Computerizing a health service: the potential barriers to success

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Abstract

Any project to computerise the complex health services will take time and be beset with problems. However, some of these problems arise from barriers which could have been anticipated. There are genuine benefits of supporting the delivery of clinical care with technology, but unless these potential barriers are appreciated and understood, the well intentioned objectives will never be realised. This article describes how the National Health Service in England is approaching such a complex subject. It also describes what could prevent it from happening and suggests a strategy for overcoming them.

Computerising any health service is a difficult, complex and expensive business. Why is it so difficult? What are the benefits of actually achieving such an ambitious aim? What will prevent its success? And is it worth it?

These are all questions that this article will attempt to answer through the experiences identified during the ambitious National Programme for IT (NPfIT) in England, UK with references from the authors book *The NHS IT Project: The Biggest Computer Programme in the World Ever!*[1]

The National Health Service in England is big. Very big. Almost one in ten of the UK's working population depends upon the NHS for their income, either as an employee, or as a supplier. No wonder, then, that any project that involves the whole NHS is necessarily going to be the biggest project in the country – if not the world. Today, for example, one quarter of a million people will receive some NHS help in their homes. If you are reading this on an average working day, then over one and a quarter million Britons will be seen by an NHS doctor today. One hundred and sixty thousand of those will be seen today during a hospital outpatient visit. Nearly fifteen hundred babies will be born today, delivered by NHS midwives and doctors; hospital laboratories will report on the results of around 5 million tests, around 200 people will have hip replacement operations, and the pharmaceutical industry can look forward to dispensing around one and a quarter million NHS prescriptions in England. There will be over 7,000 emergency ambulance trips today. And it's a typical day.

But more things will happen today in the NHS than we might care to think about. The NHS will spend around £170 million of taxpayer's money today – that works out to a little under £2,000 every second. Surprisingly, around £10 million today will be spent settling litigation claims which the National Audit Office estimates as costing about £3.9 billion a year. But do people sue their NHS? According to Dr Foster[2], a medical research firm, 110 people will die in NHS care today because of "adverse events". Other people put this number higher[3]. Effectively these people will have been killed accidentally because of mistakes in their treatment. That might be one reason why the litigation claims are so high. Can you imagine if the Post Office was to accidentally kill 173 people every day? Or the railways? We are surprisingly tolerant of this death rate, but should we be so tolerant where the adverse events are due to poor management, inefficient processes, negligence, and easily avoidable human errors?

For example, it will cost the NHS £1.3 million today, and every day, just to treat patients for the affects of mistakes in prescribing. And yet, prescribing errors can be dramatically reduced through effective use of electronic prescribing[4].

So computerising the NHS is a logistical challenge as well as a technical one. It is a challenge of scale. Like the electrification of the Soviet Union there is no way to do this on a small scale; and like the building of the Channel Tunnel, there isn't much point in only going half way.

In England, the National Programme for IT is not a single programme. The press often talks about "a new computer system for the NHS" rather creating the impression of a single gigantic computer. In fact eight separate programmes combine to make up the NPfIT. They are:

- **One NASP (National Application Service Provider) contract to provide the "National Data Spine"** – destined to become the biggest computer database in world history.
- **A New National Network (N3)** – a broadband network to support all the applications and to connect GPs and hospitals across the country.
- **One project for Electronic Appointment Booking (Now called Choose and Book)**

