

# The National Programme for IT in the NHS

A Case History

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## ***Introduction***

The National Programme for IT in the NHS (NPfIT) was the largest public sector IT programme ever attempted in the UK, originally budgeted to cost approximately £6 billion over the lifetime of the major contracts. After a history marked by delays, stakeholder opposition and implementation issues, the programme was dismantled by the Conservative-Liberal Democrat Government in 2011, almost ten years after Prime Minister Tony Blair initiated it at a seminar in Downing Street in 2002.

The core aim of NPfIT was to bring the NHS' use of information technology into the twenty-first century, through the introduction of integrated electronic patient records systems, online 'choose and book' services, computerised referral and prescription systems and underpinning network infrastructure. Despite the failure of many of these services to be delivered, the government, and ultimately taxpayers, incurred significant costs for the programme, including contract transition and exit costs which continue to accrue in 2013/2014.

### ***Aim of this case history***

This case history of NPfIT investigates what went wrong with the programme, identifying three main themes:

- *Haste*. In their rush to reap the rewards of the programme, politicians and programme managers rushed headlong into policy-making, procurement and implementation processes that allowed little time for consultation with key stakeholders and failed to deal with confidentiality concerns;
- *Design*. In an effort to reduce costs and ensure swift uptake at the local levels, the government pursued an overambitious and unwieldy centralised model, without giving consideration to how this would impact user satisfaction and confidentiality issues; and
- *Culture and skills*. NPfIT lacked clear direction, project management and an exit strategy, meaning that the inevitable setbacks of pursuing such an ambitious programme quickly turned into system-wide failures. Furthermore, the culture within the Department of Health and government in general was not conducive to swift identification and rectification of strategic or technical errors.

### ***Structure***

The first part presents the history of electronic patient records and healthcare information systems in general, identifying several key trends that, had the government learned from them, could have prevented further issues with the implementation of NPfIT. It also looks at the issue of confidentiality and the decision making process behind NPfIT and asks the question 'Was NPfIT doomed to failure?'

The second part details the procurement processes and failures in the early years of NPfIT. It highlights several issues that should have acted as 'warning signs' for the government of the time. It details the implementation issues that became apparent during the later years of NPfIT and demonstrates how, despite the history of previous IT failures, the government failed to learn the lessons of the past.

The final part outlines the history of NPfIT before and after the 2010 general election, after which the decision was made to dismantle the ailing programme. Our conclusion brings together the themes addressed throughout the paper and identifies underlying questions about why major public sector IT projects go wrong and whether NPfIT style failures are likely to be repeated.

## ***Early years of the electronic patient record***

Electronic patient record (EPR) systems were introduced at a time when healthcare professionals would use a pen or pencil to make notes on a patient's GP referral letter as part of the old paper-based patient care record (MPA, 2011).

NHS Executive (1998, p.12) states that 'Individualised personal electronic records [...] provide NHS professionals with 24 hour secure access to the information important to individual patients' care, when required. This will immeasurably improve emergency care and ensure any professional involved in the care of an individual is up to date with their treatment.'

There are four main groups of beneficiaries of such systems (NHS Executive, 1998):

1. *Patients*, who can use EPR systems to see their own test results from home and to understand NHS performance data;
2. *Healthcare professionals*, who can use EPR systems to gain access to fast, reliable and accurate information about patients, local and national knowledge bases and information to support them in their work;
3. *NHS managers and planners*, who can use secondary data from EPR systems to gain access to high-quality information that helps them target and utilise resources; and
4. *The public*, who can use secondary data from EPR systems to assess the performance of local hospitals and other healthcare service providers.

As well as these immediate benefits, EPR systems can help prevent blunders (interview with Brennan, 2014) and have been shown to be more understandable and legible than paper-based records, as well as being more likely to contain at least one diagnosis and more detailed referrals (Hippesley-Cox et al., 2003). Furthermore, EPR systems can 'vastly improve the accumulation and dissemination of information on public health' (Laporte, 1994, p.1651), and can be used to inform public health policy by mapping, for example, a disease's resistance to antibiotics (STC, 1998).

Some, notably Lærum et al. (2001) have questioned these advantages. Nonetheless, there is a wide acceptance of the need for EPR systems, with even those who express reservations about some aspects of the EPR (for example, Tonks) accepting that its medical benefits are 'undeniable' (1993, p.1227).

### ***Background: genealogy of a national programme***

The National Programme for IT in the NHS (Npfit) was the most costly IT project in the history of the NHS, but was by no means the first (Brennan, 2005. See *Figure 1*).

