IT in the NHS: National or Local Design

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A Very Brief History of Sociotechnical Systems Design

• 1950/60’s Technical design leads to organisational consequences but there is ‘organisational choice’ Tavistock Institute of Human Relations (Trist, Emery, Rice etc)

• 1970/90’s We should design the technical and social systems together e.g. ETHICS (Mumford). Volvo cell assembly

• 2000s Standardised IT systems are created and implemented in many different organisational entities.

Question: What room is there for local sociotechnical systems design when technical design is done centrally or elsewhere?
The National Programme for Information Technology in the NHS (NPfIT)

• Previous NHS computer projects: local Trust developments, limited data interchange.

• 2002 Government priority to ‘modernise’ the NHS. Decision to adopt national, centrally-driven IT applications to:
  – Provide all English citizens with ‘cradle-to-grave’ electronic care records
  – Provide national exchange of patient data
  – Get all parts of NHS up to a common standard
  – Get all Trusts to common ‘best practice’ in health care information

• Connecting for Health (CfH) created to deliver National Programme for IT (NPfIT) in a 10 year period.

• Contracts to be let to Supplier Consortia to get best industrial practice and deliver well established healthcare IT applications
2002/04 The Initial Structure

Government/DoH

CfH

SHAs

Consortia

NHS Trusts

Healthcare teams

Patients
# The Initial Contracts

<table>
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<tr>
<th>Application</th>
<th>Consortium Leader</th>
<th>Main Supplier</th>
<th>Value £</th>
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<tr>
<td>National</td>
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<tr>
<td>National network</td>
<td>British Telecom</td>
<td></td>
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<tr>
<td>National spine</td>
<td>British Telecom</td>
<td>CSW</td>
<td>620,000,000</td>
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<tr>
<td>Choose and Book</td>
<td>Atos Origin</td>
<td>Cerner</td>
<td>645,000,000</td>
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<tr>
<td><strong>Region</strong></td>
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<td>North East Cluster</td>
<td>Accenture</td>
<td>iSoft</td>
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<td><strong>Totals</strong></td>
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2004: Consulting the users

Users support the objectives of the programme but do not feel they have been consulted.

Nurses back NHS IT plans despite lack of consultation on e-records

Most nurses support NHS plans to spend billions of pounds on new national IT systems, but fewer than 10% say that consultation with them over proposals for electronic health records has been adequate.

The lack of consultation – which was highlighted in the biggest ever survey of nurses on the subject of technology – is of concern to the Royal College of Nursing (RCN). It points out that major contracts have already been awarded to IT suppliers in England for national systems. The first of these, to support the electronic booking of hospital appointments, is due to go live this summer.

In a survey of doctors, carried out by market researcher Medix earlier this year, only 4% of doctors said that consultation with them had been adequate.

Securing the buy-in of doctors and nurses to the national programme is seen by IT managers in the NHS as the biggest challenge to the success of the initiative.

Medix’s sister company Nursix, which conducted the latest survey on behalf of the RCN, said that nurses are the largest group of front-line clinicians and will be the most affected by the introduction of the new systems.

More than 2,000 nurses, midwives and health visitors took part in the survey.

About 95% rated as very or fairly important the need for individual practising clinicians to be consulted about integrated electronic health care records. But 65% said they had not been consulted, and a further 27% said consultation had been inadequate or barely adequate.

Seventy per cent believed that electronic health care records development would improve clinical care.

Allie Kitchin, executive director nursing at the RCN, said the survey showed that nurses can see huge improvements in patient care with the introduction of electronic systems.

“So far, the majority of our members have not been consulted, which in a context where contracts have already been awarded to IT providers in England, is problematic,” she said.

“The RCN wants to see the best use made of nurses’ understanding of clinical processes so that the new systems succeed in delivering the benefits to health care.”

A spokesman for the national programme for IT in the NHS said, “To date, the national programme has been presented to circa 200 senior nurses and shared information and discussions with them about the programme and the role nurses can play in the onward development of the programme.

“As the programme moves forwards into the implementation phase, with work focussed at the local level, there will be an increasing call for input from nurses at all grades to help mould the future of our working practices in healthcare as we see the benefits of the new IT systems.”
2004: The wide impact of the technical system

NHS leader sees culture change as key to project

Recognition that the programme is much more than the implementation of new technical systems
2006 Implementation and Feedback

Diversity of Trusts
- Conditions Treated
- IT History
- Planning blight
- Other roles, e.g. research and teaching
2006: Guy's Hospital boss criticizes ‘one size fits all’

Leading trust chief executive speaks out on the dangers of centralising IT

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 CHT is evolving. It is in a process of refreshing its view and approach. But it is listening and it is evolving.”

The flaw Michael sees in the national programme for IT (NPfIT) is its centralised, standardised approach at a time when the health service is decentralising.

The chief executive of Guy’s and St Thomas’ NHS Foundation Trust, Michael wants IT support for the specific ways people work in particular parts of his organisation, such as the accident and emergency department.

“There is a fundamental flaw in terms of the business,” he said.

“We are running a business in an increasingly decentralised competitive healthcare market, rather than a centrally managed healthcare market.”

A rigidly standard approach “is not practical in a competitive healthcare market where we now bility is designed out of solutions and out of the implementation process. So standardisation of IT systems effectively dictates the standardisation of the business model,” he said.

Michael’s speech on 1 March was entitled “Information needs of a large acute provider – can Connecting for Health deliver?” He said of this choice, “I suppose you can see a degree of cynicism in the title. I gave this talk as to whether CHT can actually satisfy our needs. CHT was conceived as looking for that are not currently available or are not available in a timely fashion within CHT.”

