

# Innovation and champions in Cinderella public health supply networks

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## Abstract

### **Purpose of the paper**

There is a tendency in all research to study those areas where a great deal is happening, which appear to be cutting edge, which appear in the wider media as 'sexy' sectors. This paper examines innovation – or rather lack of it – in three sub sectors of a sector often ignored in studies of innovation; rehabilitation services (assistive technology). We focus on a 'Cinderella' sector that is concerned with helping individuals cope better with daily living. This is a 24 hour business, an area that will touch nearly all of us as we age, an area expanding rapidly in line with the ageing of populations. It is also a high volume sector, and yet one that is not attracting technological innovations. Compared to acute, hospital based care it is mundane, everyday living is by its very nature repetitive and lacks the glory and precision of the operating table.

### **Research method**

The rehabilitations services sector was chosen for the sample frame for two main reasons; firstly as a sector it avoids much of the regulatory barriers that emerge in more clinical sectors; secondly the three sub sectors selected here as a whole predominantly serve one user group, the elderly, so that the likelihood of a champion emerging related to users' interests/power should be fairly constant across the sector.

The research reported here is drawn from a study primarily based on over 60 in-depth face-to-face interviews conducted in four networks within the UK healthcare sector. The interviewees were selected by means of reputational sampling whereby experts in the field highlighted appropriate personnel.

### **Research findings**

The findings here are exploratory and indeed of conceptual development, however they suggest new ways of conceptualising managing healthcare may be necessary. Current professional demarcations and practices maybe barriers to innovation, we suggest a shift in thinking is required to view health as a through life process not as an incident or one off event.

### **Main contribution**

The paper presents work in progress. It paper implicitly makes the case for more research being addressed to the significance of population ageing. Arguably the implementation of innovations in UK healthcare are not reflecting the shift in balance of demographics.

Keywords: innovation, champions, healthcare, public, rehabilitation

## Introduction

Across the developed world public sectors are under pressure to innovate, including evaluating and adopting technological innovations. Much of the innovations that are funded appear to be in exciting new areas such as tissue engineering (Johnsen et al. 2007). Other areas are not so favoured with media and investor attention and appear the poor relations – the Cinderella's. One factor that can make any sector Cinderella-like is a focus on the elderly. The case for studying the increasing significance the elderly will have in western societies is easily made, According to the UK Audit Commission (2006), a century ago only one in 20 people were over 65, today one in six are over 65. It is expected that, by 2051, a quarter of the population will be over 65. Translated into service requirements the figures are staggering. From the same source it is estimated that the UK NHS spent around £16 billion on people 65 + in 2003/2004, (43% of the total NHS budget) and Social services spent around £7 billion, (44% of total social services budget).

The presence of a champion has been identified as one variable strongly linked to the success of technological innovations (Howell & Higgins, 1990) in the private sector. The UK healthcare sector is an area that has been increasingly lambasted for underperforming in the adoption of new technologies (Wanless, 2001); to the detriment of both patients and UK industry. The Government has committed, through a number of initiatives, to speed up the adoption of innovations and new technologies (NHS Plan, 2001, Health Industries Task Force, 2004). Based on experience in the private sector given this drive for innovation and technological leadership champions for technological change would be expected to emerge. The field of healthcare is vast, and many areas are subject to regulation that is a critical variable on innovative activity. Therefore the paper selects only one sector of the vast healthcare environment and a sector that is less subject to innovation relevant regulation than other more clinically led sectors. That sector is called rehabilitation services and covers the supply of services for audiology, community equipment, electronic assistive technology, orthotics, prosthetics, wheelchairs and their associated products, a sector that influences in excess of £220 million of NHS spend (PASA, 2006). This sector is also ideal as previous work has identified at least one example of an innovation champion (Phillips, Knight, Caldwell, Warrington, 2006).

