primary function. (See 6.8 – for further discussion).

4.4.9 NHS Specialist Secondary Care – Gerontology Services

The Telecare pilot project under evaluation here is not the only aspect of Telecare operating in Liverpool at the moment. A group of people including Dr. Andrew Sixsmith from the University of Liverpool and BT are seeking to develop aspects of Telecare as a predictive technology for the monitoring of individual wellbeing. The addition of further sensors and the closer profiling of the users allows for Telecare being able to monitor changes in activity that may indicate antecedents of changes in e.g. depression and/or general wellbeing. A further and interesting aspect of this is that certain clinicians involved with the user have been given access to data pertaining to the user's activities, 'live' via computer terminals. This aspect of remote viewing has also involved the provision of weekly reports to carers as to the activity of the user. This is an interesting insight and does illustrate the potential of the technology to

provide carers with 'live' information direct to their home computers, enabling them to 'see' for themselves, if mum or dad, are indeed secure. (See section 6.8 – for further discussion).

5 The Evaluation

5.1 Literature Review

The long-term care of older people has been of growing concern for the UK government and policy makers for several years now. In 1999 the government published the recommendations of the Royal Commission entitled *With Respect to Old Age* (Cm 4192). There has followed a plethora of further publications questioning and framing aspects of the debate with regard to how best to meet the perceived needs generated by a potential 60% increase in the number of people aged over 65 (from 7.8 million in 1996 to 12.4 million in 2031), and a 88% rise in the number of very elderly, people aged over 85 (from 0.9 million in 1996 to 1.7 million in 2031) (Wittenberg et al, 2001). An important element in the considerations of government and policy makers is the investigation of the use of technology in managing and meeting the needs of older people and their carers within the community. It is against such a huge potential demographic change as outlined above that the Telecare Pilot Project in Liverpool is evaluated.

This section of the report attempts to pull together from the mass of literature available, a representative sample to provide a multi-faceted context against which the Telecare Pilot can be viewed. Within the confines of this report we arrange our review of the literature under a number sub-sections. These are used as a framework for the review and are not arranged in any particular order of importance.

5.1.1 Technical

Telecare should be seen within the context of wide technological developments occurring within what is now commonly known as 'assistive technologies' defined as "a product or service that enables independence for older and disabled people." (www.fastuk.org). Assistive technology covers a wide area of products and services for people with many differing needs.

"Assistive technology ranges from low-tech items, such as walking sticks and grab rails, through mechanical and electrical equipment, such as manual and powered wheelchairs, to electronic and ICT-based systems, such as Telecare technology." (Curry et al, 2003:19).

Telecare from a technical perspective concerns the use and development of ICT-based systems. The telecommunications product marketplace continues to see rapid developments and the use of these forms of technology into the health and social care should follow. Even without 'cutting edge' technical developments there are many areas in which Telecare can make a real difference to the lives of elderly and other excluded people.

In the 2004 Audit Commission Report *Implementing Telecare* (2004) the question of technological sophistication is illustrated via the separation of Telecare into two different modes: *Response Mode (r-mode)* and *Preventative Mode (p-mode)*. The technology to support r-mode systems which sense and monitor people's activities in real time, although developing in sophistication, do not require much beyond a back-office alarm when particular thresholds are crossed. Where as p-mode systems require more sophistication in information and data management, but the gathering of information via the sensing technology in both cases is relatively 'low-tech'.

The scope of Telecare self-care systems that currently exist is illustrated via a recent (2005) list produced by the Department of Health which shows examples from remote (home) monitoring of Asthma, Diabetes, ECG, blood pressure etc. to mobile (wearable) monitors to measure glucose values, the development of a Body Area Network (BAN) - a wearable

monitoring system which can link various sensors and transmit information wirelessly to the On-Cue Smart pill bottle which will send a text message to a patient or carer if the medication has not been taken <http://www.dh.gov.uk/assetRoot/04/11/50/25/04115025.pdf>.

Technological developments in the field are continuing, but arguably the real challenges, in furthering the scope and efficacy of Telecare services, are not technological, but rather, concern issues of organisation.

5.1.2 Organisational

The Government has set ambitious targets for Telecare to be available in all homes that need them by December 2010. In order to meet such targets, new technological infrastructure will need to be supported by novel and considered organisational arrangements .

Curry et al (2003) remind us that it is important to distinguish between two different types of alarm services: those that are *dedicated* to a particular building, a residential home or sheltered housing scheme or a *dispersed* scheme across a geographical area. The organisational systems required to support these different alarm environments are very different and represent very different levels of complexity. It is much easier to situate a carer in a dedicated building when an alarm is raised than across a dispersed area. Organisational initiatives to meet the needs of such dispersed schemes have seen the development of enhanced 'mobile warden teams' which operate 24/7 and avoid the unnecessary calls to ambulance services, examples in the literature show examples from Cumbria and Swindon.

If the technological issues are not as difficult as first impressions may suggest, the organisational aspects are, if anything, more difficult. Barlow et al (2005) say:

"There is now growing experience of Telecare through pilot and demonstration schemes around the world and the technology supporting Telecare is developing rapidly. However, there is only one Telecare scheme in the UK that can be described as a mainstream service," (page 445).

