SHORT CIRCUIT
REPROGRAMMING THE IT CULTURE OF THE NHS
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As leader of the opposition, David Cameron promised more than once to “scrap the NHS supercomputer”. Now he is prime minister, his government has effectively ended the national programme for IT in the NHS. However, it has done so with remarkably little fanfare and many questions remain about the future of healthcare IT.

The programme’s origins go back to 1998, when the Labour government published Information for Health. This set up an NHS Information Authority to create national infrastructure and set IT standards, but left the implementation of record systems to trusts.

By 2002, it was obvious that most of the Information for Health targets would be missed. A Downing Street seminar triggered a new direction: a programme based on “ruthless standardisation”, with national contracts to drive it through.

In the autumn of 2002, the first director general of NHS IT, Richard Granger, was appointed and, by 2004, multi-million-pound contracts had been agreed with national and local service providers.

After that, things became harder. BT rolled out the N3 broadband network on time and to budget, and digital imaging (picture archiving and communications systems or PACS) were successfully deployed to English hospitals. But the electronic booking system (choose and book), the electronic prescription service and the summary care record service all ran late – and summary care records became mired in controversy about whether patients should be able to opt in or out.

Meanwhile, the drive to get detailed care records into trusts proved too much for two local service providers – Accenture and Fujitsu – and in March last year, Mr Granger’s successor, Christine Connelly, was forced to set deadlines for the remaining local service providers to show they were making “significant progress”.

BT was told to get Cerner Millennium into an acute trust in London, after a long halt caused by huge deployment problems at Barts and the Royal Free, while CSC was told to get iSoft’s Lorenzo into a trust in the North, Midlands and East of England by November, and into an acute trust by March.

Beware of the nineties
By then, of course, a general election had taken place. As shadow health secretary, Andrew Lansley had commissioned a review of health and social care IT, led by long-standing expert Dr Glyn Hayes. It said the programme should not be “scrapped”, although trusts should be given more freedom to buy their own IT systems, as long as they complied with national standards to make sure they could share information with each other.

Health minister Simon Burns’ statement in the middle of September broadly followed these recommendations. It said the
programme’s national infrastructure and applications would be retained, but would cease to be developed as projects under the national programme for IT banner and instead become NHS services.

In future, it added, there would be “more locally led procurement” and a greater focus on “modular” developments so trusts could “use and develop the IT they already have and add to their environment, either by integrating systems purchased through the national contracts or elsewhere”.

John Cruickshank, who wrote another influential report on NHS IT for the think tank 2020Health, focused on the danger of returning to the “highly fragmented position of the 1990s” without something like the old NHS Information Authority to set standards.

“What elements of a centralised NHS IT organisation will remain to set strategic direction, set standards and ensure the IT implications of new NHS policy are reflected in implementation plans?” he asked.

There is also concern that since few NHS IT departments have procured major records projects over the past decade, they may struggle to find the necessary skills.

Trusts will have to find their own funds for IT investment, against another reorganisation of the health service and a demand to find £20bn of efficiency savings over four years. Clearly, there is a danger that some will decide IT is not a priority.

These are NHS Bury, which has yet to say it is happy with its deployment, Morecambe Bay, where a stabilisation programme is under way, Birmingham Women’s Foundation Trust, which put back its go-live at the end of the summer, and Pennine Care Trust, which has no public go-live date.

Other options

The hiatus means that trusts in the North, Midlands and East have no real idea when, if ever, Lorenzo will be widely available. Many will look for other options. Yet some trusts have already gone outside the programme, either because they want its systems but not its implementation methods (Newcastle), or because they want electronic patient record systems from other suppliers (The Rotherham) or because they want to add new functionality to their existing systems (Blackpool).

None of these approaches has been plain sailing. The challenges they have raised – securing clinical buy-in, anglicising US or European products, sorting out data quality and introducing new ways of working – will also face trusts in the South, which have at least been promised funding for a catalogue of approved systems known as ASCC.

A lot now rides on the information strategy the government has promised this autumn, on working through the local service provider contracts, and on funding alternatives. The effective end of the national programme does not mean the end of problems for NHS IT. It is just that, in future, the problems will be different.

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NHS trusts tend to have many IT systems. Often, these were installed over a number of years to solve specific problems or support specific departments. Individually, they may work well, but they are often unable to share information with each other. As a result, clinical staff may have to log in and out of several applications to do their jobs, while managers may struggle to get an accurate picture of what is happening across the services they run.

One of the big ideas behind the national programme for IT in the NHS was to replace the mass of patient administration and clinical systems with electronic patient records. Cerner Millennium (in London and the South of England) and iSoft Lorenzo (in the North, Midlands and East) were intended to provide a more complete view of a patient’s treatment and allow staff to carry out tasks within a single IT system.