Three sub sectors within rehabilitation are examined here, each with a different innovation pattern. In audiology a champion appeared at a critical time and aided the transition to more advanced digital hearing aids. At the other extreme of innovation, in the UK wheelchair market the state provided wheelchair has hardly developed in 50 years, whilst private sector chairs have startling (if niche) innovations. In between is the electronic assistive technology sub sector (often called 'telecare') where in spite of promising cost savings and major new technologies the government is having to pump prime the market with the injection of £80million. As all three are sub sectors of one larger sector, why has an effective champion only emerged in one (sub)sector? Answering this question involves understanding the network surrounding each sub sector. A network approach enables us to develop an understanding of the rationale of decisions, where social and political factors jostle with cost considerations and how these in turn influence the processes of innovation and technological development.

Although there is little consensus on the meaning of the phrase 'network', the IMP as a group has been instrumental in promoting views of business and exchange taking place within networks of variously connected organizations. For example Håkansson's (1987, 1989) research on supplier-customer interaction during technological development provided empirical evidence for user-involvement in product development. His research stressed the interactive – and network enabled - nature of the process: 'An important and fundamental precept in our work has been that we consider technological development as being the result of the interaction between different corporations, organisations and individuals instead of being the consequence of one individual actor's performance' (Håkansson, 1987, p. 1). In this paper we use this network approach to innovation to examine the role of public sector innovation champions.

Whilst the wider innovation champion literature identified below is eclectic, there has been very little study of championing innovation in the public sector. In the same vein, whilst diverse organizational environments have been the subject of previous studies, there has been little attempt to distinguish innovation champion characteristics specific to networks as opposed to intra-organizational settings. The paper therefore combines the network approach of the IMP group with the concept of innovation

champion, using empirical data. Our immediate research question is 'what is the relevance of champions in 'Cinderella' public sector networks?'

## Literature Review

Although product innovation has received substantial attention during the last three decades, the main body of research has focused on innovation as being the outcome of a particular company (Booz, Allen, and Hamilton, 1982; Utterback, 1974). Often the conclusions of this research have been the promotion of a rational product development process divided into clear stages. The unit of analysis in this research has therefore been a company. However, increasingly research is focusing on innovation as an interactive process between producers and users/customers and suppliers.

The literature within this area is well-established ranging from well-founded research on how manufacturers can learn from the market (Leonard-Barton, 1995; Tidd et al, 1997) to innovation actually initiated by specific users and then developed by manufacturers (Von Hippel, 1988; Lundvall, 1986).<sup>1</sup> The seminal research on user-initiated innovation is Von Hippel's empirical studies in the 1970s which pointed out the dominant role of users in idea generation (1988). Von Hippel's early studies (1976) focused on a large number of successful innovations in medical and scientific instruments, concluding that the innovation process in medical and scientific instrument is a user-dominated process. The concept of lead users was based on users who a) face needs that will be general in a marketplace, but do so months or years before the bulk of the market and b) are positioned to benefit significantly by obtaining a solution to those needs: "... But lead users are well positioned by the very same reasoning: they have real-world experience with the needs that **future profitable products** must serve and with attributes they must contain. Clearly therefore, systematic utilization of lead user data in marketing research will allow practitioners to identify **profitable new product opportunities**, attributes, and concepts that are invisible today" (Von Hippel, 1985, p. 317), emphasis added.

Undoubtedly Von Hippel (1986) made a radical contribution to marketing, and developed sophisticated models of user roles. But his concepts were based on environments where users could be identified who were involved in profitable segments. This is not the case in the rehabilitation services market, where "... the industry remains comprised of small to medium sized firms, working with limitations in capital, production and expertise" (Lane, 2003). This American researcher notes that the Federal government has to actively intervene in this sector by investing millions in product research and development, and through grants to universities and to small businesses (e.g. supporting the National Institute on Disability and Rehabilitation Research (NIDRR), mandated to develop, transfer and utilize new knowledge about assistive devices). The nature of the market is a reflection of the users. For in this area – as previously stressed one not dominated by the surgeon/consultant [acute] elite – users are either patients or potential patients, and carers (both formal – paid) and informal (unpaid). According to Bauer (2003) – the assistive technology market is specialised, low margin, with a low income target market, and generally suppliers seek higher margin markets.

