

THE ORGANISING VISION OF TELEHEALTH

Ela Klecun-Dabrowska

Department of Information Systems and Computing, Brunel University,
Uxbridge, Middlesex UB8 3PH, UK
phone +44 (0) 1895 274000; fax +44 (0) 1895 251686
ela.klecun@brunel.ac.uk

Tony Cornford

Department of Information Systems, London School of Economics and Political Science,
Houghton St, London WC2A 2AE, UK.
phone +44 (0) 20 7955 7337; fax +44 (0) 20 7955 7385
t.cornford@lse.ac.uk

ABSTRACT

Telehealth – the provision of health services at a distance in an electronic form via modern telecommunications networks – has been increasingly proposed as an alternative to more conventional, person-to-person modes of delivery and as having a potential transformative role within health care structures. The proponents of telehealth point out its potential to contribute to more equitable healthcare - reaching, for example geographically and socially excluded populations, to develop enhanced modes of service delivery for health, and to reduce or at least contain the escalating costs of healthcare provision. Against this background of ambition and potential, this paper utilises Swanson and Ramiller's (1997) concepts of organising visions of information systems innovations to explore the processes by which telehealth innovations acquire an identity, and (sometimes) recognition and acceptance within relevant communities.

1. INTRODUCTION

In many business and administrative areas new technologies and new concepts of technology-use are appearing, with some gaining a wide spread commitment and proving a rallying point for action. Such new conceptions for the relevance and use of information and communication technology (ICT) in contemporary terms are seen within domains such as e-commerce, ERP, Groupware, e-government and distance learning, and more generally within the debate on information society. However, such conceptualisations of the utility and potential of ICTs do not emerge from nowhere and are not sustained through time simply by their own internal logic. Rather, their continued existence and the allegiances that they attract and that sustain them are the results of some substantial social and economic manoeuvres. In this paper we attempt to explore this process of the sustaining and shaping of an idea about technology and its uses within the domain of health and in particular in the conceptualisation of telehealth and telemedicine as conceivable, appropriate and legitimate.

It is easy to find optimism about the relevance and transformative potential of ICT in the health domain, and in the UK health sector reforms and initiatives are often proposed with a prominent (rhetorical) component of ICTs. In this paper we focus on searching underneath such simple alignment of ICTs with improved healthcare, and consider telehealth in terms of the ongoing and constantly shifting vision that is presented and portrayed. We consider telehealth to include a set of technologies

with potential to be applied in healthcare situations, but also to include the services and organisational structures they may become part of, and that allow the provision of health services at a distance through an electronic medium. Often such ideas are referred to as 'telemedicine', however we prefer the term telehealth as more encompassing and incorporating healthcare provision outside institutional settings as well as health promotion and services that flow not only from health professionals to patients but also actively involve the community, as illustrated by the growing number of health support groups on the Web. Understood as such, telehealth includes telemedicine (which we see as services that facilitate remote patient care in an institutional/medical setting) and telecare (services that provide aspects of care for people away from institutions, typically in their own homes).

Using the notion of organising vision of information systems innovations, introduced by Swanson and Ramiller (1997), this paper examines how telehealth innovations acquire their meanings (or identity), the claims that are made for them and how they are legitimised. The paper is a result of wider research into telehealth in the UK including national policy and local implementation strategies, as well a number of inter-linked case studies conducted in the London Borough of Lewisham. In this study the projects identified and investigated include telepsychiatry service (linking a doctor's surgery with a consultant in a hospital), a Women and Children's Centre supported by a foetal scanning telelink, and two different web-based systems offering health information and interactive services to different target groups (AIDS sufferers and mental health patients). In the course of the research 42 people were interviewed from all the main healthcare providers serving Lewisham, including specialist (tertiary care) and general (secondary care) hospitals, members of primary care teams in the borough, as well as representatives of the local Health Authority (the main purchaser of care) and Lewisham Council (the local authority). In addition members of the NHS Executive (the national management body for England's National Health Service) were interviewed, including a member of the Telemedicine Policy Team (a small advisory body). Interviewees came from different professions, and were chosen because of the positions they held in organisations (e.g. IT and telemedicine managers in hospitals) or their interest and involvement in telehealth (e.g. researchers and healthcare and social services professionals). We used a snowballing technique to develop the coverage of respondents and contacted other people who were suggested by our initial interviewees. The interview data and secondary sources (e.g. local and national policy and strategy documents) were analysed by both authors for themes and patterns, and critically interpreted in the context of wider policy developments and research literature.