With the effective end of the national programme, trusts are now faced with a dilemma. Some may still use Millennium or Lorenzo or procure electronic patient record systems from other vendors. But the signs are that many, if not a majority, will stick with their existing systems, adding new applications as they need them. In this case, they will need to make them work together – or interoperate.

Murray Bywater, managing director of consultancy Silicon Bridge, says that in many ways the health service is back to the days of the 1998 strategy, Information for Health. This set targets for the functions trusts should be able to carry out with their IT systems and created an NHS Information Authority to set standards for the way data should be recorded and shared between them – but it left trusts to buy their own IT.

Over the past 10 years, a lot of work has been done on coding and creating relatively well understood, if not universally adopted, standards for messaging (HL7 for clinical systems and DICOM for imaging). These lie at the heart of initiatives such as Integrating the Healthcare Enterprise, which encourages companies to show how their products can be made to work together and publishes the results for trusts.

Integration engines have also moved on. Some vendors have developed suites of products holding out the promise of a single portal through which clinicians can access different IT systems or managers can get better business intelligence information. It may be cheap, but the portal approach is not without its drawbacks. There are many interfaces to systems that use different architectures and databases, making it difficult to maintain in practice.

The legacy systems at the heart of a portal may be so old they lack features that trusts really need. Wrightington, Wigan and Leigh Foundation Trust, well known for its “best of breed” approach, recently announced its intention to replace its patient administration system for this very reason.

Mike Fuller, marketing director of InterSystems, whose Cache database and Ensemble integration engine are widely used across the NHS, says trusts must take a more strategic approach, focused on the outcomes they want to achieve.

“Some people are still thinking that interoperability comes through an integration engine plus messaging,” he says. “What really needs to be worked out is workflow and the things that go with it – audit controls and activity monitoring.”

Mr Bywater agrees, explaining how he sees the big interoperability challenges as getting the users of IT systems to trust the information they contain and to agree on the uses that can be made of it.

“One of the things that was always likely to trip up the national programme was trying to ramrod through solutions and broker those agreements,” he says. “It needs to be at a local level.”

New models
Interoperability within acute trusts is not the whole picture. The government white paper, Equity and Excellence: liberating the NHS, wants more joined up healthcare, with patients able to move easily along efficient, effective care pathways, commissioned according to NICE guidance by the new GP commissioning consortia.

Initially, the national programme was meant to support this model by delivering records that could be used across hospitals, community services and GP practices. This idea died some years ago. BT deployed “best of breed” systems in London in 2007, with almost all community and mental health trusts opting for RiO from CSE Healthcare, while GPs chose Vision from INPS. Labour “de-scoped” the community and GP releases of Lorenzo in its last budget.

In place of this idea, a number of models are emerging. NHS Yorkshire and the Humber is encouraging organisations in its area to create an electronic patient record based on TPP’s SystmOne (which started life as a GP system). In other areas, acute systems may be extended to community care, as acute trusts take over the provider arms of closing primary care trusts.

Some healthcare communities have been experimenting with portals, while primary care trusts in Tower Hamlets, Cumbria and Liverpool have been letting clinicians share information using EMIS Web (another system that started life in GP practices).

Meanwhile, NHS Connecting for Health’s Interoperability Toolkit initiative has focused on creating technology pathways along which particular types of information – such as discharge summaries – can pass (see box).

For your eyes only
Whatever technology they have used, some of the big issues healthcare communities have faced have been around information governance – who can access it, how it is presented and what use they can make of it.

Ced Bufton, managing director of Bidetime, a supplier of business intelligence systems, points out that in the run-up to the national programme, the NHS Information Authority was set up to decide these issues and promote health informatics as a source of expertise. He suggests that now the programme is ending, something like the authority will be needed again.

Interoperability projects will depend on how the different drivers within Liberating the NHS play out.

Although the white paper calls for more joined up healthcare, it envisages a more competitive provider market. Trusts competing with each other may be reluctant to share commercially valuable information.

Business intelligence expert David Beeson, who until recently worked for Ardena, says: “We need to design systems so they produce data in a specified format so it can be shared and analysed along pathways. Politically, that causes all sorts of problems. Technologically, though, it should be much easier than when the [national programme] was trying to do it.”

Despite the challenges, Mr Bywater thinks interoperability has an exciting future. He says: “I think there will be a big leap forward, because the IT really is there.”
THE INTEROPERABILITY TOOLKIT

In April 2009, the Department of Health’s director general of Informatics Christine Connelly announced the NHS was to get its own “app store”. Or, more specifically, that the health service was going to get an “interoperability toolkit” to support the national programme’s shift from “replace all” to “connect all” that had been announced in that year’s Operating Framework for the NHS in England.