Given then the relative unattractiveness of the assistive technology/rehabilitation services market place champions are one potential route to greater innovation adoption. The mainstream literature on innovation suggests champions play a key role in implementation through having the 'force' (personal or organizational) to overcome resistance to change (Kanter 1983; Rogers 1983). As well as the familiar product champions literature (Schön, 1963, Chakrabarti 1974; Markham & Aiman-Smith 2001) champions as innovation agents are recognized in diverse fields such as information technology (Beath 1991), corporate and entrepreneurial ventures (Day 1994, Maidique 1980), Human Resources (Caldwell 2001), knowledge management (Nory, Herschell, Moesel, 2003) innovation and information processing (Rogers 1983), R&D (Markham 2000) and the environment (Wally & Stubbs 1999).

In the public sector, political and societal concerns are given a higher profile than in the private sector, and important stakeholders such end-users cannot be overlooked. It is formal government policy to increasingly engage patients (and users) in developing healthcare services; and is reflected in the focus of UK government policy on 'choice'. Thus there are already many well-organised, formal and informal organizations representing the elderly and disabled people whose role in the process of

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<sup>1</sup> Much of this research can be traced to the Science Policy Research Unit (SPRU) at the University of Sussex

innovation adoption should be clear cut. The remainder of the paper now analyses the specific context of rehabilitation to suggest that in spite of the push of government policy and the potential pull from user groups rehabilitation services are still not adopting innovation.

We also suggest that in two of our cases the role of 'carers' is relatively unique, and somewhat of a substitute for additional medical care. That is telecare enables relatives, friends, neighbours to be called upon as a first point of call before involving any professionals. In the case of wheelchairs there has to be someone to push the chair (the UK NHS does not prescribe motorised chairs) therefore there is a key role in both cases for informal carers. (As opposed to formal carers such as visiting social workers, cleaners etc who might visit daily but are paid by the state or the individual). The substitution of unqualified/kin care for medical care in these sectors is one contributor to their Cinderella status. "... in 2000, England had a caring population for the over 65s of around 4 million people. Analysis of the 2001 Census, however, gives a figure of 4.9 million people providing some care in England, which would imply around 3.4 million people caring for those over 65". We suggest this vast body of individuals is under-represented in a system that is configured to value and validate officially sanctioned medical input rather than simple 'care'.

Related to this factor is that the care needed is wearily repetitive, a question of daily living, not a one off event triggering a visit to hospital, a cure and a return to 'normal life'. All the cases reported here, indeed the entire somewhat bizarrely named rehabilitation services sector, are associated with, at the very least, decline – 'my hearing is not what it was', in this sector care is not repair.

## Research Method

The research reported here is drawn from a study primarily based on over 60 in-depth face-to-face interviews conducted in four networks within the UK healthcare sector. The interviewees were selected by means of reputational sampling whereby experts in the field highlighted appropriate personnel (Miles and Huberman, 1994). This reputational sampling resulted in interview coverage of major elements of niche industries, for example in tissue engineering the study is representative of approximately 10% of the World tissue engineering industry and over 25% of the European tissue engineering industry. In a UK context even higher figures apply to the telecare industry coverage of private sector suppliers. Such coverage was the result of a theoretical sampling approach, whereby interviews were conducted until theoretical saturation had been achieved i.e. for each network no new or relevant data appeared to be emerging (Strauss and Corbin, 1998; Bryman 2004).