Why this apparent lack of development in the area of mainstreaming Telecare services? The answer appears to lie with the organisational difficulties and challenges such innovations produce. Possible inhibiting factors are a lack of infrastructure to enable clinical assessment and a lack of guidance for technological procurement (Woolham and Frisby 2002); a lack of awareness and knowledge of Telecare by senior health and social care professionals (Curry et al 2003). Barlow et al (2005) suggest that evidence from manufacturing and service industries show that a failure to clearly identify lead users and their needs can be major barriers to the up take of innovations. The need to overcome, 'organisational cultural barriers' are also of central importance, as it maybe necessary for both users and providers of social and health services to change or abandoned old 'routines, behaviours and mental models.' (Leonard-Barton 1995). A very clear example of these types of changes can be found in the comments published by the Audit Commission in 2005 under the heading 'Workforce Development' they state:

"... it is important for those staff involved in the screening and assessment of user and carer needs to be aware of and promote self-assessment and referral routes to access and consider the use of Telecare where such responses would not form part of any resultant care plan." (Audit Commission 2005).

An appeal such as this, in effect to give up the control/gatekeeper aspect of service in order to facilitate self-assessment will undoubtedly challenge established routines and behaviours.

The problem of integrating pilot Telecare projects into mainstream service delivery is the subject of a 2003 paper by Barlow et al, where they state:

“There are distinct differences in setting up a pilot project on its own and setting it up in a way which takes into account the requirements for future integration into mainstream service delivery. While it might be easier to create a new team for a new initiative, this approach has severe limitations.” (Barlow et al 2003:S1:2).

The need to take a ‘whole system’ approach to any innovation, rather than a technological or clinical one is echoed throughout much of the literature surround the evaluation and research of Telecare pilots. A realisation of these issues is represented in the latest (July, 2005) document published by the Care Services Improvement Partnership (CSIP) – *Telecare Implementation Guide*, where ‘barriers to implementing Telecare’ (page 12) are highlighted. Within their list of barriers and recommended solutions, CSIP suggest that time needs to be allocated for multi-agency training, early involvement of all staff and the development of a Single Assessment Process (SAP). The development of protocols and service design issues must involve staff representatives from all groups to ensure properly informed- and shared-ownership. These difficulties are clearly understood by many local authorities and those charged with the development of Telecare services, but whilst such challenges may be identified relatively easily, they are not so easily resolved.

From the Telecare literature it is clear that that overcoming organisational issues (often referred to as managing change), is usually the central difficulty in moving forward any innovation in service delivery. There are, however, related, non-technical, issues that are important and worthy of consideration.

5.1.3 Political

There are a number of political aspects addressed by the literature on Telecare. For this review we will concentrate on what we see as a central element. That is the continued and developing role of the private sector in meeting the aims of the reforms of the 1990s. The aims of these reforms “were to increase the available range of options, widen consumer choice and promote independence.” (Ware et al 2003:411). For services to older people, an outcome of these changes has been a huge growth in the use of independent domiciliary care services. “In 1992 only 2% of local authority funded home care was purchased from independent suppliers, and by 2001 this figure had increased to 60% (Ware et al 2003:412). This ‘mixed economy’ of service provision has over the years become the norm and has led to the development of the language of ‘partnership’. In the Government’s latest document on *‘Building Telecare in England’* (DoH 2005) the list of key partners to be considered in developing a Telecare service, beyond ‘integrated’ health, housing and social care services, should include – housing providers, equipment suppliers, independent and voluntary sector, police and fire services and people using services and their carers. Leaving aside any ideological difficulties that may surface from this mix of public and private providers of care, it is certain that considerable organisational challenges will arise from such complex, wide-ranging collaborations.

Difficulties can and do arise between local authority purchasers and independent providers. Often these crystallise around issues regarding the motivations of the care providers. A paper published by Kendall et al in 2003 presents some new findings regarding the relationships between purchasers and providers. They develop a taxonomy of four stylised types of domiciliary care providers: *Satisfied Team players*; *Ambivalence-experiencing go-getters*; *Ambivalence-experiencing quiet lifers*; and, finally, *Demoralised isolates*; their groupings being based on the relationships developed between providers and commissioners. The authors persuasively suggest that simple dualisms regarding the motivations of those who provide care (e.g. public – motivated by caring; versus private – motivated by money), are less than helpful. Their findings correspond with others in the literature - by showing that “the core motivations of service providers revolve around the combination of a) a desire to meet the needs of their clients with b) their seeking ‘reasonable’ financial reward.” (Kendall et al 2003:506). Further research into, and awareness of, this ‘political’ area - working across the ideological boundaries and thus providing a more nuanced account - will lead to a greater

understanding of how domiciliary care markets work, and the cultivation of trust and confidence so vital to their efficacy.

The political landscape of domiciliary care - which provides the context for the formative Telecare services - is a challenging and complex terrain. This may well be yet another reason for the apparent difficulty in moving pilot projects toward mainstream service provision. We turn now to look at literature addressing economic and financial aspects of developments in Telecare.

5.1.4 Economic

Several studies over the years have shown that considerable savings can be achieved through the introduction of Telecare systems. In the mid-nineties there was evidence from the US and Canada that alarm systems could 'save lives, reduce healthcare costs' and lead to a '25% reduction in hospital admissions and reduction in hospital in-patient days from 9.2 to 5.7.' (Curry et al, 2003:34). In a similar vein Brownsell and Bradley (2003) tell that a Telecare project in Northampton, involving 14 people with dementia, achieved improved quality of life and *a reduction in the cost of care* compared with a comparator group. This saving was largely achieved through people receiving a Telecare service and being enabled to 'stay at home longer, thereby consuming less hospital, nursing home and residential care home resources'.