The motivation for this paper is twofold: to explore what meanings telehealth acquires through organising vision activities, and to consider if the organising vision becomes compelling and thus telehealth is more likely to be adopted. The following section describes the concepts of organising vision in terms of activities of interpretation, legitimisation and mobilization. These concepts are then applied to describe different aspects of the organising vision of telehealth in the UK. The paper concludes with an assessment of the compellingness of the vision so created. This paper thus focuses on the processes by which communities of interests create different meanings for telehealth and configure resources to establish its credibility as an avenue to follow.

2. THE CONCEPT OF ORGANISING VISION

There are a range of theories available that present different, sometimes contrasting but also complementing, models of the processes of construction, diffusion and appropriation of ICT based innovations, and offer ways of studying them. This paper utilises Swanson and Ramiller's (1997) account of organising vision of innovations, which draws on three well known strands of such work, institutional theory, social constructivism and Actor Network Theory (ANT). The ideas they present not only provide a language for a discussion of adoption of innovations but also suggest how such a process can be studied. The concepts and vocabulary of organising vision are particularly suited to delivering an account of telehealth as an emerging phenomenon, looking beyond the boundaries of any

one organisation and describing a process by which innovations acquire identity, and (sometimes) recognition and acceptance within a (changing) community. Thus, Swanson & Ramiller argue that:

... an interorganizational community, comprised of a heterogeneous network of parties with a variety of material interests in an IS innovation, collectively creates and employs an *organizing vision* of the innovation that is central to decisions and actions affecting its development and diffusion. That organizing vision represents the product of the efforts of the members of that community to *make sense* (Weick 1995) of the innovation as an organizational opportunity. In so making sense of the innovation, the community in effect also defines it and creates it. (p 459)

Such an organising vision, they suggest, opens some of the possible ‘windows of opportunity’ that are historically situated, both technologically and socially, and makes the adoption of an innovation a possibility at a given time and in given situations. They argue that even the early adopters of an innovation do not solely rely on their own research and experience, but draw on relevant communities’ resources and elements of the organising vision they create. The authors identify three important aspects of the information systems innovation process facilitated by and contributing to an organising vision: interpretation, legitimisation and mobilisation.

During *interpretation* a common ‘story’ or narrative is developed to describe the innovation’s nature and explains its purpose within the broader social, technical and economic context. This process reduces possible uncertainties regarding the innovation itself and its application. Such an interpretation is then complemented by the process of *legitimation* of the innovation, when the rationale for adopting the innovation is being built, and when questions of why we should adopt it are being addressed. Such legitimisation activity encompasses not only validity claims in technical and functional terms, but also in political and business/organisational terms. In the context we study here, professional bodies and institutions too are central in legitimising (or not) telehealth. The final aspect of organising vision, *mobilisation*, entails all activities leading to activating, motivating and structuring the entrepreneurial, institutional and market forces that emerge to support the material realisation of an innovation. This includes vendors bringing new products to the market, development of consultancy services, and the proliferation of trade journals, conferences and expositions.

An organising vision of a new technology, in terms of interpretation, legitimisation and mobilization, provides images that those involved in managing organisations, establishing budgets and allocating resources, and those selling products (hardware, software and services) can refer to and seek to influence and perpetuate. We also recognise that an organising vision is always historically situated and under a process of change, with past developments influencing current ones and new interest groups seeking to establish and promote their influence. For the purposes of this paper, and recognising the still tentative status of telehealth in the UK, this paper focuses its analysis principally on interpretation and legitimisation activity.

