NPfIT: The NHS National Programme for Information Technology

A Sociotechnical Systems Perspective

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Part 1: The Programme and its Implementation
Part 2: Evaluation from a Sociotechnical Perspective
Part 3: A Sociotechnical Way Forward
The NHS National Programme for Information Technology (NPfIT)

A 10-year programme to create electronic patient records from ‘the cradle to the grave’ for every citizen of England 2004 -2014

“The biggest commercial computer programme in Europe”

Brennan 2005
The Rationale for the NPfIT

- Previous NHS computer projects: local Trust developments, limited data interchange, ‘not-invented-here’ culture.

- 2002 Government priority to ‘modernise’ the NHS

- Decision to adopt national, centrally-driven IT applications to ensure:
  - National exchange of patient data
  - Getting all parts of NHS up to a common standard
  - Getting all Trusts to common ‘best practice’ in health care information

- Connecting for Health (CfH) created to deliver National Programme for IT (NPfIT)

- Contracts let to Supplier Consortium to get best industrial practice and deliver well established healthcare IT applications
<table>
<thead>
<tr>
<th>Dates</th>
<th>NHS/CfH</th>
<th>Service Providers</th>
<th>NHS Trusts</th>
<th>End Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>Launch of NPfIT</td>
<td></td>
<td>Consultations</td>
<td>Consultations</td>
</tr>
</tbody>
</table>
| 2003  | Define Applications  
Start Bidding Process  
Announce Winners | Create consortia  
Submit bids |  |  |
| 2004  | Detailed negotiation of contracts | Negotiations  
Implement Choose and Book | Pilot Implementations of standard applications | General support for the concept of electronic records |
# The Initial Contracts

<table>
<thead>
<tr>
<th>Application</th>
<th>Consortium Leader</th>
<th>Main Supplier</th>
<th>Value £</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National network</td>
<td>British Telecom</td>
<td></td>
<td>530,000,000</td>
</tr>
<tr>
<td>National spine</td>
<td>British Telecom</td>
<td>CSW</td>
<td>620,000,000</td>
</tr>
<tr>
<td>Choose and Book</td>
<td>Atos Origin</td>
<td>Cerner</td>
<td>645,000,000</td>
</tr>
<tr>
<td><strong>Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North East Cluster</td>
<td>Accenture</td>
<td>iSoft</td>
<td>1,099,000,000</td>
</tr>
<tr>
<td>London Cluster</td>
<td>British Telecom (Capital Alliance)</td>
<td>IDX</td>
<td>996,000,000</td>
</tr>
<tr>
<td>East &amp; EM Cluster</td>
<td>Accenture</td>
<td>iSoft</td>
<td>934,000,000</td>
</tr>
<tr>
<td>NW &amp; WM Cluster</td>
<td>CSC Alliance</td>
<td>iSoft</td>
<td>973,000,000</td>
</tr>
<tr>
<td>Southern cluster</td>
<td>Fujitsu Alliance</td>
<td>IDX</td>
<td>896,000,000</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td>6,112,500,000</td>
</tr>
</tbody>
</table>
2002/04   The Initial Plan

Roll out of standard applications across 500+ Trusts in 10 year period
2003: The real costs?

DoH warned change management costs will exceed NHS IT funding

British Computer Society warns costs could exceed £2bn limit

DoH warned change management costs will exceed NHS IT funding.

The Department of Health has said it would be “stupid” to invest in IT systems without knowing the costs of changing working practices.

2004: Implementation of Choose and Book

Spending watchdog to warn of delays to key NHS IT systems

Spending watchdog to warn of delays to key NHS IT systems.

2005: Delays in delivery

DoH warned change management costs will exceed NHS IT funding

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2005: Registering users

Uncertainty surrounds NHS IT Programme as local providers delay core systems

Time spent by doctors and nurses registering for access cards set to absorb 60,000 hours

NHS smartcard registration will erode time available for patients

NHS IT directors’ smartcard concerns
## Problems as Trust’s assimilate NPfIT applications

<table>
<thead>
<tr>
<th>Response to Implementation</th>
<th>Trusts/Application</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rejection</td>
<td>Royal Marsden</td>
<td>Care Records will not support research</td>
</tr>
<tr>
<td>Rejection</td>
<td>London Mental Health Trusts</td>
<td>Care records not fit for mental health - interim system needed</td>
</tr>
<tr>
<td>Rejection</td>
<td>Wirrell</td>
<td>New system means a step back in sharing records</td>
</tr>
<tr>
<td>Rejection</td>
<td>GP Surgeries</td>
<td>New system would replace current system widely used and nothing would be gained.</td>
</tr>
<tr>
<td>Stress and Breakdown</td>
<td>Nuffield Orthopaedic</td>
<td>Out patient records lost</td>
</tr>
<tr>
<td>Stress and Breakdown</td>
<td>St. Mary Sidcup</td>
<td>Slow system delaying patient care</td>
</tr>
</tbody>
</table>
# NPfIT Evaluation(1)
National Audit Office May 2008