The rehabilitations sector was chosen for the sample frame for two main reasons; firstly as a sector it avoids much of the regulatory barriers that emerge in more clinical sectors; secondly as the paper goes on to discuss, the three sub sectors selected here as a whole serve one dominant user group, so that the likelihood of a champion emerging related to users' interests/power should be fairly constant across the sector. Firstly in rehabilitation services, unlike many areas of healthcare served by acute or clinical professionals, regulations and regulatory barriers are not central issues. This enables us to look at how other factors (excluding regulation) affect the introduction of new technologies into the public sector. Secondly audiology, telecare and wheelchairs are all sectors where the majority of users are elderly, therefore there is some chance of controlling for one user group having a unique ability to organize a champion.

In the EU the proportion of persons aged 65 plus will increase from 16% in 1999 to 21% in 2020 and increase again to 28% in 2050 (Schulz *et al.* 2004). "In the UK hearing impairment is the second most common disability (after mobility [e.g. wheelchair related issues]) affecting 8.7 million individuals; 55% of over 60s are affected, rising to 93% of over 80s. As with other disabilities, hearing impairment can lead to social isolation and loss of independence" (Phillips *et al.*, 2006). There is strong cross over between the individuals in each case (although clearly not all hearing impaired are elderly). The significance of this issue is that rehabilitation and the specific cases covered here relate to millions of individuals/patients/users – and their family and friends. In Europe users of manual wheelchairs are estimated at 3.3 million (van der Woude, de Groot and Janssen, (2006).

Healthcare is a particularly relevant context in which to study the role of champions as recent, government commissioned reports have criticised the sector as a late and slow adopter of

technologies (Wanless, 2001). Champions and understanding their role in supply networks may be part of the managerial solutions to this lack of innovation. Interviews were semi structured and conducted in supply networks in tissue engineering, medical instruments and rehabilitations services (e.g. wheelchairs, telecare, hearing aids). Including interviews, workshops, attendance at committees and trade shows the data represents over 300 hours of contact time between researchers and industrial experts. Only material from the rehabilitation services interviews is utilised in this paper.

## **The case: Rehabilitation Services**

The area of healthcare procurement reviewed here is currently defined by NHS PASA as rehabilitation services. We say currently as these categories do change with some frequency. These changes – for example until recently assistive technology was used broadly to cover a number of aids for daily living such as wheelchairs, disabled toilets and washing aids etc. However now it is being reclassified as electronic assistive technology and therefore excludes manually operated items as wheelchairs.

We draw attention to the changes in category definitions here for a purpose; to highlight the use and origin of category management labels. Given recent initiatives in UK government policy intended to promote both ‘choice’ and patient led initiatives in health, it would appear the terms rehabilitation services reflects supplier and PASA needs (as may be fitting given the upstream nature of these relationships) rather than patient needs. The issue is only more than a semantic one if real benefit could be realized through for example, a procurement “for the elderly” category rather than a product category. The issue resonates within the cases as the only successful innovation – the introduction of digital hearing aids – was very focused upon one identifiable (and ‘boundable’) health issue – hearing impairment. If one can view the ‘elderly’ as a bloc or heterogeneous grouping, the question whether their collective interests are best served by a category management approach to procurement is a valid one, given the current and forecast size of this bloc, as discussed above. This apparently tangential issue is in fact central to examining the issue of champions related to such a targeted public sector as our three sub sectors of rehabilitation. Simply put is it likely that the concentration of attention – patient user, non ill user, clinician user, carer, charity, media and industrial (i.e. profit led) – that could be focused upon ‘elderly’ issues under a non category management approach would raise the profile of such a grouping; and the likelihood of champions emerging?