3. ORGANISING VISION OF TELEHEALTH

The organising vision of telehealth has been under construction for nearly forty years, although some maintain that the roots of telehealth are even older and are manifested in early systems of exchanging healthcare messages, using other communication means such as mail or the telephone (Darkins and Cary 2000, Wallace 1998). However, it was not until the 1960’s that a more significant number of projects began to be conducted using the new computer and network technologies. Such early applications of telehealth were driven by concern over access to medical services within remote populations not served by medical specialists or primary care workers (Collins, *et al.* 2000). Thus, the early and most prevailing vision of telehealth as a service for remote populations was established. However, most innovative projects from the 1960s through to the early 1980s did not survive the end of grant funding or trial financing (Darkins and Cary 2000, Perednia and Allen 1995). Thus, even from the 1960’s, the organising vision of telehealth cannot be seen as a linear, incremental process of development. In the 1960s telehealth (or telemedicine as it was referred to) had achieved (although in a limited way) some mobilisation, only to be nearly completely abandoned, and having in more recent

times to reenter the process of interpretation and legitimisation once again. Many studies on telehealth and telemedicine attribute this 'false start' to high telecommunications costs, problems with technologies, their lack of stability and usability, as well as lack of business plans, inadequate project management, and an inability to interface telehealth with mainstream healthcare provision (Darkins and Cary 2000, Field 1996). Perednia and Allen (1995) focus on one recurring legitimisation issue in this era, an inability to justify applications on a cost-benefit basis. It is perhaps also not surprising that the vision from the 1960s of telehealth addressing isolated and rural communities found less resonance in the densely populated UK, where most areas are relatively well served by traditional health services and few communities are remote.

Yet, although the vision floundered and lost its visibility, telemedicine was sustained in some specialised areas, finding niches in NASA, the US military, Antarctic survey stations and offshore oil exploration (Darkins and Cary 2000). For these applications finance was often not a problem and what is more, there was no obvious and feasible alternative. Out of this small enclave of survivors, in the late 1980s and the 1990s a vision re-emerged, and telehealth projects in multiple forms became more widespread throughout the 1990s (Perednia and Allen 1995). This interest in using telehealth to provide healthcare to the general population was renewed first in Scandinavia (particularly Norway) during the late 1980s (Darkins and Cary 2000). By the early 1990s the USA, Australia, Canada, and to a lesser extent the UK joined in. In the following sections of this paper we focus on such developments in the UK in the contemporary era.

4. INTERPRETATION ACTIVITIES SINCE THE 1990S

In the contemporary context we see increasing interpretation activities taking place as the general public, health service managers, clinicians and politicians becomes familiar with the terms telemedicine, telecare and telehealth, and start to experience aspects of it in everyday healthcare. This activity of interpretation is performed at different levels – operational, organisational, inter-organisational, national and international, with its discourse conducted in different but inter-related communities and contexts (political, medical, organisational and societal), appealing to and drawing on different traditions and resources. But despite all the interpretation efforts, undertaken - in the relevant literature, in government policy papers and on organisational and individual levels - telehealth is still often considered in very functional and over technological terms, as our interviewees pointed out:

There is a belief that telemedicine is a thing, something you can get hold of. It is not. It is a group of technologies. It is as much a control thing as it is a technology. It is not a thing, it is not a computer. (Telemedicine Manager, Hospital)

In the [UK government] policy paper part of the telemedicine vision is about fancy, sexy stuff, e.g. an idea of a camera mounted on paramedics helmets. The sort of thing that looks good on the news and so on but might not in fact actually deliver that much real business benefits than some the other things. (Associate Director, Information Systems, Health Authority)