There are many examples of longer term cost savings available and Brownsell and colleagues have produced an 'attributable cost' model, which suggests:

“that the financial benefits of the proposed system [city based Telecare scheme] would occur in the ratio of 4% to the local authority housing department, 43% to the National Health Service and 53% to the residential care provider.” (Brownsell et al 2001:61)

Bayer and colleagues have sought to assess the impact of Telecare (available at <http://www3.imperial.ac.uk/pls/portallive/docs/1/43011.PDF>) using a systems dynamics approach. While they note that trials of Telecare services suggest substantial benefits, they offer some words of warning particularly in terms of the short to medium term (over five years) where their modelling suggests that short term systemic gains in keeping older people from institutional care will be slight. Larger scale savings via a major impact upon the institutional population may take considerably longer to achieve, and is 'likely to lie outside the time horizon of policy and other decision makers.' (Bayer et al 2005).

Questions therefore abound within the literature with regard to the financial and economic forecasts for the introduction of Telecare services. Given that a great deal of the evidence on which the financial forecasts are developed come from pilots and demonstrations - which tend to focus upon individual clinical outcomes (Bayer et al 2005), and as emphasised above there would appear to be major organisational problems with moving from pilots to mainstream services - questions concerning the economic outcome of Telecare remain very much unanswered.

5.1.5 Ethical and Cultural

Telecare and its development raise some difficult and challenging ethical questions. The most obvious are in relation to the ability of the technology to survey, from a distance, people in their own homes, going about their private and intimate business. Various research undertaken has shown that 'when used correctly' (Currie et al, 2003) these 'Big Brother' aspects of Telecare can be overcome. Various 'tools' to help assess the ethical implications

of a Telecare system, for both users and carers are available (see for example, Marshall 2000; Bjorneby et al 1999).

Central to the notion of any Telecare system is that the technology will make people, and therefore, their activities, (users obviously, but not exclusively) visible. In order to fulfil one of its primary objectives - to provide 'someone to watch over me' - 'making people visible' is necessary. This would appear to be understood and to a large extent accepted by users, yet, there are further, less apparent, ethical issues to consider.

The move from r-mode to a p-mode system, as outlined above, begins to raise questions on at least two fronts. First, as the Audit Commission states:

“as Telecare develops ... it will require, as a prerequisite, ever more sophisticated population databases identifying levels of need in the community.”

So information and data collected about individuals and their behaviour is created. Such information must, of course, be deposited somewhere, and will potentially then be available after the fact and in differing contexts. This is not an uncommon problem and very strict data protection legislation is in place. But one has only to consider the problem of unsolicited mail, telephone calls and email, to be aware that legislation alone may not suffice. Discussion of the warehousing of information leads to a second related point : Concerning a p-mode system, for example, what might be the outcomes of a user deciding not to take the advice proffered? Might this information also become part of the profile of the user? Or, if a user receives an alert from a Telecare system telling them that they have not taken their medication, or that their blood pressure has risen beyond a particular threshold, yet they decide not to take the 'appropriate' action, how should the system proceed? If a user decides to 'disobey' three times is Telecare removed? These examples suggest that different and often less obvious ethical issues are brought to light, when considering the Telecare within the context of risk management.

Looking now from a cultural perspective, major changes seem to be taking place in the ways that, as a society, we are caring for others and ourselves. Pickard (2002) published research that highlighted the way that informal care (being by far the most significant form of care in the UK) of older people has changed in the decade 1985-1995. Although this report concentrates on informal care, its findings suggest significant implications for the development of formal care services in the future. In 1985 children, or children-in-law, constituted the largest group of carers to old people. By 1995 the largest group had become spouses - representing an increase of 45%. This, it is argued by Pickard, was achieved in part through a 25% reduction in the number of children/children-in-law taking older parents into their homes, whilst the number of children/children-in-law caring for their parents in another household has remained constant at around the two million mark. Pickard makes the point that the Government's policy of reducing the availability of residential care for older people will have an effect on the numbers requiring care in the own homes. The growth of spouses taking on the role of informal carer does pose very real problems for the provision of domiciliary support as more very elderly people become carers to other very elderly people.

Telecare would appear to have a central part to play in meeting this need for increased domiciliary care, but the increased likelihood of the main carer also being frail, or older, or both, does raise important and complicating questions as to who the user of the service would/should be.

The need to view Telecare as one aspect of a 'package of care' is emphasised by many throughout the literature. For example, the Audit Commission (2005) '*Telecare Implementation Guide*', page 7, says:

“Telecare equipment should be used as an additional tool in a package of care and support or as an option to prolong independence, not as a replacement for personal care services.”

Clearly, then, Telecare should not replace the need for human contact – but at a time when need is on the increase and competition for care staff is increasing (Matosevic, 2001) the case for commissioning agents to make more use of technology is compelling.

When considered from an ethical and cultural perspective the Telecare literature illustrates an environment where the increase in demand for domiciliary care for older people is growing and there exists a technological innovation that can help meet that need. But the use of such technological innovations contains many ethical considerations, which potentially will grow rather than diminish. The introduction of any Telecare system would appear, from an ethical and cultural aspect at least, to be far from an unproblematic undertaking, and one that will call for sensitive and insightful management.