### **Audiology**

The case of the UK adopting digital hearing aids is reported in Phillips, Knight, Caldwell & Warrington (2006). The paper discusses the role of public sector procurement in adopting the new technology of digital (rather than analogue) hearing aids. Before this innovation, users were given analogue aids, at a cost of circa £90, or went private (and digital) at a cost of £1500-2000 at 1970s prices. With the NHS agreeing to supply digital aids, their price to the NHS fell to £70-£75 at 1970s prices. The paper adopts a Systems of Innovation (SI) approach (an approach that incorporates but goes beyond a network approach) to argue that this innovation was only adopted because the health issue was treated at the level of the system. Success could only be achieved through a shared vision, created through interaction among the various players, one of which was the charitable institution of the Royal National Institute for Deaf People (RNID) and its leader, James Strachan. Strachan’s role is that of champion, although not his formal job, he worked tirelessly alongside NHS Pasa to first make the case for, establish user needs and then implement, the introduction of digital aids, at a much reduced cost that made their subsequent roll out viable. [For balance we should also note that the case reduced the market to just two suppliers].

According to its authors “The selected case of DSP hearing aids is unusual in that a systemic approach was adopted that involved participation of all the main actors making up the SI (Systems of Innovation) for this particular technology. The case highlights the importance of understanding and exploiting these [the many well-organised, high profile, formal and informal organizations representing disabled people] interactions if a new technology is to be successfully introduced and adopted. Phillips et al, 2006). This is the success story of the cases, a seemingly rare event where all the relevant parties were activated and coordinated, and timing was on their side. We suggest the championing of digital aids also benefited from the clarity of the decision – analogue vs. digital, what was clearly going

to be the future juxtaposed with the past. It was also if not easy then not too complex a proposition to put to users, i.e. better quality hearing. In the other sectors it is harder to find such precise topics to rally around. We would also suggest strongly that of our Cinderella sectors, this case is the only example where the decision to innovate can be linked to 'medicine' and 'treatment' and a discourse of clinical intervention. The case authors suggest that in this example procurement was able to move beyond a pure cost focus to consider quality. 'Through involving different actors, NHS PASA ensured that product evaluation was not based primarily on cost and that user needs and quality were taken into account (ibid.). The ability to introduce quality of care provided by the technology is not supported in the next two cases which feature less clinical expertise.

### **Electronic assistive technology (telecare)**

The second case considered here is that of telecare or electronic assistive technology. The Audit Commission (2004) defined telecare as '...any service bringing health and social care directly to a user, generally in their own homes, supported by information and communication technology'. The technology is aimed to support elderly individuals (often 75 plus) in their own community/home, helping them live at home in safety; with the important side effect of reducing the number of avoidable admissions to residential/nursing care and hospitals. In the UK the embryonic telecare industry had grown out of social alarms. Social alarms are monitoring equipment that connect a user to a call centre. Usually these are devices such as a pendant or watch that are worn by the user. In the event of an emergency or critical event, the user can press a button to have instant contact with a call centre, who can in extremity, summon the emergency services, but would try to first consult previously identified friends, relatives or neighbours. Whilst telecare and its more advanced cousin, telemedicine, are increasingly seen as a critical element of caring for the expanding elderly population in many western countries it is not being adopted in the UK. Specifically the Government has had to put £80 million pounds of 'pump priming' money [the Preventative Technology Grant] into the market to kickstart telecare adoption. The Minister who introduced this to Parliament said the government's policy was three-fold: to provide initial investment; to co-ordinate demand to ensure industry grows as strong and as fast as possible; to educate and build knowledge and awareness amongst those who will be commissioning telecare services and those who will benefit from them. For the purpose of this paper, whilst such 'activism' could be seen as a sign of purpose and intent, we focus on why, if the innovation (and technology) is so good, does the government have to effectively strive to create both supply and demand?