The terms telehealth, telemedicine and telecare are still fluid and open to re-interpretation both in the literature and in practice. Until recently, for example, the term telehealth was seldom used and the focus was clearly on telemedicine and its 'high tech' end. The vision that caught people's attention was the ability to perform remote operations, different forms of robotics and real-time teleconsultations. More recently, a more encompassing view has emerged that links such technologies to health as much as medicine, and highlights applications not only in medical contexts but also in health (preventive) and social/community settings (Brennan, *et al.* 1997, Gott 1995, Yach 1998). Nevertheless, the organising vision has not yet stabilised to allow either of the terms telemedicine or telehealth to be established as dominant, and indeed we see a new term e-health also being introduced into the discourse. Any such terms may indeed become obsolete when (if) such technologies have been widely accepted as a means of healthcare delivery (Pedersen 1999). This view was also expressed by one of our interviewees:

In [the] long term telemedicine is an almost dead term. It has a very short-term future. People will just use the technology as they use a fax, telephone or PC. You don't have a photocopier, email manager – why should we have a telemedicine manager? There is glamour hype around telemedicine but it is neither glamorous nor new but it is deemed to be sexy. (Telemedicine Manager, Hospital)

This illustrates that the success of an organising vision may lead to the adoption and sustained use of innovations it promotes, but ironically also to the demise of the vision itself. This phenomenon is acknowledged by Swanson and Ramiller (1997) who suggest that when an innovation comes, in time, to be taken for granted, the need for sensemaking subsidies and the organising vision fades away. Thus as relevant technologies, medical practices and organisational structures become more ubiquitous, telehealth may become so embedded in the normal provision of health and healthcare services that it would no longer warrant a name. McDonald et al. (1997) suggests that this integration may happen within five to ten years, with hindsight a rather optimistic estimate.

In the UK, we see the organising vision of telehealth as being created, in part at least, from the political perspectives of information society, and 'modernised' structures of government. Telehealth is thus identified as one of the services offered in an information society, often in the context of 'on-line' community, and in the healthcare setting (within and beyond NHS structures) as an extension of healthcare information systems. The recent UK government White Paper '*Modernising government*' (HMSO 1999) places 'information age government' in the centre of the service modernisation process and proclaims that "The NHS will use IT to transform the way health services are delivered." (chpt 5, p 1) and singles out *NHS Direct* (a nurse-led service offering healthcare advice via telephone) and *NHSnet* (the NHS wide intranet) as important initiatives. Similarly, recent UK health policy papers (DOH 1997, DOH 1998, DOH 1999) have all envisaged an expanding role for ICT, covering not only administrative and management functions but also as enabling the delivery of information and care to communities and into homes. Thus '*Information for Health: An Information Strategy for the Modern NHS 1998-2005*' (NHS Executive 1998) sets out a wide range of strategies for the employment of ICT in the NHS and promotes a number of telehealth initiatives, including *NHS Direct* and telecare services. It also specifies that Local Health Authorities have to co-ordinate information and technology plans across primary and secondary care, and community health services, producing in co-operation with other organisations Local Implementation Strategies (LIS). In such policy and strategy documents telehealth is being interpreted in the context of both information requirements of various organisations within and beyond the NHS (e.g. in terms of inter-organisational co-operation, and facilitating administrative and managerial tasks), as well as in terms of healthcare delivery and information and health needs of the population.

Such policies and rhetorical stances both influence the interpretative discourse of the telehealth organising vision (or in Swanson and Ramiller's terms, interpretative discursive activity), and the material activity (practical activities and projects). The discourse seeks to interpret telehealth as an integral part of the services to be offered in the information society, and more specifically in the context of other on-line services provided by government. These interpretations are then enacted in practical projects (e.g. *NHS Direct*). But the vision of information society itself is not just about cheaper telecommunications and delivering services electronically. It is rather about the fundamental nature of society, the dominant values and principles and terms in which citizenship will be defined. In this political discourse strong ethical dimensions are reflected in arguments about the potential of ICT to improve quality of life and the efficiency and cohesion of social and economic structures. Telehealth is thus often hailed as a way of making healthcare more equitable, traditionally in terms of reaching across geographical boundaries, but also across social divides and supporting inclusion. At the same time concerns are voiced about exclusion of those without access to ICT and skills to use it. The simple vision is also marred by tensions between different interests, for example, between citizens' right to (free) information, and the protection of intellectual and institutional property rights. Telehealth seen as an information service, for example applications delivering health information over the Internet, then becomes entangled in disputes about security, privacy and quality of information

(Cerberus 1997, Eysenbach and Diepgen 1998, Hjelm 1999, McKenzie 1997, Morris, *et al.* 1997, Silberg, *et al.* 1997, Stanberry 1998, Tyler 2001).