Initially, the toolkit programme was presented as a way for suppliers and trusts to develop new products and get them accredited as being interoperable with the national programme’s “strategic” electronic patient record systems, Millennium and Lorenzo.

Over time, however, the programme has come to focus on “proof of concept” implementations for NHS systems, including SMS appointment reminders, patient check-in kiosks and discharge summaries.

For example, five consortia have been working on the discharge summary proof of concepts. In each case, the consortium includes a sender (an electronic patient record or document management system), middleware (an integration engine), and a receiver (a portal or GP system). Their aim has been to produce a set of technical standards for connecting the systems and transmitting a discharge summary between them, and a document format to contain the discharge information (based on HL7 v3).

One of the first trusts to deploy a toolkit-compliant discharge solution was Worcestershire Acute Hospitals Trust, which worked with a consortium of five electronic record and document management providers, Orion Health’s Rhapsody integration engine, and PCTI’s Docman GP document management system.

The toolkit may drive a new kind of interoperability, based on defining workflows. The NHS has struggled to produce consistent workflows, because healthcare organisations – and even teams within them – tend to do things in their own way.

This is one reason national applications such as Choose and Book failed to gain traction. However, Murray Bywater, managing director of Silicon Bridge, says: “If you get down to a low enough level you can get something to work. And if you can do that, perhaps you can build on it within a health community.”

InterSystems director of marketing Mike Fuller similarly feels the toolkit is valuable because “it gives you interoperability through user specification, which we have not had before”.

However, to make further progress NHS organisations will have to sign up to the standards and make sure they are used, which may mean incorporating them into contracts if they are not going to be mandated nationally.

From the acute side, there is a clear financial incentive to use the discharge summary proof of concepts. Worcestershire expects to save £100,000 a year with its system, most of it from reduced printing, enveloping and postage costs.

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Poor-quality discharge records have long been a bone of contention between primary and secondary care, but with GPs due to take over commissioning they have the opportunity to sort them out once and for all.

Ask a GP for the first item on their IT wish list and the answer might well be electronic discharge summaries.

Family doctors have complained for years that when their patients are admitted to hospital they are not told in good time and that when they are told, the information is often incomplete and full of errors.

The NHS Alliance started running surveys on the issue in 2005. Two years later, six out of 10 respondents said clinical care had been compromised by delays, illegible handwriting and notes so poor that even the patient’s name might be missing.

“Can’t this be computerised?” pleaded one GP. “Our staff can produce a summary of a patient’s records for a consultant in seconds and print it off. Can’t the discharge information be stored as the admission goes along, instead of it all being done in a great rush at the end (and then held up by typing and posting)?”

A year later, an NHS standard contract was introduced that required hospitals to produce information within 72 hours of a patient’s discharge. This was tightened to 48 hours and then 24 hours.

Yet the majority of hospitals are thought to have missed the latest target, which was due to be met on 1 April this year. There is also a suspicion that some of those that made it got there using very basic IT solutions, such as secure pick-up sites for scanned documents.

Dr Mike Dixon, chair of the NHS Alliance, has put the lack of progress down to attitudes. “This is a long-running sore between primary and secondary care and I think there is almost an arrogance from secondary care about it,” he said last year.

Chris Hart, chief executive of SRC, which recently delivered its electronic discharge summary solution to Ealing and Hillingdon hospitals, identifies two sets of stumbling blocks. “One is the production of accurate and timely discharge summaries in hospitals and the other is getting them to GPs,” he says. “The latter is the easy bit. The former is a formidable challenge.”

Mr Hart points out the complexities of producing discharge summaries. It involves a number of hospital departments, not least the dispensary. It also calls on a number of different clinicians, from consultants to junior doctors and nurses, who may not see producing information for GPs as a priority.

Smooth integration

SRC works with the Bluewire consultancy to address the workflow challenges. For example, Mr Hart says one of the keys to success at Ealing hospital was making the process of ordering and tracking drugs easy.

The eDS solution stops doctors ordering drugs before a discharge assessment has been carried out, but then uses the First Databank Multilex drugs dictionary to pre-populate dosages for common medications. Nurses can track prescriptions and the whole system integrates with the hospital’s patient administration system using HL7 messaging, so clinicians do not have to log in and out of different applications to complete the discharge process.

All these challenges sound familiar to Gary McCullough, an electronic discharge expert at Kainos, which has been working with Ipswich Hospital Trust to develop an electronic discharge product.

Evolve eDischarge has just passed NHS Connecting for Health’s Interoperability Toolkit trials and is now being marketed to the rest of the health service. The toolkit addresses the second part of the challenge, to get discharge summaries from hospitals to GPs (see interop feature, pages 4-5).