Given the historical position of the less sophisticated social alarms market, the leader in that field has been able to create close to a monopoly in the telecare market. Not least through tight control over proprietary standards (e.g. the interface with the call centre). But buyer ignorance has also been a contributor, buyers tend to be first time buyers, operating on behalf of housing trusts and social care organisations, often not for profit, whose inexperience leads them to a perceived risk reduction strategy of buy the brand you have heard of (i.e. the market leader in older style social alarms). This situation is not challenged by users, who are of a generation that is not technologically literate, maybe in quite ill-health and unwilling to examine in detail a symbol of age and decline. This point is important as it prevents the issue of a clarion cry as in the hearing aid case. At present telecare is often only issued after there has been an event such as a fall, explaining the technology and the technology options to an elderly person who may be in some distress complicates securing user endorsement. However as stated above this sector is largely about care not repair and telecare ameliorates but does not solve, personal health and welfare issues, in that sense it is doubly difficult to get a positive (enthusiastic) response from the patient.

It is also worth noting that social alarms have not been viewed as 'medical' devices and therefore are not prescribed by doctors. Social services or housing trust personnel might recommend telecare after a patient has fallen or had an incident, but critically this would be post doctor intervention. The doctor or GP might be involved in treating the outcome (wounds) of a fall, but not the subsequent telecare. Given the respect elderly users have for 'authority figures' that a doctor is not involved is unfortunate for take up.

### **State supplied wheelchairs**

Our final case is the NHS supplied wheelchair. Until the NHS was established in 1948, disabled individuals had to fund their own wheel chair. From 1951 the NHS developed and supplied a 'free'

wheelchair. This was the Ministry model 8, and has been known since as the Ministry Chair, which accounted for 95% of all prescription chairs by the early 1960s. The same chair, with hardly any development is still the core wheelchair offering of the NHS today, over fifty years later. In developing an ethic of choice, those prescribed a wheelchair can now receive vouchers which they are then free to spend on a wheelchair of their choice; i.e. spending their own money on the difference in price between the basic state chair (the vouchers value) and the private sector offering. Prescription is based on need however, and for various serious cases (e.g. spinal injuries) customised chairs would be made available

Although the Ministry chair dominates prescribed chairs, small specialist suppliers have been introducing innovation after innovation in sporting, beach and everyday living wheelchairs such as lighter metals and revolutionary and ‘funky’ designs. The increasing personalization of wheelchairs in the private sector reflects movements to liberate wheelchairs from perceptions of deviance, ill-health and loss, to more positive and user led interpretations. According to Woods and Watson (2002) a shared construction of what is a wheelchair does not exist, as not all are users, wheelchairs should be seen as political, highly personal devices. Thus whilst younger wheelchair users are becoming increasingly militant and demanding, demands which the private sector is meeting at a price, - the state supplied wheelchair has remained virtually as it was first designed, half a century ago.

Effectively wheelchairs have become a commodity item, purchased on price, with a relentless focus on cost and cost reduction which has led to outsourcing the basic chair to low cost manufacturing countries. The UK wheelchair industry has had to exit manufacturing except for specialist chairs. The lack of a champion or focal high profile organization is extraordinary given the volume of users – many of the new niche suppliers were set up by users or carers. But one feature dominates this market in the UK – that is the gratitude of elderly users and their unwillingness to ‘make a fuss’. Such deference is not part of the younger users who are demanding better service – but are still marginalized by their youth. We should also note that wheelchairs are managed and prescribed by a variety of ‘other health care professionals’ the last step usually in a chain of medical care and the point where clinically qualified doctors hand over to ‘rehabilitation engineers’ and related professionals who are not ‘doctors’.

## Analysis

In figure 1 we present a representation of the UK healthcare network/system. Through the course of this work we have found in line with Phillips et al. 2006 that to appreciate the barriers to innovation in the healthcare sector it is necessary to look beyond the network, or to combine various networks, to visualise a system. At the centre we identify Consultants and surgeons as being the core of the health service – that is they define what the various networks of healthcare look like and how they operate.