These debates, drawing on information society themes, contribute to the organising vision of telehealth, but they also run in parallel to (and are often complemented by) debates about medicine, health and wellness. Together, they inspire proposals of alternative models of healthcare focused on primary sector and holistic models of care. We see indications of these trends in the UK's policy and strategy papers discussed above and the relevant research literature. For example, Smith (1997) evokes the metaphors of "industrial age medicine" and "information age healthcare" to describe current and future models of healthcare. In the first instance the emphasis is placed on the supremacy of professionals and institutions; in the second model patients become "informed consumers" and professionals act as facilitators and partners. As many authors propose, telehealth could play an important part in this process, although of course it is not as simple as providing 'information at the fingertips' for citizens (Baker 2000, Darkins and Cary 2000, Peppiatt 2000, Smith 1997). We also see a reflection of these trends in local policies, as evident from the documents provided by NHS Trusts and other bodies in the area we studied, and in the Local Implementation Strategy for the area. Also, the four diverse projects that we studied each aim – to some extent – to alter the way healthcare is delivered. These projects seek to either support organisational integration and co-operation, or/and to address social exclusion of deprived communities or different target groups, in our studies for AIDS sufferers and mental health patients and their carers, and empower patients.

Summarising, the interpretation activities we have described above produce varied meanings of telehealth. Initially telehealth has a strong identity as a medical technology appropriate for meeting issues of distance and access, for example in terms of supporting remote diagnosis and operations. But such technologies, and the services they enable, may be directed not only at geographically but also socially excluded groups, and thus have stronger community/societal dimensions. Equally, telehealth applications for delivery of health promotion and advice are often interpreted within strong ambitions for information society, where telehealth is seen in terms of addressing citizens' rights to quality health services and information (Morris, *et al.* 1997). Finally, we see in policy papers, and some of the research literature, the vision of telehealth as an extension of more conventional IS and as a means to improve co-operation between different parts of the NHS (and beyond it) and to re-focus care processes around patients.

5 LEGITIMISATION ACTIVITIES

Within the model of organising visions, legitimisation means communicating a rationale for adopting an innovation, and in healthcare is most often based on some evaluation of a pilot project, surveys or other experimental empirical activity. For example, it often proposed, with supporting data, that telehealth may offer patients better quality of care, enhanced sense of security (telecare), convenience and cost-savings, better level of service or better trained and supported personnel (thus able to provide better care) (Yach 1998). It is also argued that telecare allows greater flexibility and responsiveness, and enables the elderly to be cared for at home (Coyle, *et al.* 1995, Sixsmith 2000), as well as providing safety, security and health benefits (Sixsmith 2000, Whitten, *et al.* 1998), and means of interacting in a client-centred manner, promoting client autonomy through education and improved communication (Warner 1997). But not all such research offers unequivocal legitimisation; intrusiveness and control aspects, impact on patients and their carers' well being are also considered, as well as issues of medicalisation of the social and commodification of services (Fisk 1995, Fisk 1997).

But despite all this effort, McDonald, *et al.* (1997) point out that information on the benefits to patients is largely anecdotal and few issues have been explored with patients in any depth. Mair and Whitten (2000), upon conducting a systematic review of studies of patient satisfaction with teleconsultation, concluded that the methodological deficiencies (low sample size, context and study design) of the published research limits the generalisability of the findings. This view is supported by Collins, *et al.*

(2000) who suggest that, with few exceptions, telemedicine satisfaction studies have tended to be small, exploratory or feasibility studies, lacking good quality rigorous evaluative data.