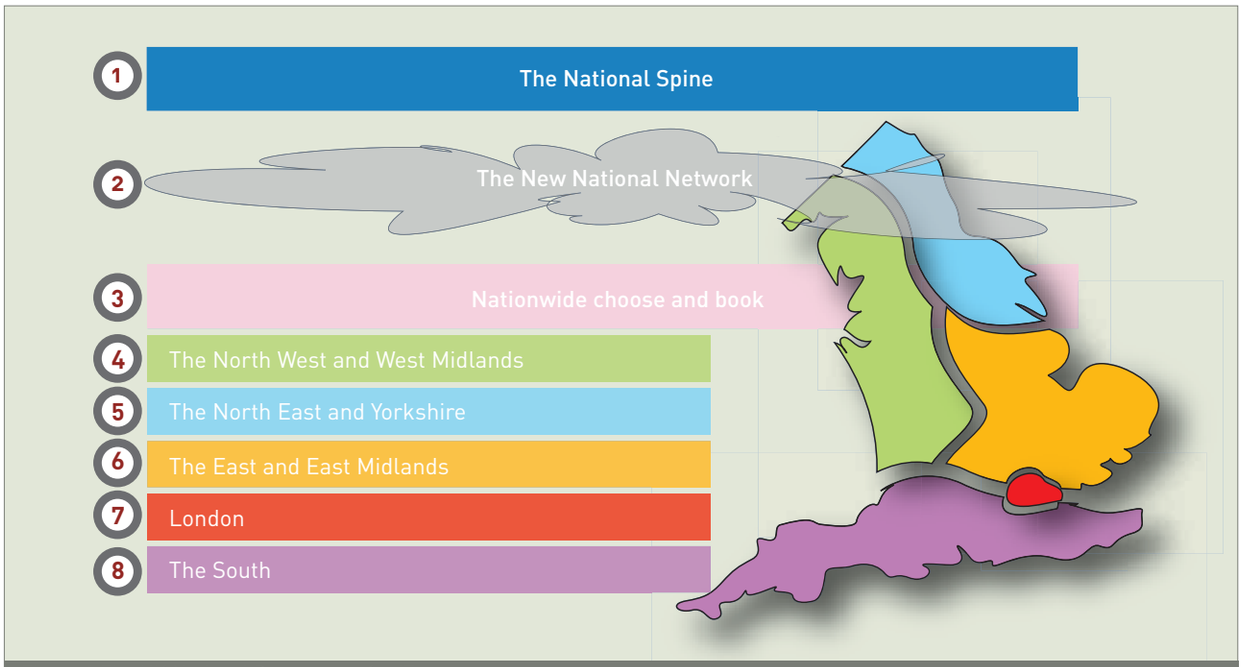

Figure 1:The UK National Programme for IT

➜ **Five Local Service Provider (LSP) 'cluster-wide' contracts to provide a National Care Records Service (NCRS) at a local level** – in the North West and West Midlands, in the North East and Yorkshire, in the East and East Midlands, in London, and in "The South".

Altogether this will amount to a lot more than "a new computer system". Ultimately there will be several hundred computer systems. But they will all be connected. And that, for the NHS, will be a wholly new event.

The first objective of NPfIT is to computerize patient records. That means that the record of encounters with the NHS, all appointments and medications, all doctor's notes and diagnoses, test results and x-rays, and countless other bits of information collected about each individual patient, will be held on a computer. But that record won't create itself. So either the NHS will have to provide an army of data-input staff to type all that information into each patient's electronic record, along with the systems to support all that activity, or else they have to create a way where the information is collected as part of the process of care. Here in a nutshell is the information challenge for the NHS. To provide a computerized patient record, it won't be enough just to build a huge database and expect it to fill up with data. The NHS will need to introduce a system that will provide clinical and administrative support. This clinical IT support will include elements including electronic laboratory and radiology orders; electronic prescribing with built-in rules and decision support; and integrated care pathways as a way of ensuring best practice, as identified through research, is embedded within the delivery of clinical care. These elements, along with scheduling and on-line booking, will streamline the clinical and administrative processes and produce an electronic record of the care that has been delivered.

This is the second objective of the National Programme – NPfIT. But it is so closely linked to the first objective that the two are hard to disentangle. Without providing tools to help the people who work in the health service, you won't get the electronic record that will help them to treat you properly.

The National Care Record Service (NCRS) is more than an electronic record. The real benefits of implementing clinical IT is in the decision support and workflow that it offers busy doctors and nurses in the delivery of clinical care, thereby reducing errors and improving the quality of care being delivered to their patients.

But will this ambitious programme succeed?