This is not a formal responsibility but in the manner in which they define themselves (in terms of status, pay and critically what is ‘medical knowledge’) they effectively produce the system. They are effective both in creating a system and discrediting alternative conceptions (e.g. a cradle to grave model where medical clinicians were only one aspect of a life long care programme, distinct pathways such as healthcare managed and delivered based upon patient age rather than clinical expertise; alternative treatments, acupuncture etc). As a capability it also includes the ability to confirm (endorse) or deny, who is a champion.

The only innovation success we report here related to a network or system of networks where there was a clear cut choice between an old ‘medical’ technology and a new ‘medical technology’. In telecare and wheelchairs although high volume in terms of users areas, there is far less clinical involvement and therefore clinical interest. Staffed in the main by other health care professionals including nurses these are the low status areas – the Cinderella networks.

Innovation work such as von Hippel’s has focused quite naturally on where there has been innovation, e.g. surgeons using medical instruments. We recognize this and suggest in figure 1 that there is a dichotomy between the acute middle which is fast/fashionable and the outer rims, where non acute areas such as rehabilitation are seen as slow/unfashionable. We suggest the two are very different

and the dynamics for innovation in the Cinderella networks need greater attention. Within this approach is a paradox, that rehabilitation networks are day to day and continuous – whereas the acute sectors are more one offs, with no continuity. And yet healthcare is apparently organised to deal with the one offs rather than the day to day (in spite of the high volumes in rehabilitation). It appears to be like a car industry that makes customised cars and ignores mass markets. We strongly suggest, in line with many others before us, that there is a strong ‘professionals’ effect at work here, distorting not just the way healthcare is delivered, but also how innovations are assessed and implemented. In terms of the ‘Cinderella’ cases reviewed in this paper we suggest it is the status given to clinically trained doctors in the current arrangement of the UK health service that is marginalising the contributions innovations could offer to patients, users, carers and suppliers. We attribute some, but not all blame then for Cinderella not going to the ball, to medical professionalism as operated in the UK...

This immediately raises the issue of how transferable to other contexts are the features we have identified: non involvement of clinical care in rehabilitation services, ‘deferential’ and uncomplaining patients; a powerful role for professional qualification. However we said we attribute only some innovation inhibition to professionalism. Other influences are the usual suspects of the degree of technology and science involved, the volume of users, the concentration of capital equipment. etc all of which modify the role of champions. Another issue that arises from our analysis is that it suggests, in line with DSP case study above, that the issues need to be examined at a system level rather than network level.