Beyond such research claims and counter claims for the legitimacy of telehealth at a micro level, the rhetoric of patient/citizens empowerment is also employed, particularly as part of policy agendas. Thus the UK government policy documents discussed previously claim a societal legitimacy for telehealth through an image of an empowered population, served by informational resources, and making decisions about their own health and participating in the process of setting healthcare policy (Gann 1998, Milio 1992).

Another legitimisation claim is that telehealth will benefit clinicians making them able to provide a better and more timely service, limiting the variations in care and standards, or by automating clinical documentation will reduce administrative work needed (Calico 1996). It is also suggested that it can facilitate peer support, education and skill support for more junior clinicians (Alusi, *et al.* 1997, Hjelm 1999, Wallace 1998). However, all these claim, as well as cost cutting and efficiency potentials of telehealth are not well documented through research (AHRQ 2001, Consortium for the European Commission Directorate General XIII, *et al.* 1996, Lobley 1997, McDonald, *et al.* 1997). Only a few researchers attempt to conduct cost analysis taking into account social costs and benefits of telehealth services and considering other alternatives to telehealth, and the results are not necessarily favourable to telehealth (Halvorsen and Kristiansen 1996, Wootton, *et al.* 2000). Researchers conducting cross study reviews of telehealth literature (itself a standard medical approach to legitimisation) in an attempt to assess effectiveness and cost-effectiveness of telehealth, often conclude that such evidence is still limited (Roine, *et al.* 2001), or that it is impossible to make conclusive statements because of the weaknesses in data in most studies (Hakansson and Gavelin 2000, Whitten, *et al.* 2000). Roine, *et al.* (2001), for example, found relatively convincing evidence of effectiveness only in teleradiology, teleneurosurgery, telepsychiatry, transmission of echocardiographic images, and the use of electronic referrals enabling email consultations, and video conferencing between primary and secondary healthcare providers.

These problems of legitimisation are endorsed by the evident difficulties encountered worldwide with sustaining telehealth projects and upgrading them from projects to routine services (Wells and Lemak 1996). Most authors who address this recognise that, to a large extent, this is attributable to implicit questions about human, social and organisational consequences, rather than technical considerations (Darkins and Cary 2000, McDonald, *et al.* 1997, Wootton and Craig 1999, Wyatt 1998); thus Tanriverdi and Iacono (1999) list technical, economic, organisational and behavioural knowledge barriers as inhibiting the diffusion of telemedicine. If these are overcome there are still legal problems with liability, certification or credentialing, reimbursement methods, security and confidentiality of data (Stanberry 1998).

Our research into the policy of Trusts involved in developing the Local Implementation Strategy for the Lewisham area suggests that the Trusts are experiencing difficulties with resources, but beyond this they anticipate problems with changing work practices and the subtle power shifts that such reforms may bring, and are sceptical how co-operation and working towards mutual goals (particularly sharing funds to develop telehealth services) can be achieved in practice. In some organisations (e.g. Community Health Trust) this has meant that telehealth has never been explored (and perhaps rightly so, taking into account other demands made on the Trust). Even in Trusts involved in telehealth projects only to a limited extent have telehealth technologies become an integral part of structure. The projects studied suffered in particular from the lack of long-term funding and of organisational and professional commitment. The benefits they offer were not always clearly identifiable, particularly in an urban area where geographical distances, which telehealth traditionally aims to bridge, are not great (see Cornford and Klecun-Dabrowska (2001a) for a more in-depth description of the projects). More generally, there is a sense of not now, not yet.