## National Infrastructure Projects

| Project                      | Purpose                                                                 | Deployment                                           | Adoption                                                   |
|------------------------------|-------------------------------------------------------------------------|                                                    |                                                           |
| N3 – The National Network    | To provide fast, broadband connections between all trusts               | Target: connect all sites by March 2007<br>Achievement: 2 months before schedule | Not relevant                                              |
| NHSmail                      | To provide a secure email service for all trusts                         | Achievement: delivered on time in Oct 2004          | ‘take up has been slow’ May 2008 43% of NHS email users using NHSmail |
| The National Data ‘Spine’    | To provide the architecture for the national databases                  | Technical delivery achieved in a number of releases from May 2006 | Not relevant                                              |
## NPfIT Evaluation (2)

### Specific Applications

<table>
<thead>
<tr>
<th>Project</th>
<th>Purpose</th>
<th>Deployment</th>
<th>Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>The summary care record (SCR)</td>
<td>To mount limited care records of all patients in England on the Spine</td>
<td>Deferred by 2 years for technical reasons and consultations on patient confidentiality</td>
<td>Early adopter pilots in March 2007</td>
</tr>
</tbody>
</table>
| Choose and Book                              | To enable GPs to help patients choose referrals and to make electronic bookings | Deployment target: to 95% GP clinics by March 2008               | Target: 90% of referrals by March 2007  
|                                               |                                                                         | Achievement: 31% referrals by March 2008                       |                                     |
| Picture Archiving and Communication System (PACS) | To store and share electronic images (X-rays etc)                      | Brought into NPfIT 2004  
|                                               |                                                                         | Fully deployed by Dec 2007, 3 months ahead of schedule         | No details but case study reports of rapid take-up in radiography practice |
### NPfIT Evaluation (3)

#### Full Electronic Care Record Systems

<table>
<thead>
<tr>
<th>Project</th>
<th>Purpose</th>
<th>Deployment</th>
<th>Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>The London Programme for IT</td>
<td>To deliver common and full electronic care records to all London NHS Trusts</td>
<td>Programme proved impracticable</td>
<td>In the place of the adoption of the original standard record systems there has been patchy adoption of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Revised plan from 2007</td>
<td>‘Interim solutions’ - products that better fit local conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Programmed proved impracticable</td>
<td>and PAS solutions that do not contain clinical information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Main contractor (Fujitsu) left the programme in June 2008</td>
<td></td>
</tr>
<tr>
<td>The Southern Programme for IT</td>
<td>To deliver common and full electronic care records to all NHS Trusts in the South of England</td>
<td>Programmed proved impracticable</td>
<td></td>
</tr>
<tr>
<td>The North, Midlands and East Programme for IT</td>
<td>To deliver common and full electronic care records to all NHS Trusts in the North, Midlands and East of England</td>
<td>Originally three separate clusters. The programme was impracticable in all cases. Main contractor (Accenture) for two clusters withdrew in Sept 2006 and all three were merged.</td>
<td></td>
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The NPfIT from a sociotechnical perspective

• The goals are sociotechnical not technical

• It is a technocentric project that:
  - Does not allow for the diversity of healthcare practices
  - Does not support the development of new healthcare practices that make use of electronic records

• Deployment of technology is making progress but adoption is problematic
The diversity of existing sociotechnical systems

Diversity of Trusts
- Type
- Size
- Healthcare practices
- Installed technical systems
- Location
2006: Guys Hospital boss criticizes ‘one size fits all’

NHS plan is evolving but one-size-fits-all is a fundamental flaw, says hospital chief

Jonathan Michael, a top NHS executive, had some good words to say about Connecting for Health, an agency that is running one of the world’s largest civil IT programmes.

After pointing to a fundamental flaw in the NHS’s IT-driven modernisation, he told a healthcare symposium at London’s City University, “If that seems somewhat critical of Connecting for Health, what we have to recognise is that CFH is evolving. It is in a process of refreshing its view and approach. But it is listening and it is evolving.”

“Toward the end of the programme for IT (NPfIT) is its centralised, standardised approach at a time when the health service is decentralising,” Michael said in a keynote speech to GPFH’s annual conference in London. “The chief executive of Guy’s and St Thomas’ NHS Foundation Trust, Michael says, that support for the specific ways people work in particular parts of his organisation, such as the accident and emergency department, is designed out of solutions and out of the implementation process.”

“If standardisation of IT systems effectively dictates the standardisation of the business model,” he said.

Michael’s speech about the NPfIT commanded the rapt attention of his audience not simply because he is running one of the largest NHS trusts in the UK but because it is rare for any senior health care manager to be willing to admit it.