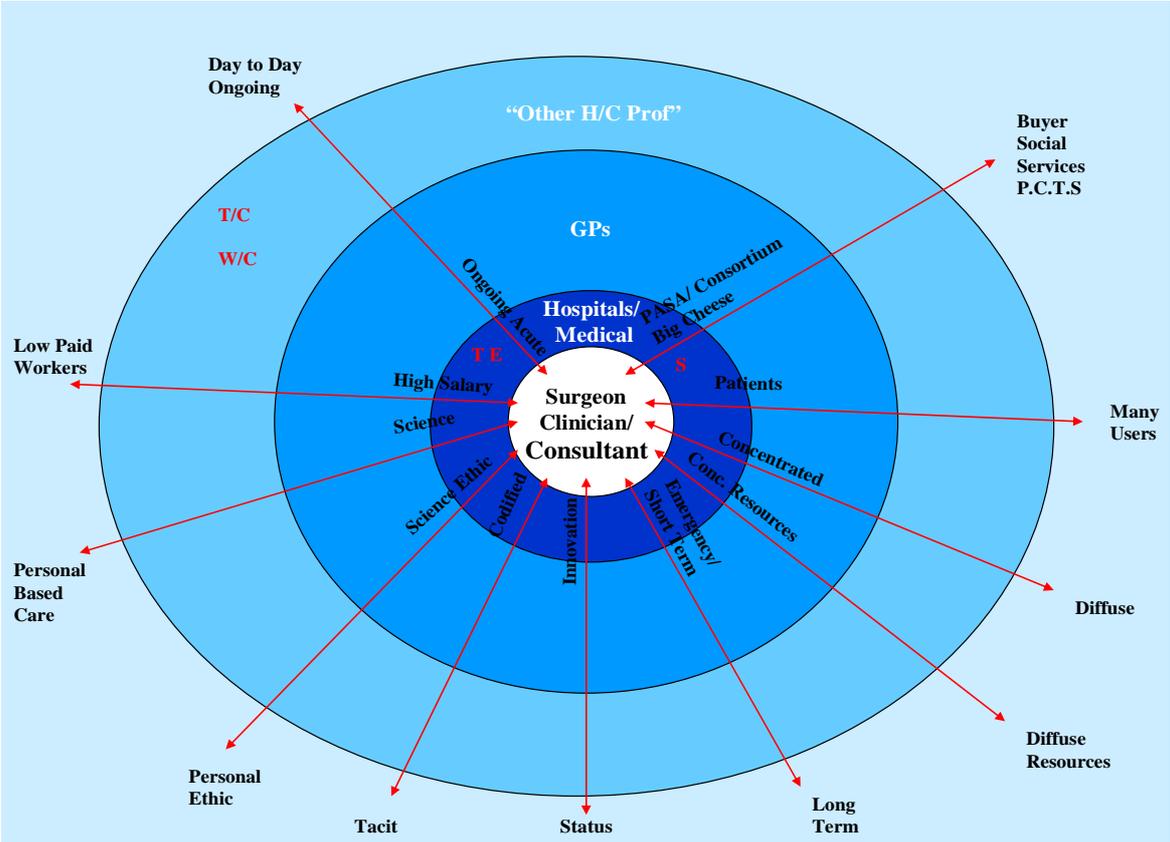


Figure 1: a representation of the health care system

Conclusion

Our cases suggest there is at least one discriminator between public sector supply networks in healthcare; that of core (e.g. acute provision of healthcare – located in hospitals, consultants rooms and Doctors practices) and ‘non core’ - longer term care interventions (e.g. caring for the elderly unable to care for themselves, wheelchairs, hearing aids). The distinction is critical when it comes to a term frequently used in innovation – that of the user. In the networks we examine it is vital to

distinguish between the product or process *clinician* user e.g. a surgeon, and that of the *consumer/user*, e.g. a person diagnosed a wheelchair or hearing aid.

In our research we identify more complex and ambiguous relationships between champions and users, above all relating to the specific environment the innovation is targeted to take place within. In the acute sector, we accept the findings of previous studies that innovations often occur through 'lead users' von Hippel (1976, 1978). However within the context of the public sector provision of healthcare, such linkages, for example between surgeon user/champions and an individual (dyadic) supplier challenge the normal role of procurement specialists and may be a dual-edged solution, creating procurement links that are not managed by procurement specialists.

In the non acute sector, users and especially the elderly are often in various ways marginalized from the main stream of consumer advocacy by the very issues they seek treatment for. At the same time these users are often from a generation still grateful for any treatment, highly deferential to authority figures and unwilling to complain. The result is that in the non acute sectors, users are themselves perhaps naïve as to what could be made available to them in terms of innovative treatments (or products) and resistant to change from what they have. [This finding echoes elements of Rogers (1983) early work but is distinct in that Rogers was writing of internal champions detached from users, where our research suggests innovation champions in non acute sectors have to be passionately attached to consumer/users values – even where they have to raise consumer/users expectations to promote the innovation].

In terms of academic implications the next stage of the work is to revisit the interviews in terms of IMP concerns with (inter)connections and (inter)dependencies between/amongst various actors, examining more directly the champion role and reaction to it (e.g. clinician, user) and suppliers. In terms of Managerial implications our exploratory research identifies that in terms of promoting innovation, of which innovation champions are one example, managers, at least in the public sector need to be aware of the dominant discourses of the supply network and networks of networks, they are operating in.

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