Information for Health says we should consider telemedicine with every programme. There is very little evidence across the sector (LSL area) that telemedicine is considered. If I was to give a reason for that I

think it is because we have been concentrating on bread and butter. I think there is still a view that telemedicine is complicated. We haven't sorted out the basics yet. (Head of IT, NHS Trust)

Central to almost all such legitimisation activities for telehealth is some discussion of modes of evaluation; by what experimental or research activity can telehealth be legitimised within the eyes of particular communities or groups, be it managers, clinicians, patients or politicians. Telehealth services are often seen to pose unique challenges for evaluators because they are not homogeneous, and the technologies used are often not well established and sometimes are in prototyping phases. Thus the dominant perception of telehealth that is revealed in published evaluation studies is still as a medical technology or treatment, and this is reflected in both the content and methods of evaluation with assessment often limited to questions considering feasibility, clinical performance and safety, rather than asking to what extent an innovation may fit in with or change the process and the structure of health service delivery, or the experience of patient groups (Lobley 1997, Wallace 1998). Evaluation is hotly debated in the professional literature and at the growing number of conferences, with a particular tension seen between those who advocate evaluating through the strongest medical approaches, randomised-controlled trials (RCT), and those who point out their limitations (Heathfield, *et al.* 1998, McDonald, *et al.* 1997).

Our research interviews reveals that, while some practitioners feel that RCT is the most important method ('the only one to assess impacts of telehealth'), others consider it just one of the methods that should be used, while others question the need for RCT altogether. Interestingly, our interviews revealed that the attempt to conduct RCT is, in some cases, largely motivated by a desire to achieve scientific and peer credibility, rather than intrinsic value; RCT is still (increasingly) seen as the established 'scientific' method in the medical community – a key part of evidence based medicine. This would confirm research results in other IS domains that suggest the use of formal methods of evaluation for the purpose of legitimisation (Introna 1997). However, for one of our interviewee, RCTs are essential for a rather different reason, upholding scientific values against commercial interests:

Randomised trials are used by the scientific community as a way of settling arguments. They are the 'golden standard'. ...I think that the way telemedicine is legitimised in this country and how it gains credibility is via scientific trials, not commercial interests. Scientific legitimisation is indeed what we would like. What many of us worry about is that driven by commercial interests telemedicine might be put to use untested, or when it is unnecessary, with unproven benefits. (Senior Research Fellow in Telemedicine, Medical School)

6. THE COMPELLINGNESS OF TELEHEALTH'S ORGANISING VISION

Swanson and Ramiller (1997) list different characteristics of an organising vision that contributes towards its overall compellingness.

How compelling people find the rhetoric of the organizing vision is an index of how well the organizing vision informs (i.e., supports interpretation) and persuades (induces legitimation). [...] we speculate that the organizing vision's compellingness is a function of several things, including: its distinctiveness, which is key to its ability to attract and hold people's attention; its basic intelligibility and informativeness, which are determined by the richness and coherence with which it is spelled out; its plausibility, or fit to broader, pre-existing frames for thinking in the relevant domain of application; and of course its perceived practical value, which is determined relative to social and material contexts and in the light of mobilization activities. All these factors may vary over time, and as they do so, the overall compellingness of an organizing vision rises and falls. (Swanson and Ramiller 1997 p 469)

We use this list here to assess the compellingness of the organising vision of telehealth as revealed in our research.

Over the years, the organising vision of telehealth has developed to convey a distinctive (but at times confused) message. The most overriding expectation of telehealth is its potential to improve existing services and bring new ones to individual patients and populations. This is often coupled with claims of cost efficiency and effectiveness. Initially medicine was the sole focus of the vision, but in the

contemporary context different (but co-existing and interwoven) concepts of telehealth are apparent: technological, medical, organisational (information systems) and social (information society). Thus the organising vision in play proposes telehealth as a solution to diverse problems in healthcare at a range of medical, organisational and political levels. This diversity, as telehealth draws on different disciplines and crosses institutional boundaries, leads also to different ethical concerns coming into play. For example from the medical perspective the nature of medicine and care, as well as the doctor-patient relationship need to be considered, from the IS perspective conflicting information needs of different participants, and from an Information Society perspective the place of ICTs in our daily lives - discussed further in Cornford and Klecun-Dabrowska (2001).