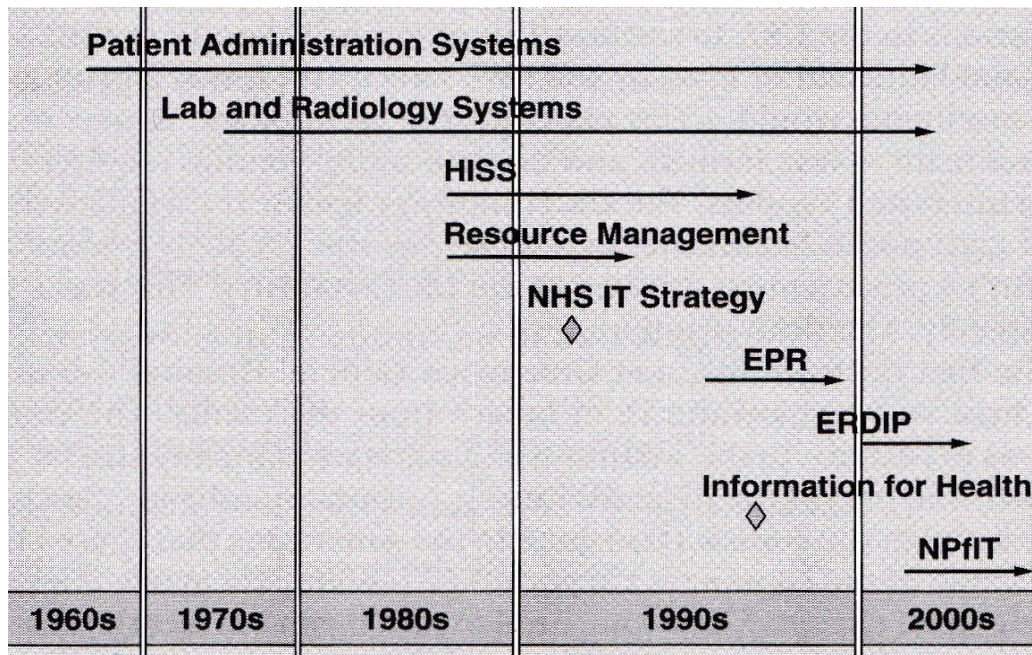


Figure 1: timeline of major NHS IT projects, 1960s-2000s (taken from Brennan, 2005, p.49, Figure 6.1)

The history of IT in the NHS is mixed, with some notable successes interspersed with many more failures. At the time of NPfIT's launch, an estimated 60-80 per cent of all healthcare IT projects ended in failure (Brown, 2001). This section deals briefly with some of these past attempts.

The 1970s and 1980s saw a number of individual NHS Trusts and hospitals introduce their own information systems. Notable among these is the 1984 Wessex Regional Health Authority (WHRA)'s Regional Information Systems Plan (RISP), which combined hospital information systems, personnel management systems, accumulation of community care data and accountancy functions (Brown, 2001). However, the RISP lacked effective programme management, and missing budgetary controls and delivery targets caused the plan to exceed expected costs and delivery dates before being abandoned in 1990 (Brennan, 2005).

Another failure was the Hospital Information Support System (HISS), which ran in seven NHS Trusts<sup>1</sup> from 1988 (Brennan, 2005). HISS introduced hospital-wide EPR systems and computerised the ordering of clinical tests, but was dogged by severe delays and had made efficiency savings of just £3.3 million (compared to an expected £10.4 million) across the seven trial sites by 1995. Brennan (2005) blames the failure of this system on the 'absurd diversification' (p.53) caused by too many companies trying to service too few hospitals.

<sup>1</sup> Darlington Memorial Hospital NHS Trust, Greenwich Healthcare NHS Trust, Nottingham City Hospital NHS Trust, Kidderminster Healthcare NHS Trust, Addenbrookes NHS Trust in Cambridge, James Paget Hospital NHS Trust in Great Yarmouth and Birmingham Heartlands Hospital NHS Trust.

Attempts to combat such diversification in NPfIT proved just as problematic two decades later.

Introduced around the same time as HISS, the Resource Management Initiative (RMI) aimed to involve clinicians in their hospitals' management structures by placing a 'casemix box' in every hospital involved in the scheme (Brennan, 2005). However, like HISS, the RMI failed to meet expectations because casemix boxes did not integrate properly with existing IT systems, making the system time-consuming and eventually rendering casemix boxes obsolete (Brennan, 2005).

The 1992 NHS Information Management and Technology (IM&T) strategy was the first truly nationwide NHS IT strategy, and identified five main principles for the use of information in the health service (Brennan, 2005):

1. Information should be person-based;
2. IT systems should be integrated;
3. Information should be derived from existing operational systems;
4. Information should be secure and confidential; and
5. Information should be shared across the NHS.

The 1992 IM&T strategy saw the introduction of a number of key pieces of infrastructure which still exist today, such as the NHS Number, shared NHS administrative registers (NHSARs) and the NHS-wide information network *NHSnet*.

Programmes initiated under the 1992 strategy included the EPR Programme, which ran from 1994-97 in Queen's Hospital, Burton, and Arrowse Park Hospital, Wirral. This six-level EPR system was a great success in the two hospitals covered, and enjoyed overwhelming 'buy-in' from stakeholders at both sites. However, the programme's full evaluation report was never made public, which may have led to later opposition to similar EPR systems elsewhere (Brennan, 2005).