5.2 Conclusions

In conducting this review of literature we can conclude that while there is a good deal of optimism from all quarters with regard to the development of Telecare, such services raise considerable questions concerning how best they should be instigated and who should pay - both in the short- and longer-term. From this review it would appear that the organisational issues surrounding the 'how' of Telecare will continue to be a major concern. As a technological innovation, Telecare offers fairly straightforward and unproblematic benefits to users and service providers, but the introduction of this form of technology into the system of care as a whole also raises ethical and political questions that will provide a major challenge to those charged with the implementation and maintenance of such systems.

To echo many of the commentators quoted in this review, research into the continued use of technology into the way care for older and more vulnerable members of our communities needs to continue. But this should not be taken as a reason to distrust the promise of Telecare: Any large-scale change programme requires careful, inclusive and informed management. The literature shows that Telecare is certainly no exception. But where well-structured organisational change programmes are effected, the potential of the technology is great.

6 Discussion of findings from the Telecare Pilot:

The original call for an evaluation of the Liverpool Telecare Service published by Liverpool City Council called for the collection of the views of four groups of people, there were:

- **Older People** – the volunteers taking part in the pilot
- **Carers** – family and carers of the volunteers in the pilot
- **Professionals** – call centre operatives, social workers, occupational therapists, home care staff, emergency staff
- **Other stakeholders** – senior managers within Social Services and Central Services and Steering Group

In responding to the Research Brief for the project we argued strongly that a simple capture of views of named stakeholders would limit the evaluation and the possible opportunities for learning to take place from the pilot. Our response was to take a methodological leap and offer a more interventionist/action research approach to an evaluation of the pilot. The original timescale for the evaluation allowed for the development of relationships between the researchers and other stakeholders that would enable the setting-up of a series of cross-disciplinary meetings, which would provide an innovative context for collecting views and giving feedback. Unfortunately the final timescale of the evaluation was delayed and shortened. This had a double impact upon the work: first the actual Telecare pilot continued without any intervention or work from our research team; secondly, when the evaluation finally began, the Telecare pilot was nearing completion. This situation led to the evaluation being conducted in a more traditional and retrospective fashion than was originally outlined. Nonetheless the evaluation has highlighted a number of very interesting and potentially important insights into the strategic and operational issues surrounding the future of Telecare in Liverpool.

The major findings to emerge from the evaluation concern the following areas:

- **Design and conduct of the Pilot Project**
- **A measure of Telecare as a service innovation**
- **Problems of integration of Telecare into mainstream**
- **Visions, Cultures and the Management of Change**

6.3 *Design and conduct of the Pilot Project*

The Telecare pilot was originally envisioned to meet certain key objectives:

- Discover user satisfaction with the service provided
- Increase the confidence of service users in their own homes
- Increase level and speed of support users receive from LCC
- Improve quality of life for users
- Delay transfer into residential care
- Increase security for users and their carers
- Move toward pre-emptive rather than reactive services
- Speed up rehabilitation
- Reduce the number of 'bed-blocking' instances
- Reduce cost for authority
- Implement a care-monitoring package capable of
 - Monitoring people and situations 24/7
 - Transferability of service (to any location across the country)

Following the evaluation it is possible to provide some evidence and answer some of these key objectives; we take each in turn:

6.3.1 Discover user satisfaction with the service provided

Following discussions with a number of users of the Telecare service it was clear that users were more than happy with the service on offer. This was particularly the case in terms of the security aspects of the service – the idea that someone was ‘watching over them’ was comforting. Carers were, if anything, more enthusiastic. Call centre operatives reported many calls from people with aged relatives who, on becoming aware of Telecare through word of mouth, wanted information on how they could acquire the service for their parents, grandparents, etc.

There was some anecdotal evidence of resistance from carers, however. It was reported that a small number of carers had feared that the service user would be at greater risk in their own home, than would be the case in full-time care. Without the availability of Telecare in Liverpool, it is, of course, likely that a greater number of people would be recommended for full-time care. Whilst the user might prefer to reside in their own home, this is not always the preference of the carer. Evidence of this problem is not widespread at this stage, but it is likely that it will be significant within the context of a mainstream service. Therefore, it is important that there is a clear, shared understanding of who the ‘customer’ is, amongst service providers.

6.3.2 Increase the confidence of service users in their own homes

As with the comments above, it is possible to deduce that users and their carers do feel more confident in their own homes. Support is essential in some (many) cases to mediate the Telecare service on offer. Many of the users openly admit to not understanding the Telecare system but they have developed a certain ‘folk’ understanding of what it can deliver. This has involved their families and carers - both formally and informally, developing a particular ‘narrative’ or ‘story’ concerning what the Telecare service is and what it can do. Indeed, the construction of such narratives – by those who know and relate best to the user - is very important in building trust, and the acceptance of change. Similarly, the support of care practitioners (such as home helps) who enter users’ homes regularly, is similarly important. The confidence of the service users will not be increased by the technology alone - users will require positive and sensitive input from significant, and trusted, others.

6.3.3 Increase level and speed of support users receive from LCC

The pilot could not supply meaningful information in this area. We heard from people (users, carers and the most directly involved service providers) interviewed as part of the evaluation that the majority of users had very little by way of a service from LCC prior to their involvement with the Telecare pilot. Therefore there was a lack of data available for the evaluation.

Anecdotal evidence does suggest, however, that Careline continues to provide an improved level of support for those in need. It is difficult to see how a carefully implemented Telecare service could do anything other than facilitate such improvements.

