

Wireless eHealth And The NPfIT

The NHS will be deploying £6 billion worth of information technology over the next 10 years – a substantial amount of which could be classified as e-health. At the same time analysts are predicting that demographic trends will force healthcare operators throughout the industrialised world to automate and spend heavily on new technologies.

Estimates of the market for wireless devices alone have been put as high as £4 billion. However, device manufacturers and ehealth vendors are finding the European market in general, and the UK market in particular, are not as lucrative as analyst's figures suggest. In this white paper we describe the rapidly changing landscape of the UK and European e-health market and draw attention to the impact on ehealth vendors of projects such as the NHS NPfIT (National Health Service Program for IT). We also look at the changing attitude to funding on the part of member state governments and the EU commission.

In this paper we suggest ways in which ehealth vendors and service providers can reposition themselves in the market to maximise business opportunities.

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1 The NPfIT

1.1 £6 billion, Where Is The Problem?

The market for wireless ehealth devices should be exceptionally bouyant. Health providers throughout the industrialised world are coming to realise that they must overhaul their health services if they are to cope with the rising number of young people who are suffering from lifestyle related diseases, such as diabetes, and the growing number of older people who require medical care during their retirement.

The UK government is already modernising the healthcare sector and plans to spend over £6 billion over the next decade to provide the National Health Service (NHS) with the sort of IT infrastructure that organisations within the financial services and manufacturing sector have been using for the past two decades. For IT companies selling into the UK healthcare sector this should be good news. However, for many, the short-term impact of the National Program for Information Technology (NPfIT) has been negative. As well, the NPfIT is being put in place at a time when both the UK government and the EU commission are changing the way ehealth projects are funded.

eHealth vendors from around the world have been targeting the UK market in the hope of being included in the NPfIT. Some have been lucky but many have not. However companies that have given up may have done so in haste. There are still gaps in the ehealth market for companies that can correctly identify opportunities and are willing to reposition themselves.

1.2 Where Did My Customer Go?

Until recently the market for ehealth products and services was relatively strong and similar in structure to the market for any other innovative high technology product. Typically an enthusiast within a large organisation would purchase a product that was still in the prototype phase.

At A Glance

Despite predictions of a rapidly expanding demand for wireless and mobile ehealth services, vendors in the UK are having to reposition themselves to cope with changes in the way the NHS purchases IT and the government plans to fund research.

Gaps remain in the ehealth market that can be exploited by companies that can correctly identify opportunities and are willing to reposition themselves.

The buying manager of a Local Service Provider (LSP) has replaced the traditional early adopter working within the NHS.

This early adopter had sufficient time, patience and funding to allow the vendor to debug the product.

Eventually, once the product or service was ready for the market, the early adopter would act as a reference site and possibly encourage the adoption throughout the rest of the organisation. This process was haphazard – there was always the prospect that the early adopter would be promoted or leave the organisation before the project was complete. Specialist ehealth vendors could also find themselves supporting equipment they did not supply – such as PCs and networks – merely because the vendor was more accessible than the support desk of the store where the equipment was purchased. Nevertheless for many companies this market worked and, until recently, this is how ehealth products and services found their way into the NHS.

Within the NPfIT there is no-one to play the role of early adopter and vendors now find themselves speaking to Local Service Providers (LSPs) (the organisations that have won contracts to develop or deploy large segments of NHS IT infrastructure.)

1.3 Reattribution Of Risk

The NPfIT consists of two sub programs: applications and deployment. BT and Atos Origin are acting as National Application Service Providers (NASPs) and will develop electronic patient records and patient booking applications. These applications will be deployed within local clusters by LSPs - companies such as Accenture, Fujitsu and BT – who will be responsible for integrating patient records and booking systems with existing local IT infrastructure.

For all the media attention it has attracted, the NPfIT will merely provide the NHS with the sort of contact database and calendaring technology that commercial organisations have been using for more than a decade ago.