Let's look at why computer projects fail. In *Crash. Ten Easy ways to avoid a computer disaster* by Tony Collins[5], ten themes have been identified which appear to occur in all computer project disasters:

- ➜ A tendency to be overambitious.
- ➜ A feeling among computer managers that they should know it all and can't admit it when they don't.
- ➜ A belief among the entire project team that computerization must be a good thing, and to suspect otherwise is an Orwellian thought-crime.
- ➜ A Chief Executive who is in the best position to judge a computer project because he knows nothing about computers but fails to intervene – because he knows nothing about computers.
- ➜ A readiness to accept "it'll be alright on the night" assurances from suppliers; assurances that suppliers studiously avoid writing down.
- ➜ An over-reliance on consultants who, like some vets, may have a financial interest in prolonging ills.
- ➜ An avoidance of cheap, proven, off-the-shelf packages in favour of costly, unproven, custom-built software; or worse, the tailoring of a standard proven package.
- ➜ An unwillingness by middle and senior management to

impart bad news to the board – mainly because the board will make known its resentment of anyone who tries.

- The buck stops nowhere.
- A mistaken belief that the contract makes it easy to sue the supplier if all goes wrong.

So, that's a good place to start. But that's not everything is it?

Even if all the above sins are avoided, the result can still be a disaster. Why? Is it apathy? Disinterest? Or is it a scepticism that what is promised will never be delivered. Or an unwillingness to change the way they work?

Rick Maurer in *Beyond the Wall of Resistance*[6] suggests three different types of resistance, (repeated here with permission).

- Level 1 Resistance
- Level 2 Resistance
- Level 3 resistance

Level 1 Resistance is a low-grade resistance where there is no hidden agenda. People are simply opposed to the idea for any number of reasons: lack of information, disagreement with the idea itself, lack of exposure or confusion.

Level 2 Resistance is an emotional physiological reaction to change. Blood pressure rises, adrenaline flows, pulse increases. It is uncontrollable and based on fear that they may lose face, friends, even their jobs.

Level 2 resistance can be triggered without conscious awareness.

Level 3 Resistance is deeply entrenched and is bigger than the ideas at hand. People are not resisting the idea – in fact, they may love the idea itself – they are resisting you. They may resist because of their history with you or they may oppose what you represent.

In working with resistance, it is critical that the strategy to overcome it matches the type of resistance you are facing.

To deal with a Level 1, people need to be given more information – newsletters, e-mails, memos, videos etc.

The tactics used for Level 1 as described above, will not work with a level 2 resistance. You need to engage people in ways that address their fears. Listen to those who resist change and try to understand how they feel and why they feel that way. Then try to find common ground, incorporating their concerns.

Overcoming Level 3 resistance is the most problematic as there is a deep seated mistrust of you personally or who you represent.

Overcoming this type of resistance will require:

Continually work on relationships, begin small, candid conversation is important, support yourself and be calm, get people deeply involved in changes that affect them, be prepared for setbacks, be prepared to walk away.

So why do computer projects fail?

As we have seen, many different reasons, but probably the most difficult challenge is facing up to the "people issues".

Those charged with developing and delivering these complex clinical IT systems often don't understand or appreciate the complexity and sometimes subtlety of clinical care.

"I've just finished computerizing a huge supermarket – so computerising the NHS will not be difficult" is an attitude adopted by some developers.

But the delivery of clinical care requires a very large mixed bag of clinical and non-clinical staff to agree what they all want and yet all have different requirements. "Getting clinicians to agree to anything is like herding cats" is an often heard criticism of clinicians by IT project managers. And, as mentioned previously, there is the "resistance to change" factor.

Overcoming resistance requires you to engage early in the project with those who are ultimately expected to use such technology.

If they can see what your objectives are and what it will deliver in terms of benefits to them and their patients, you will reduce the chances of failure.

Conclusion

In conclusion, many countries have already tackled or are beginning to tackle this complex programme of computerizing their health services. There will be problems and unfortunately there is no one "silver bullet" to ensure success.

All anyone can do is approach this ambitious project with their eyes wide open and to learn from the experiences (both failures and successes) of other countries. The barriers have been identified and any health-related IT implementation strategy should take cognisance of these potential barriers to success and mitigate against them.

But these very benefits of success are too great to allow the fear of failure to prevent people from starting on this important programme of work. ❑

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