Caring for some cancer patients, for example, requires joint decision-making 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. 
2006: Suppliers responses

Meeting technical demands and emergent user requirements puts pressure on the suppliers who are only paid when applications are implemented.

Accenture calls for 'resolution' after £260m loss on NHS work

The NHS is facing a potential conflict with its biggest IT supplier, after services firm Accenture last week announced a 260m write-off on its £270m three-year contracts to modernise the health service.

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 of Connecting for Health as it tries to deliver systems to hospitals.

Accenture, the prime contractor for the NPfIT in five 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 guidelines and procedures 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, BT, CSC and Fujitsu, have not reported similar problems.

The contracts, which were signed in 2002, were structured so that payment was made on the delivery of working systems.

"Under 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 lock 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 the rescheduling of the NPfIT and delayed delivery of software from subcontractors. Other losses were due 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 the organisation had been discussing arrangements with its service providers for months to deliver GP system choice.

Tara Sangal, senior analyst at research firm Drum, 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 accepted everything on the expectation of what the renumeration would be. Now this is reduced, that may be effectively a breach of contract. In private, lawyers from both sides will be discussing this."

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 Systems of Choice have been concluded, a change request will be raised to local service providers' contracts to accommodate its impact."
2006: An open letter from 23 IT Professors

The IT Community asks for a technical review of the NPfIT Programme

http://nhs-it.info/
Summary: January 2007

NPfIT has encountered many problems

• Solutions do not ‘fit’ the needs of many Trusts
• Technical problems are creating delays
• Changes of consortia leaders and suppliers
• Implementation takes longer than expected
• The programme is changing from a national to a local focus

BUT

• There have been over 1000 applications implemented
Progress With Implementation
October 2006

National roll out
- ‘Choose and Book’ implemented

Cluster progress October 2006
- 1,028 Systems Deployed
  - 827 Accenture (North East (307), East (520)
  - 90 British Telecom (London)
  - 83 CSC (North West)
  - 28 Fujitsu (South)
- Most small scale PCT (GP) systems
- Hospitals - Patient administration systems (few clinical systems)
- PACS (Picture Archiving and Communications System) widely implemented
Healthcare delivery as a sociotechnical system

The Healthcare Task

TRUST

Patient ill

Diagnose

Treat

Discharge

Technical Systems

Social Systems

NPfIT Application

Patient well
Healthcare delivery as a sociotechnical system: new technical system introduced

The Healthcare Task

TRUST

Patient ill

Diagnose

New Digital System

NPfIT Application

Treat

Discharge

Social Systems

Performance Improvement

Patient well
Emergent usage patterns with NPfIT applications (1)

Choose and Book

• Benefits  - faster confirmation of appointments
  - informed patients keep appointments
• Limited adoption by GPs (‘patient’s don’t want choice’ lack of information, security, time)
• When used GPs give clinical information, practice staff do the rest
• There is some organisational and working practice choice

Picture Archiving and Communications System (PACS)

• Being widely adopted
• Benefits - no film development or storage, shared viewing of the images
Emergent Usage Patterns (2)

Electronic Health Care Records

• Benefits: less searching, less re-entry
• Slow and limited adoption -
  – administration not clinical information
  – keep existing working practices
  – clinicians ‘not data entry clerks’
  – Issues of ‘enter at source’- the ‘formal record’
  – Confidentiality, role based access, task allocation and teamwork
  – mixed electronic and paperworking
  – limited and local patient information exchange

• Failures: NOC loss of patient records, CSC datawarehouse failure
Healthcare delivery as a sociotechnical system: Emergent behaviour

The Healthcare Task

TRUST

Patient ill

Work-Arounds

New Digital System

Technical Systems

Social Systems

Patient well

Benefits

NPfIT Application

Stress And Failure

Partial Usage

Organisational accommodation

Partial Usage

Stress And Failure

Technical Systems

New Digital System

The Healthcare Task

Patient ill

Patient well

TRUST
The Potential for Local Design

The Opportunity

• Technical design leaves opportunities for customisation
• Technical design leaves scope for organisational choice

But

• Some applications carry specific implications for working practice e.g. ‘Choose and Book’
• Implementation includes ‘management of change’ pushes for ‘best practice’ working, e.g. enter at source
• Implementation is via a rapid roll out timetable

Outcome

• Opportunities for local sociotechnical design may be lost
• Ad hoc accommodation will result and may be dysfunctional
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’)
  • work out a local design plan to realise the local benefits/minimise the costs and risks
  • find an evolutionary path to achieve progressive exploitation of new technical capability

BJHC&IM 2005 22.7 14-16
Elements of a Local Design Approach

Before implementation
• Scenario-based workshops to look at the IT system in relation to the existing work process to determine possible benefits
• Multi-stakeholder project teams and user involvement
• Work out what local working practice is needed to achieve local benefits

At implementation
• Phased rollout - minimise the risk to operational work
• Training, role based access and data migration
• Pilots and shared learning - usage records and action research
• Technical system configuration and change requests

After Implementation
• On-going support for all users
• Review the learning and plan the evolution for later benefits
• Technical system configuration and evolution
Conclusions

• Diversity in the NHS renders standard technical solutions problematic

• The emergence of varied local sociotechnical ways of using and not using the technical systems is inevitable

• If it occurs by ad hoc adjustment it will not exploit the potential

• There are opportunities to undertake local sociotechnical systems design but current implementation methods make it difficult