However the operational structure of the NHS is more varied and complex than that of the typical commercial organisation, and the technology being deployed within the NPfIT has been designed to either replace or work alongside a wide variety of legacy systems.

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However the companies that won the contracts to supply and deploy applications have taken on board exceptionally high levels of risk.

Most of the key contracts making up the NPfIT are now in place and the project has moved from purchasing to deployment phase. To win what many consider to be flagship projects NASPs and LSPs agreed to tight deadlines and harsh penalty clauses. The vendor's rush to grab business was reminiscent of the telecoms operators' scramble to obtain 3G licenses. Now, having won the contracts, vendors are looking for companies who can help them implement solutions and, at the same time, seeking ways to reattribute the risks associated with the contracts they have signed.

LSPs will be looking to off load risk associated with their contracts onto subcontractors.

Today, instead of talking to an early adopter within a local NHS hospital, the ehealth vendor has to sell their product to a LSP. They must convince the LSP that their product or service will simplify the task of deploying key applications such as patient records and ebooking. LSPs will probably show less interest in a product that allows appointments and medical records to be accessed over a mobile device than they would a utility that simplified access to data via a desktop PC.

In some cases small IT vendors will be presented with contracts where the risk (in the form of penalty clauses and payment against benchmarks) far outweigh any immediately obvious rewards associated with the contract. While the NPfIT management say they are casting around for the latest cutting edge technology for the program, LSPs will be concentrating on implementing the technology they have been contracted to supply. At the very least this will cause a degree of mission creep as contracts progress. It may also cause conflicts between the NPfIT and the main contractors; with the specialist, cutting edge, ehealth vendors caught in the middle.

Specialist ehealth providers could find themselves caught up in conflicts between the NPfIT management and LSPs.

1.4 A Risk In Its Own Right

A large number of government backed IT projects have failed in recent years and it has been suggested that the NPfIT will be abandoned if major contractors cannot complete applications for the contracted price or the technology does not meet performance targets. The counter argument, which to some extent holds true, is that the program is too large to fail and that so much political capital has been invested in the NPfIT that it cannot be stopped mid term.

It is unlikely that the NPfIT will fail completely. However it could grind to a halt if mission creep sets in.

There is a belief that abandoning the NPfIT would return the NHS to the dark ages. However, it should also be kept in mind that many people believed the Titanic was too large to sink. By 2010, the date by which time most of the applications will have been rolled out, some of the technology underpinning the NPfIT will be up to five years out of date. There will be pressure from NPfIT management to 'freshen up' applications. There is then a strong possibility that the program will slowly grind to a halt as mission creep sets in.

While £6 billion is a large amount of money it is barely enough to complete the job in hand; let alone provide the extra, innovative, services needed to keep health sector IT infrastructure up to date. At some point someone will have to consider NPfIT2.

At some point someone has to consider what will follow the NPfIT.

1.5 Not The Only Game In Town

There is a growing realisation that a modern healthcare service must do more than merely cure people who have become ill, and that £1 million invested in preventative healthcare provides a better return than £1 million spent on treatment. As this message sinks in the structure of healthcare spending will change and this, in turn, will impact on the NPfIT.

£1 million invested in a preventative healthcare system produces a better return than £1 million spent on treatment.

Many of the innovative ehealth products and services now reaching the market have been designed to support preventative healthcare applications. IT vendors have partnered with medical, pharmaceutical and biotechnology companies to produce devices the general public can use to monitor their blood sugar levels, blood pressure, physical activity and diet. To be truly effective these devices should feed data into, and extract information from, a patient's electronic medical record. This facility, which would be an ideal application for wireless and mobile technology, is not a high priority for the companies developing or deploying applications within the NPfIT.

To be truly effective these devices should feed data into, and extract information from, the user's electronic medical record.

If the Wanless Report's recommendations are taken to heart, and healthcare is made to fit a 'fully engaged scenario', the NPfIT's electronic patient record application should be accessible not only to the NHS but also to a range of healthcare - and possibly non healthcare - organisations.