The technological dimension embodies the focus on creating new and exciting technologies and co-exists with a medical dimension that seeks medical solutions to health problems. Both culminate in attention to high-tech applications in highly specialised medical fields, e.g. teleradiology and tele-operations. But in parallel to these, we also see the organising vision of telehealth developed in a broader social context and drawing on information society concepts, for example, when it is directed at disadvantaged groups or populations and addressing both health and social problems. Services like teleradiology are at times both portrayed as medically innovative, but also as able to make specialist care more accessible; patient-centred applications, e.g. for diabetes sufferers or AIDs patients, go further and aim at facilitating self-care and providing social support (e.g. through e-forums). More generally, the societal vision of telehealth promises the delivery of informational resources to the population to manage their own health, and to participate more actively in the healthcare process. The organisational dimension (telehealth as an information system) offers a different perspective and emphasises telehealth's potential to alter the structure of healthcare delivery and the process by which patients are cared for (Smith 1997, Wallace 1998). For example, by supporting primary care workers, as well as facilitating inter-disciplinary and inter-organisational provision of care.

These different dimensions, and the tensions within and between them, indicate (as we would expect) that the organising vision is still in a state of flux. Not only does the vision's visibility, focus and coherence change, but its nature, its message, alters as well, and telehealth acquires alternative (or at times complimentary) meanings. This is acknowledged by one of the researchers we interviewed:

The thing is the history of telemedicine [it] understandably was developed to overcome genuine problems of geographical distances. People used to think about this as being the same medical service delivered by a different vehicle. What we have realised is that the actual vehicle changed the product. In fact it may be as beneficial to overcome communication problems [as] to overcome geographical distance. (Senior Research Fellow in Telemedicine, Medical School)

Another of our interviewees suggested the vision being shaped as a product of institutional forces and local initiatives:

I think that the mixture of policy and business opportunities will eventually determine telehealth. [...] You've got to have both, the grand vision and local initiatives. [...] You have to recognise that there are market pressures at work, it's a complex process by which people adopt technology, and it very often happens through a set of narrow horizontal developments. (The Associate Director, Information Systems, Health Authority)

From our studies we see that, up to the late 1990s, the organising vision has failed to inform or convince the wider population in the UK, including health professionals, about potentials of telehealth. One reason for this lack of informativeness might have been the way the organising vision was constructed, its message diminished by the confusion about telehealth's boundaries and terms used to describe it. More fundamentally, perhaps, the problem can be seen to lie with the nature (core) of the message. Perhaps, its plausibility was (and still is to some extent) undermined because it still does not fit broader, pre-existing frames of thinking (e.g. does not fit the organisational context or the professional/institutional interests), and its practical value (in the social and material context) has been hard to sustain. However, telehealth has increasingly gained legitimacy in relation to discourses of empowerment and social exclusion, as well as through trends towards health promotion and primary care based services. Its practical value has also increased due to technological developments, resulting in better quality and cheaper equipment and communications. The vision has also attempted to utilise

an argument of cost-effectiveness in the face of political debates over health funding. The arguments about benefits of telehealth do not appear to be resolved, beyond evidence presented by a few predominantly small-scale projects, and legitimisation activities are clearly not over yet. Without results from larger-scale projects based on RCT (or some acknowledged rigorous evaluation) many practitioners and health managers, as well as patients, will not be persuaded of the benefits of telehealth, and indeed the promised benefits may not be there. On the other hand, small, low budget projects whose benefits will be evident from practice rather than through formal evaluation, may provide an alternative (or complimentary) avenue to keep the vision alive. However, local (positive) experiences of telehealth initiatives are not easily transferable between countries and regions or even individual institutions or projects. We know that the organising vision of telehealth has developed differently in different countries, and amongst other factors, depends on the country's geographical and socio-economic situation, national policies, telecommunications and information technology (IT) saturation, the history of adoption of innovations, and specific/localised circumstances. In our more focused study in the UK and a London Borough we equally see each project or initiative as situated and constrained by its organisational (or inter-organisational) context.

So, is the organising vision of telehealth compelling? The answer is more so now than before. Certainly it has gained far greater visibility and to some extent informativeness, particularly through the policy process, and interpretation and legitimisation processes have been intensified. We would suggest that its compellingness as a research subject has certainly increased, thus making this paper we hope particularly timely.

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