Specialist needs: Michael wants IT support for the specific ways people work in parts of his organisation, such as the accident and emergency department

Michael: “The idea that the requirements for all hospitals...are the same is, I think, simplistic. Flexibility looking for that are not currently available or are not available in a timely fashion within CEF”

Caring for some cancer patients, for example, requires joint decisions being made increasingly in multi-disciplinary teams. Video conferencing is key to that, said Michael, but the original plans for the NPfIT did not set aside money for video conferencing.
Adoption: when a technical system is introduced to an existing healthcare sociotechnical system.

- Patient ill
- Diagnose
- Treat
- Discharge
- Patient well

The Healthcare Task

TRUST

New Digital System

Social Systems

NPfIT Application

Performance Improvement
Healthcare delivery as a sociotechnical system: emergent behaviour

TRUST

Patient ill

The Healthcare Task

Diagnose

New Digital System

Work-Arounds

Patient well

Discharge

Benefits

Stress And Failure

Partial Usage

Partial Usage

Stress And Failure

TRUST

NPfIT

Application
Clinical information in electronic care records

**Perceived Issues**
- Entry at source?
- Consequences of entries
- Output records (tick boxes) or working documents?
- Role-based access

**Emergent Behaviour**
- Admin not clinical information in record
- ‘Irregular’ access practices
- Mixed electronic and paper records
1. Implementation and Disruption to Linear Implementation Process
Accenture calls for ‘resolution’ after £260m loss on NHS work

Connecting for Health faces potential conflict as delays hit key contractor on IT scheme

The NHS is facing a potential conflict with its biggest IT supplier, after services firm Accenture last week announced a £260m write-off on £550m, 10-year contract to modernise the health service.

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Coming on top of delays in the deployment of systems and end-user frustration with the NHS national programme for IT (NPfIT), this could prove a costly diversion for senior officials at Connecting for Health as it tries to deliver systems to hospitals.

Accenture, the prime contractor for the NPfIT in two of the five NHS regions in England, predicted substantial losses on NHS work for the next three years. It said, “Resolving this situation to meet the interests of all parties in a timely fashion is a top priority.”

Accenture chief executive William Green said, “We have established the guiding principles for success in our ongoing work with the NHS and have devoted additional management resources at the highest level to resolve the NHS matter as quickly as possible.”

But Richard Granger, director general of NHS IT, said other prime contractors, including Fujitsu, had not reported similar problems. The contracts, which were struck in 2003, were structured so that payment was made on the delivery of working systems.

“Including our published procurement strategy we invited prospective suppliers to take completion risk and, where they chose to do so, this was reflected in the price. We continue to look to our prime contractors to fulfil their obligations to manage their delivery obligations,” said Connecting for Health.

Accenture said some of its future losses on the deal were down to redoubling of the NPfIT and delayed delivery of software from sub-contractors. Other losses were down to changes within the NHS, particularly the introduction of GP system choice, which was not accounted for when Accenture signed the contracts.

In February, Gillian Braund, GP clinical lead for Connecting for Health, told Computer Weekly that the organisation had been discussing arrangements with its service providers for months to deliver GP system choice.

Tola Sangare, senior analyst at research firm Ovum, said, “When Accenture signed the contract it worked out how much it could expect from supplying GP systems. Now that is not the case.”

Robert Morgan, director of outsourcing consultancy Morgan Chambers, said that if Connecting for Health were to refuse to negotiate with Accenture on the issue, the NHS could technically be in breach of contract.

“Suppliers may argue that they cost everything on the expectation of what the revenue would be. Now this is reduced, that may be effectively a breach of contract. In private, lawyers from both sides will be discussing this,” Morgan said.

A spokesman for Connecting for Health said, “There is currently no renegotiation going on with Accenture regarding their contracts with the NHS.”

However, Connecting for Health also said, “Once the details of GP System of Choice have been concluded, a change request will be raised on the local service providers’ contracts to accommodate its impact.”

— London, UK
The Way Forward 1: A technical problem?

2006: An open letter from 23 IT Professors

http://nhs-it.info/
The way forward 2: A sociotechnical problem?
A ‘local sociotechnical systems design’ strategy

Turning ‘push’ into ‘pull’

- Treat IT implementation as a sociotechnical design process
- The social system implications are not fixed: there are local design opportunities

- Help local staff to:
  - identify specific benefits they can realise (develop a ‘pull’)
  - local design plans to realise the local benefits/minimise the costs and risks
  - find an evolutionary path to achieve progressive exploitation of new technical capability

Towards Decentralisation and Sociotechnical Development?

**Connecting for Health**
- Local ownership - Trusts can find their own suppliers
- ‘Competence and capabilities’ in local implementation

**More General**
- Lord Darzi - local clinician-led quality care
- Health care and social care
- No national records?
The NPfIT: A Continuing Story

- It has to be a sociotechnical project to be successful
- How far will it move from being a technocentric project?

Papers

- Eason K. D., Clegg C. and others (2008) A future strategy for information technology in the NHS, health and social care in England: A submission from the BCS Sociotechnical Specialist Group to the review being conducted by Glyn Hayes on behalf of the BCS Health Informatics Group