It remains to be seen whether independent healthcare and ehealth providers find themselves caught up in another 'last mile access' battle with British Telecom – this time over patient records rather than local telephone exchanges.

2 Funding

2.1 The DTI – Not So Smart These Days

In the past, if an ehealth service or product was too cutting edge for early adopters, a vendor could always apply for a SMART award. These DTI schemes provided the small funding packages (usually below £100,000) that venture capitalists were unable to provide. For many ehealth vendors, who are one or two man businesses, there is little point applying for £100,000 of venture capital as this would be in excess of the amount needed to complete the project and, more importantly, would require the owner of the company parting with a large proportion of equity.

SMART awards, which appear on the CVs of a large number of UK based ehealth vendors, are no longer available. They have been replaced by an array of schemes ranging from 'Micro Projects', involving sums below £20,000, to 'Exceptional Projects' within which sums as large as £500,000 can be made available. However these schemes have been introduced at a time when the DTI is being reorganised and the status of regional offices – that administer funding – is under review.

New schemes are being introduced at a time when the DTI is being reorganised and the status of regional offices – that administer funding – is under review.

2.2 EU Funding – Business Plan Required

Another source of finance ehealth vendors use during their start up and pre-product launch phase is EU funding. However the most recent call for proposals within the Commission's Sixth Framework of infrastructure funding is subtly different in tone from previous calls. The emphasis has moved away from the development of new technology, towards the deployment of existing technology. While this is helpful for companies who are designing new ehealth services it is of less interest to wireless device vendors. As well as an increased emphasis on feasibility studies, market surveys and business plans, it means vendors unwilling or unable to commit technical staff to what are essentially business planning projects will find it harder to secure EU funding.

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2.3 Nothing Ventured, Nothing Gained

With government support drying up and early adopters being replaced by hard-nosed IT integrators, more interested in results and contracts than technology, small ehealth vendors must reposition themselves. Either they must find markets outside the NHS or gain access to personnel who are experienced in commercial projects and can negotiate effectively with LSPs. This will require additional funding and, for some, an agreement with a venture capitalist. In most cases the owner of the company will have to part with a significant proportion of their equity. One consequence of the NPfIT has been to force small ehealth vendors to grow faster than they had originally planned.

One consequence of the NPfIT has been to force small ehealth vendors to grow up faster than they would like.

3 Market Inhibitors

3.1 Still Losing Packets

Despite the number of ehealth applications that already run on mobile and wireless networks, there are still various technical issues to be resolved.

Packet loss makes 2G and 3G platforms difficult for ehealth monitoring applications, designed to identify specific events of short duration rather than long-term trends. Without modification, many wide area and local area wireless networks cannot provide full coverage within large buildings without exceeding acceptable power output levels or causing interference with other wireless devices.

Issues such as packet loss, network coverage and interference need to be resolved before large-scale wireless ehealth services can be deployed.

The EU funded MOBILHEALTH project identified - but has, to date, been unable to resolve - a wide range of networking problems that limit the performance of mobile and wireless based ehealth services.

3.2 Reluctant Clinicians

A wireless ehealth system that reduces the number of patients who died as the result of medical errors should be welcomed with open arms by clinicians. However a system that identifies the clinician who responsible for a particular error will be greeted with less enthusiasm. The problem for the vendor is that, in many cases, these two systems are one and the same.

Clinicians may not be happy with technology that logs who is responsible for a medical error.

Workers in the manufacturing and financial services sector resisted automation and the same is likely to be true within the healthcare sector. While wireless ehealth systems will save lives, they will also represent a threat to the livelihood of medical staff. Clinicians insist that their jobs involve so much human interaction that automation is virtually impossible. However a significant number of support processes could be automated. If patient tagging and automatic identification of medication were used to eliminate errors that occur during the dispensing of drugs, it follows that less skill and knowledge will be required to operate a medicine trolley.

If a patient arrives at an operating theatre on time because the wheelchair and the person needed to push it are both available when required, then the clinician's time will not be wasted. Consequently more operations can be carried out with the same number of clinicians, or the number of clinicians can be reduced.