6.3.4 Improve quality of life for users

Of the users and carers spoken to there was little evidence of any change in the quality of life of users. This is unsurprising, given the way in which the people who were to use the service were selected. Many were seen to be at the beginning of a period of lives where their faculties were beginning to fail. There was one user in particular who had witnessed an improved quality of life through her involvement with the pilot, but this was not in a direct fashion. This particular user, because of her engaging personality and enthusiasm for the

service, had become an unofficial spokesperson for the other service users - a role she enjoyed and played very well. She had been given a boost by being asked to speak to the press and other media people as well as researchers such as ourselves about the Telecare system. But, to say that Telecare had improved the quality of her life (she had little or no contact with services prior to her selection for the Telecare pilot) was not really tenable. Indeed, our own interpretation of this particular user's enthusiastic endorsement of Telecare is that, in the main, she enjoyed the more regular human contact that her 'unofficial' role demands. This is a feature of the pilot, rather than the service itself, and will necessarily cease upon the completion of the pilot study.

There is some anecdotal evidence of users feeling more confident being on their own, and therefore less prone to the possible physical manifestations of nervousness (such as restless sleep, or falls). Indeed, an occupational therapist involved in the pilot related the story of a user who was prone to falls before the pilot, but knowing that the technology was there to 'look after her', had become more confident and (it was assumed) this had reduced her propensity to fall in the home. The evidence for this could not be witnessed directly by our research team, but nonetheless the anecdote is compelling, and we consider that the professional opinion of an occupational therapist is worthy of mention.

6.3.5 Delay transfer into residential care

Similar to a number of measures of key objectives called for from the research data with regard to delay of transfer to residential settings is difficult to achieve in part due to the design and conduct of the pilot project itself. The lack of any form of control group (that is another group of people with similar needs to the users of the service, but who are not in receipt of the service) who could be used to compare outcomes for individuals against those without Telecare, makes it difficult to answer questions. It may have been possible to do this retrospectively but it would have called for a degree of access to the case files of clients that was (quite rightly I think) not made available to us.

6.3.6 Increase security for users and their carers

After speaking to a number of users and carers as well as professionals it would appear to all concerned that participation in the Telecare pilot has given an increased perception of security (I think we have to stick with perception of security as there is no data available to answer the question in another form). Indeed, it seems to us that the perception of security is foremost in the users' and carers' own assessments of the service.

6.3.7 Move toward pre-emptive rather than reactive services

This is a major development within Telecare services, what in the literature is called the move from *r-mode* (response) to *p-mode* (preventative) Telecare services. There is work underway in Liverpool in this *p-mode* area, especially the work on Wellness and Wellbeing undertaken by the BT/Liverpool University team which is attempting to develop sophisticated measures of people in order to predict future pathways for users (these users were also part of the broader Telecare project). There is a danger here: if, for whatever reasons, Telecare is forever being discussed as at the 'cutting edge', it can also be viewed as not yet finished, or not fully understood. Commissioners may well then take the line that 'before we use Telecare we will wait until it is finished'.

Movement is occurring and developments are being undertaken across the locality to move toward pre-emptive rather than reactive services, but at the same time it is important not to forget that there is a need and a role for reactive services. In fact the economic argument would suggest that in the short term these low level systems are the most important. So at the same time as continuing to develop Telecare as 'cutting edge' and 'the latest thing', it is also of great importance, that Telecare is seen as a complete, finished and deliverable service.

A major finding of this evaluation is that BT and Liverpool City Council have missed an important opportunity to present Telecare as a platform for broader strategic shifts toward 'joined-up', community-based, and preventative models of care. The potential of an infrastructure centred around Careline, and supported by the information technology core of the Telecare system, is, we feel, enormous. Careline and Telecare offer the potential for 'care at a distance' and the effective integration of disparate, yet collaborating care providers. Such innovations should not be presented as novel extras, but as flexible and powerful solutions to broad ranging and pressing strategic concerns.

6.3.8 Reduction of cost for authority, speed up rehabilitation for older people and reduce bed-blocking

As already mentioned in our conversations and interviews with people from across services for older people we were unable to discover the existence of a control group of older people (who were not in receipt of Telecare services), therefore questions as to the comparative nature of the speed of rehabilitation are not something that we can answer empirically. We can however refer to the literature, which shows a shortage of research work in this area, but Bayer and colleagues in 2003 did attempt to address this through the use of Systems Dynamics simulations to predict future outcomes. Their methodology was developed, they suggest, because "system dynamics has often succeeded in gaining valuable insights even in situations where the available data has been quite limited." (Bayer et al 2003:3). Their work shows that savings from a number of directions, including speed up of rehabilitation and reduction of bed-blocking will occur only in the longer term (beyond 10 years). They warn against too much enthusiasm for savings in the short to medium term, pointing out that any form of Telecare intervention will take time to have an impact on institutional numbers as there will be a delay as cases already in the system are worked through.

This evidence shows that in the short to medium term, and from a 'whole system' perspective, Telecare systems should concentrate upon low-cost solutions that focus upon the needs of those older people with medium frailty.

6.3.9 Implement a care-monitoring package capable of monitoring people and situations 24/7 and the transferability of service (to any location across the country)

The use of the Careline call centre to provide the back-up for the Telecare Pilot does appear to have worked very well. The users of the service responding very positively to the interventions of the people from the call centre. A number of users told us that they sometimes deliberately ignored the auto-response call, safe in the knowledge that 'one of the girls will ring and have a bit of a chat'. This seems to underline our feeling that users enjoy the possibility of increased human contact, rather than a completely unobtrusive system. There were some problems outlined by users regarding calls/alerts being generated by 'common sense' use of things such as external doors when the weather was hot (e.g. during a spell of hot weather the user wished to leave the doors and windows open during the day – this triggered a response from the automated message, which kept occurring as the user said she was ok but then continued to leave the door open).