Mr McCullough says Ipswich’s local primary care trust, NHS Suffolk, was clear that it did not want summaries faxed, emailed or delivered any way other than directly into GP systems. Now this can be done, he says. “They are very impressed with the quality of the service they are getting and they have seen a reduction in administrative overhead,” he adds.

Similarly, Mr Hart says Hillingdon built its own electronic discharge solution, then called in SRC because “it was not delivering the quality of discharge information its PCTs wanted” to support the quality, innovation, productivity and prevention agenda.

This suggests GP-led commissioning consortia that will be set up by the white paper, Equity and Excellence: liberating the NHS, will be key to further progress. If they write contracts that require discharge summaries to be delivered in a specific format within a specific timeframe, their practices are more likely to get them.

Both Mr Hart and Mr McCullough agree. “Initially, a lot of the trusts we talked to about the new system said they didn’t need it because they had a system in place to meet the April target,” says Mr McCullough. “Now, they are coming back and saying: ‘OK, we have a solution, but we really need a better one, because what we have is not as effective as it might be and it is not sustainable’.”
Taking existing data and presenting it in a useful dashboard for managers is relatively straightforward – the hard part is getting the political backing to do so.

One of Andrew Lansley’s first headline-grabbing announcements as health secretary was the end of NHS targets.

In a revision to this year’s operating framework for the NHS in England, he swept away central monitoring of the 18-week referral-to-treatment-time target, relaxed the four-hour accident and emergency waiting time target, and scrapped the 48-hour GP access target.

Yet Lansley still wants to see the health service held to account. The white paper Equity and Excellence: liberating the NHS says this will be done using “clinically credible and evidence-based outcome measures”.

These will be overseen by the new NHS commissioning board and translated into goals for the new GP consortia. The white paper also implies they could be used to pay providers “according to their performance” and released to the public to drive choice and accountability.

Historically, trusts have had little information about what is going on across the services they run, how much they cost, or what their outcomes are. One reason has been that information is held in many different IT systems, from where it has to be extracted by specialists, compiled into spreadsheets and presented to managers as backward-looking reports.

Things have started to change with the spread of electronic patient record systems and the implementation of business intelligence systems.

These projects commonly mean creating a data warehouse to hold information from different systems, from where it can be presented to users in the form of dashboards of key performance indicators.

Referral to treatment and A&E waits drove many projects of this kind. Indeed, the claim that a holidaying trust chief executive would be able to spot potential A&E breaches from their laptop on the beach became something of an industry cliché.

Despite this, Ced Bufton, managing director of Bidetime, which uses IBM’s Cognos tools, welcomes the shift from process targets. “There is no doubt that trusts have bought business intelligence for [target monitoring] but they have not really done a lot with the information,” he says.

“Our key reference sites are using business intelligence to go deep into their data, because they want to use it to deliver a better service. But they are distracted by constant change. So the removal of targets is good and the end of central returns is very exciting.”

Bufton would like national comparators established that are not subject to frequent change, have a transparent methodology – so trusts know their own monitoring will match published outcomes – and can be used to engage clinicians in improving efficiency and quality.

Meanwhile, Paul Henderson, from Microsoft partner 2IC, agrees trusts are desperate for information. “The calls we are taking are from people saying: ‘Build me a referral-to-treatment engine; not an 18-week monitor, but something that tells me what is going on throughout the process.’”

A lively debate is under way about the level of detail trusts need, with some business intelligence companies promoting patient-level costing. Supporters argue that apportioning costs to patients is necessary to identify groups and individuals whose costs vary from the norm, to engage clinicians in the finance agenda and to inform negotiations with commissioners.

Others feel patient-level costing runs the risk of repeating the mistakes of past resource management initiatives and that trusts should concentrate instead on identifying unusual patterns of activity.

Yet another trend, and one encouraged by the white paper, is a focus on pathways rather than discrete events. David Beeson, who until recently worked for business intelligence specialists Ardenitia, predicts a growing demand for pathway analytics.

“Even using simple data like patient administration system data, and without doing anything complicated like adding in lab data, you can start to build a picture of what is happening to the patient. For example, if somebody has a caesarean and then they are re-admitted, you have a narrative of care,” he says.

“Lansley said he wants to stop unnecessary readmissions. That will mean getting clever with analytics, because if somebody is discharged from surgery they are likely to be readmitted by another specialty, medicine, if they have an infection. However, it can be done and it should have a big impact if it is done.”

Pathway analytics will have real impact if they are used by GP commissioning consortia to determine whether their patients are being treated efficiently and in line with best practice. This presents some technical challenges (see interoperability feature, pages 4-5), but Mr Henderson says: “Technically, pulling data together and presenting it to people is not that difficult. The issues are around information governance and content, who owns the data and who can do things with it.”

In other words, in business intelligence, as in other areas of NHS IT, the issues are not so much technological as political.
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