As the benefits of automation become more apparent so the arguments against it become less convincing. The NHS Patient Safety Agency point to 'negative patient perception' as a barrier to the adoption of RFID tagging. When pressed to explain what this means it appears patients may associate radio tagging with the practice of tagging criminals. Increasingly automating national healthcare provisions is as much about change management as it is about introducing new technology.

Life saving automation would, as it has done in other sectors of the economy, also facilitate deskilling and cost cutting.

4 Recommendations

4.1 Balance Risk And Reward

eHealth vendors should not be tempted to take on risk that is out of all proportion will potential rewards. They should not sign a development contract that does not commit the customer to a specific number of units or licenses. They may also wish to avoid contracts that involve a disproportionate amount of integration.

Vendors may prefer to work their way down tiers of subcontractors until they find one who is happy to buy a product, or support a short development project, without a contract.

Vendors should, however, balance the risk they would be taking on board by entering into a contract with a LSP, with the risk they were exposed to when dealing directly with the NHS. It is unlikely a contract with a LSP will end if the person who signed it leaves their job, and it is unlikely the vendor will end up supporting equipment they were not contracted to supply.

4.2 Partnerships And Alliances

eHealth vendors should consider entering into alliances or partnerships and produce a bundle of ehealth services that LSPs will find attractive. Alliances may also help spread the risks and overheads associated with negotiating contracts.

Partnering with medical, pharmaceutical or biotechnology companies could provide alternative routes into the healthcare market and provide access to overseas markets.

An alliance of ehealth vendors may be better able to address technical issues, such as the reliability of packet networks and coverage within buildings.

A vendor may wish to enter into a strategic partnership or a separately funded joint venture with a LSP, or with a company that has already signed a contract with a LSP.

The LSPs task will involve change management as well as the deployment of technology. Vendors should therefore consider partnering or working with companies that have experience of change management within the healthcare sector.

eHealth vendors hoping to work within the NPfIT will need to balance risks with rewards. They may also need to consider entering into joint ventures or alliances. They may need to adopt a new business model and use some of their equity to raise longer term financing.

4.3 Adopt A New Business Model

Small and medium sized ehealth vendors may have to abandon plans for growing organically and consider seeking venture capital or the participation of a business angel. While this will represent a loss of independence, it should be balanced against the rewards of working within the NPfIT, and may be necessary if the vendor intends to remain active within the UK healthcare market.

Vendors who are working within EU funded consortiums should select partners or recruit personnel with experience of product commercialising and marketing.

4.4 Seek Alternative Markets

Vendors may wish to submit their product or service to the 'Tesco Test' - that is to say if the device was sold in a supermarket's pharmacy department of would it:

1. Represent value for money and provide the customer, or their relatives, with peace of mind and an improved quality of life?
2. Provide the store with sufficient margin to promote it?
3. Benefit from a wireless connection to a central monitoring or information centre?
4. Provide a network operator and healthcare service provider with sufficient revenue?

If the answers to all of these questions are 'yes' then the vendor should consider finding a marketing partner who has access to the preventative healthcare market. In addition, a product that passed the 'Tesco Test' will, in the long term, be easier to sell to a LSP for example, as an added value service to sit alongside the NHS's electronic patient record application.

5 Resources

5.1 Legal And Contractual

The solicitors Eversheds have produced a series of papers designed to help vendors understand the legal implications of entering into a contract with a NPfIT application or service provider.

www.eversheds.com/npfit

5.2 Managerial

A number of large consultancy companies have set up departments that offer change management services to the health sector. There are also a number of smaller consultancies such as Exact and The Vega Group who are potential sources of information on change management.

www.exact.uk.com

www.vega.co.uk

5.3 Market Analysis

The 'Wireless Healthcare 2004' report details a wide range of opportunities for wireless ehealth vendors and service providers within the healthcare market.

www.wirelesshealthcare.co.uk/wh/report_2004.htm

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