The operators at Careline were in a position to negotiate around these 'local' conditions through the use of what we will call 'local knowledge'. That is to say that the call centre has knowledge resources available that are beyond the formal protocols and written responses. Local knowledge can impact upon many areas, from local geography, weather conditions and local accents, even down to a specific service (such as gardening) taking place at a certain time and leaving a certain pattern of activity on the screen.

This situation was illustrated to us by the intervention of a manager while we were observing a call-centre operative dealing with an alarm from a property. The alarm had been triggered due to the back door of the property being open for some considerable time. Visible on the screen was a great deal of activity in the garage and the kitchen. The protocols informed the operator that the user was out of the house on this particular afternoon as she attended a Day Centre. What was not available to the operator, but was 'known' by the manager was that by looking at the weather (it was sunny) and the pattern of activity a good interpretation of what was happening here was that the person who did the garden for Mrs. X had taken advantage of the weather and was doing the garden. This may or may not have been the case, but as observations continued, and a phone call was made to the day centre, the situation was brought to a satisfactory conclusion.

This story offers a small insight into the way in which the call centre works, the work of organisational scientists has shown for many years that organisations work through a combination of formal and informal mechanisms, this was certainly the case here – to a certain extent these two aspects are often in tension, for example, the interpretation offered by the manager may have been wrong and the house may have in fact been burgled. This merging of the formal and the informal would appear to be a relatively general aspect of organisational life, and while 'local knowledge' does have part to play, it also asks questions of the ability of Careline staff working across wide and diverse areas. The managers and operatives themselves believe that these issues would not have a negative impact upon their ability to provide a quality service to other disparate areas and populations.

Before moving on from this section it is necessary to make a brief comment regarding the overall design and conduct of the Telecare pilot project. It will be noted that under a number of different headings where findings were sought through the evaluation that answers were not forthcoming. This is due in part to the way in which the Pilot project itself was conceived and implemented. A number of reasons for the lack of desired outcomes have become apparent during the evaluation. Namely, as outlined in the literature review, the detachment from mainstream services that accompanied the pilot is a common outcome when pilot projects are set up in isolation from existing services. Trying to get busy people in emotionally charged situations (we refer here to social workers responsible for the assessment of individuals) to take on extra work, especially work that they felt was outside their brief (measuring up the living quarters of perspective clients for referral to the pilot) in order to participate is not easy and it is understandable that the pilot stayed within its own boundaries. Furthermore, it seems that many initially enthusiastic stakeholders became disillusioned by their perceived lack of support in managing their existing workload, alongside the introduction of these innovations. It is only as the pilot reaches its conclusion that the myopic vision of this strategy becomes clear.

6.4 A measure of Telecare as a service innovation

As stated on a number of occasions elsewhere in this report, a significant outcome of our evaluation of the Telecare pilot project, is that, from the various perspectives of key stakeholders involved in the project, there is considerable ambiguity in what a Telecare service is. This ambiguity allows for Telecare to be thought about, and talked about, in novel and innovative ways by managers and strategic thinkers concerned with the provision of services (we include here providers of care, commissioners of care and developers of technological systems).

A simple example taken from our evaluation can act as an illustration of how the ambiguous nature of Telecare allows it to be seen as, at once, a potential weakness, strength, threat and an opportunity. Findings show that, for the majority of users and carers, it is the basic model of Telecare that is most promising. Telecare for the users and carers, is about 'someone to watch over me', it is about providing a level of security, which is on the whole not at all 'high tech'. Of course Telecare can be much more, and the technology available in this pilot was - it can, for example, provide an opportunity for collecting information that may show antecedents

of potential falls, or bouts of depression, for example, and it may measure 'Wellbeing'. Such developments from the basic model - which are being trailed by BT and Liverpool University - show Telecare as a very different prospect from the basic 'security blanket' favoured by users. This poses a question – which one is Telecare – the high-tech, high-risk service or a straightforward 'someone to watch over me' service? In order to get most from Telecare it requires a form of management that can work with this ambiguity and novelty rather than seeking to close it down. During the course of the pilot this ambiguity has allowed for many areas of the local healthcare sector (both social services and NHS) to keep their distance. By opting to construct Telecare as 'cutting-edge' and therefore, arguably, 'high-risk' it is all too easy for other mainstream providers to see Telecare as partial and to marginalise it as a 'fad', or 'unfinished', or 'non-human' or 'too dangerous' and therefore not worth the risk of getting involved in.

This is a clear example of one of the major findings of the evaluation, namely that the answer to the question 'what is Telecare?' cannot be clearly and unambiguously answered. It means different things to the different groups of people involved within it. This situation needs to be viewed as *both* a threat and an opportunity by those charged with championing the delivery and development of Telecare.

6.5 Problems of integration of Telecare into mainstream

A further finding from the evaluation illustrated by the example outlined above concerns the problem of the integration of Telecare from a detached pilot to a mainstream service. In part because the pilot has become the responsibility of certain specialist niche interests it has been made easier for people charged with day-to-day commissioning of services to distance Telecare from their thoughts.

The pilot project in Liverpool would appear to have fallen prey to many of the pitfalls outlined in the literature focussed on the design of pilot Telecare projects. The major problem for the Liverpool Telecare pilot is now being raised as discussion moves from the undoubted success (particularly from the users and carers perspective) of the pilot to the integration of Telecare into mainstream service delivery. The pilot is now seen as belonging to a particular person or group of people rather than being an additional aspect of the service portfolio available to those already dealing with the care needs of a particular group of users. As they (the commissioners of care) have for various reasons kept their distance from the Telecare pilot, they have missed the opportunity to gather experience and information with regard what Telecare can offer. It is of course possible that they will be educated after the fact - but it still has to count as a lost opportunity for them to have been part of the pilot. It must also be noted that these issues are central to any further pilot work undertaken.

There is however a major hope as outlined in the previous section. The ambiguity of Telecare as a concept offers the potential for Telecare to become an answer to the problem of integration rather than another aspect of the problem. It is possible to consider Telecare as the 'glue' that will hold together services. Rather than see Telecare as in need of integration with other services, Telecare can be seen as the way in which integration is brought about. Telecare is not so much a product that requires fitting in, but it is the way in which all the differing aspects of service provision are networked – Telecare is a network – Telecare is a 'net that works'.

6.6 Visions, Cultures and the Management of Change

The introspective nature of the design and conduct of the pilot has increased the prospective difficulties in managing the integration of Telecare from pilot to mainstream service. A review of the literature on the design of Telecare pilot projects shows that this is to be expected; from the evaluation of the pilot in Liverpool we can note both potential threats and opportunities for

the management of such integration. We have already noted above the perceived ambiguity concerning what constitutes a Telecare service and what its purposes are. The ability of management to work with this ambiguity will have a major impact upon the likely outcomes of the work. The highlighting of a suitably skilled and empowered individual or group to act as a 'champion' for Telecare is one very pragmatic action that could begin the very difficult processes of shifting the culture from what we term a 'culture of science' to a 'culture of research'. In a 'culture of science' parameters are known and more importantly general and standardised, in this culture solutions are awaiting discovery. In a 'culture of research' answers have to be sought, one size does not necessarily fit all, and solutions need to be invented. In order to gain the potential benefits of Telecare, made visible from the evaluation of the pilot, it would appear that a 'culture of research' would allow for the ambiguity of Telecare to be highlighted and celebrated. Telecare viewed from this perspective can be both a standard technology - a remote 'someone' watching over vulnerable people; while at the same time, a cutting edge technology seeking to give warnings and insights into the changing physiological and psychological well-being of the people living with chronic conditions.

Furthermore, and importantly, Telecare can be a useful way of identifying the needs of people as well as a method of meeting them. Telecare can be both a way of keeping individuals from entering hospital or residential care and at the same time a way of getting them back home from hospital or residential care.

Telecare viewed from this perspective takes on a very important role, a role potentially much more important than its technology, clever though that may be. Telecare has the potential, when seen within a context or 'culture of research' to have the ability to become *integration in action*. Telecare, then, moves the notion of integration (or put another way, joined up services) away from being a fuzzy conceptual notion and towards a concrete practice. In order to produce a meaningful Telecare service it demands 'integration' and 'joined up services'. From an organisational development perspective it has the ability to 'expand' and 'enrich' the work of many people currently involved in the commissioning of and the provision care for older people. The evaluation again offered a glimpse of this when one considers the work and the role of the call centre, Careline.

In conversation with the call centre operatives and managers during the evaluation it became clear that for these workers their self-image or their role perception was one of workers in the caring services. They did not see themselves as administrative workers, office workers, customer relations managers – all role descriptors that we thought may well have fit what they do – but rather, they see themselves as care-workers. Viewed from the perspective of a 'culture of research' this aspect of the Telecare pilot project offers a focus for some serious work to look at ways in which Telecare, when mainstreamed, can offer opportunities for what organisational psychologists call 'job enrichment' or what has in later years, become known as organisational learning. This is work that we strongly recommend should be carried out in Liverpool.

6.7 Conclusion

In conclusion, we consider that there are a number of key outcomes of our evaluation: . First, that as a pilot its lack of integration with mainstream services was a lost opportunity. Second that those citizens - both users and carers - who have used the service have been overwhelming pleased with it and view it as a great success. Thirdly, that in order to move forward and integrate Telecare into mainstream service provision both now and in the future it is necessary that those charged with this, realise that Telecare is an ambiguous concept and they should be prepared to work with this. Fourthly, that there is huge potential for Telecare to play a leading role in the future development of 'joined up' or 'integrated' services across Liverpool. In a 'culture of research' which comes to define Liverpool as it changes from being a 'seaport' to becoming an 'e-port' – Telecare has the potential to be the process of integration – the facilitator of many solutions, rather than a new problem in need of a solution.

6.8 Summary of recommendations:

- Telecare has an important role to play in the future developments of the delivery of human services across Liverpool and beyond, but it should be reconsidered as more than a specific solution to a narrow problem.
- Lessons must be learned from the shortcomings of the pilot. The move toward mainstreaming of a Telecare service is going to require changes in the way the management of Telecare is approached, but the time would appear to be right for such a change. There are major strategic and pragmatic developments underway across Liverpool and the health and social care sector as a whole, and Telecare has a central role to play in these developments.
- Telecare can help in the generation of a 'culture of research' (whereby novelty is sought and ambiguity valued), which needs to be nurtured within the commissioning and delivery of services in order to maximise the potential of innovations in care delivery.
- Telecare should be seen as a 'concrete' example of integrated services, not as another service that requires integration – Telecare is a potential solution (perhaps even many solutions), not a problem in need of a solution.
- Telecare needs a 'champion' who can work across the different organisational boundaries and facilitate Telecare as *the integration process* rather than yet another element of a service requiring integration.
- The evaluation of the pilot shows that Telecare is not one thing – it is ambiguous – and this should be seen as one of its great strengths rather than a weakness. For example: the sophistication of the activity monitoring and the IDA, offers potential for Telecare to make 'visible' and therefore monitor and manage the activity of carers, allowing it to be used as a support to the managing of a Direct Payment system. Similarly, the technology allows scope for Telecare to operate as a 'tool' for NHS and the provision of *health care*, while at the same time facilitating *social care*, thereby closing the gap between the two elements. Many of the available Telecare packages could not facilitate this.
- As stated above, a successful Telecare service will demand a change in culture – away from a science based approach with a focus upon certainty (i.e. Telecare is the answer, or the 'one best way'), towards a more research based focus (i.e. Telecare can enable us to ask the right questions, as well as being part of the solution) and the development of organisational managers and actors who can deal with ambiguity and novelty.
- The potential for Telecare is great but in order for it to achieve its potential a way of 'talking' or describing Telecare must be developed that can deal with its ambiguity.
- Telecare systems should in the short to mid-term concentrate upon low-cost solutions that focus upon the needs of those older people with medium frailty.
- The role of the Careline call centre should be considered or investigated for an 'expanded' role within any developing Telecare service. This would be building on one of the perceived strengths of the changing service provision available in Liverpool due to both the technology on offer and the influence of LDL. It also moves toward a central aim of Liverpool City Council, which is to *'not out-source the problem, but in-source the solution'*.

- Expect that within any Telecare system there will always be tension between the perceptions of risk to users, and allowing for users of the service to lead a normal life.
- To use the information produced by the Telecare Pilot Project to identify the barriers to moving Telecare from a pilot project to a mainstream element of service provision for older people across Liverpool. This evaluation provides evidence of the difficulties (barriers) to working toward 'joined up services'. Importantly it also offers some innovative ways in which to begin the process of thinking about overcoming them.

7 References:

Barlow J and Venables T. (2004) Will Technology Innovation Create the True Lifetime Home? *Housing Studies* 19:5 795-810.

Barlow J, Bayer S and Curry R (2005) Flexible Homes, Flexible Care, Inflexible Organisations? The Role of Telecare in Supporting Independence. *Housing Studies* 20:3 441-456.

Barlow J, Bayer S and Curry R. (2003) The design of pilot Telecare projects and their integration into mainstream service delivery. *Journal of Telemedicine and Telecare*. 9:Supplement1:1-3.

Bayer S, Barlow J and Curry R (2005) Assessing the impact of a care innovation: Telecare (available at:<http://www3.imperial.ac.uk/pls/portallive/docs/1/43011.pdf>)

Bjorneby S, et al (1999) Technology, Ethics and Dementia: a guidebook on how to apply technology in dementia care. The Norwegian Centre for Dementia Research. (available in English from Stirling Dementia Services Development Centre.

Brownsell S, Bradley D, Bragg R, Catling P and Carlier J (2001) An attributable cost model for a Telecare system using advanced community alarms. *Journal of Telemedicine and Telecare* 7:63-72.

Curry R.G, Trejo Tinoco M and Wardle D (2003) The Use of Information and Communication Technology to support Independent Living by Older, Disabled and Vulnerable People (London:Department of Health)

DoH (2001a) Building Capacity and Partnership in Care (London:Department of Health)

DoH (2001b) National Service Framework for Older People (London:Department of Health)

DoH (2001c) Supporting People and Partnership in Care (London:Department of Health)

DoH (2001d) Valuing People (London:Department of Health)

DoH (2005) Building in Telecare in England (London:Department of Health)

Kendall J, Matosevic T, Forder J, Knapp M, Hardy B and Ware P (2003) The Motivations of Domiciliary Care Finders in England: New Concepts and New Findings. *Journal of Social Policy*, 32:4 489-511.

Leonard-Barton D (1995) *Wellsprings of Knowledge* (Boston:Harvard Business School Press).

Marshall M et al (2000) *ASTRID a social and technological response to meeting the needs of individuals with dementia and their carers – a guide to using technology within dementia care*. London:Hawker Publications. (available at: <http://www.astridguide.org/>)

Matosevic T, Knapp M, Kendal J, Forder J, Ware P and Hardy B. (2001) Domiciliary Care Providers in the Independent Sector. PSSRRU Discussion Paper 1605, PSSRU, LSE and Nuffield Institute for Health, www.ukc.ac.uk/PSSRU

Pickard L, Wittenberg R, Comas-Herra A, Davies B and Darton R (2003) Relying on Informal Care in the new century? Informal care for elderly people in England to 2031. *Ageing and Society* 20:745-772.

Sixsmith A and Sixsmith J (2000) Smart Care Technologies: meeting whose needs? *Journal of Telemedicine and Telecare*, 6:Supplement1:190-193.

Ware T, Matosevic T, Hardy B, Knapp M, Kendall J and Forder J (2003) Commission care services for older people – the view from care managers, users and carers. *Ageing and Society* 23, 411-428.

Wittenberg R, Pickard L, Comas-Herrera A, Davies B and Darton R (2001) 'Demand for long-term care for older people in England to 2031. *Health Statistics Quarterly*, 12:5-17.

Woolham J and Frisby B (2002) Building a local infrastructure that supports the use of assistive technology in the care of people with dementia. *Research Policy and Planning*, 20:11-24.

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