The EPR Programme in Burton and Wirral was followed in the early 2000s by the Electronic Record Development and Implementation Programme (ERDIP), which has been described by Brennan (2005, p.71) as 'one of the strangest, and least understood, initiatives carried out by the NHS before NPfIT'. ERDIP introduced to the NHS electronic health records (EHRs): an individual patient narrative providing detailed diagnostic and treatment information about all interaction with the NHS from birth to death. However, there was confusion among some NHS staff about whether the new systems would provide EPR functionality, EHR functionality, or both (Brennan, 2005). An evaluation report written by PA Consulting Group concluded that better stakeholder communication was needed.

Broadly speaking, the 1992 IM&T strategy was seen as a missed opportunity. Despite several technological advances and the introduction of key infrastructure, the strategy lacked overall objectives, specific targets and sufficient programme evaluation (Brown, 2001).

Furthermore, the lack of an overall business case led to confusion among stakeholders about the reasoning behind some of the projects and programmes initiated under the strategy (PAC, 2000b). Following its election victory in 1997, the Labour government criticised the 1992 IM&T strategy for being overly concerned with management information (NHS Executive, 1998), as well as for helping perpetuate the ‘internal market’ of the NHS, which was largely seen to have failed (DH, 1997). However, it is now clear that the Labour government did not learn from the 1992 strategy’s other limitations before initiating NPfIT.

Not all the programmes initiated under the 1992 IM&T strategy failed. Despite the difficulties many stakeholders had in understanding its purpose, Brennan (2005) highlights ERDIP as an example of good practice, as it was tailored to local needs and enjoyed user (staff) support in most locations. This is a far cry from the one-size-fits-all solution introduced by NPfIT, and fits Brennan’s assertion that ‘[...] the major factor to influence success of a project is the people and not the technology’ (2005, p.75).

### ***‘Information for Health’: good practice gone bad***

Following its landslide election victory in 1997, the Labour government of Prime Minister Tony Blair set out to reform Britain’s public services. Its vision for the NHS was set out in the document ‘The New NHS: Modern. Dependable’ (DH, 1997). The 1998 IM&T White Paper, better known by its title ‘Information for Health’ (NHS Executive, 1998), expanded on the vision set out in ‘The New NHS’ vis-à-vis the EPR, and has been described by Brennan (2002a, p.13) as ‘a document that still stands as a pragmatic and sensible statement of fact and clarity of vision.’

The gist of the 1998 IM&T strategy was to extend the current best practice from the primary healthcare sector to the rest of the NHS. For a number of years, the government had supported GPs in buying their own IT systems by providing 25-50 per cent of the funding, as long as the system met certain requirements (interview with Cundy, 2014). This system was known as Requirement for Accreditation (RFA) and was largely successful, despite some suppliers not supplying the correct systems and some isolated cases of unwelcome interference from government in choosing specifications (interview with Cundy, 2014). The 1998 IM&T strategy, however, sought to end this top-down approach.

In line with the new government’s ‘third way’ and aim to ‘[build] on what has worked, [while] discarding what has failed’ (DH, 1997), the 1998 IM&T strategy maintained the 1992 strategy’s five principles for use of information in the NHS (see above).

A number of strategic aims were also identified by the 1998 strategy, including (NHS Executive, 1998):

- Ensuring patients could be confident that healthcare professionals had reliable and rapid access, 24 hours a day, to the relevant personal information necessary to support their care;
- Eliminating unnecessary travel and delay for patients by providing online access to services and specialist care;



- Providing patients with access to accredited and independent advice about their condition;
- Providing healthcare professionals with online access to the latest local and national guidance and evidence on treatment and tools to evaluate their clinical effectiveness and aid their professional development;
- Providing healthcare managers and planners with accurate information to support local Health Improvement Programmes and the National Framework for Assessing Performance; and
- Providing the public with fast and convenient access to accredited advice on lifestyle and health and information to support their involvement in and understanding of local and national healthcare service policy development.

To achieve these lofty aims, the strategy set forth a number of loose targets, including the aim of computerising and connecting all GP surgeries to *NHSnet* by 2002, transmitting all radiology reports electronically by 2003, computerising all NHS prescription and booking systems by 2004, and ensuring all NHS Trusts had installed level-3 EPR systems (see *Table 1*, below), installing the first ten local EHR systems and introducing nationwide telemedicine services by 2005 (Watson, 2001).

<b>LEVEL 6</b>	<b>Advanced multimedia and telematics</b> As level 5, plus telemedicine, other multimedia applications (e.g. picture archiving and communications systems)
<b>LEVEL 5</b>	<b>Specialty specific support</b> As level 4, plus special clinical modules, document imaging
<b>LEVEL 4</b>	<b>Clinical knowledge and decision support</b> As level 3, plus electronic access to knowledge bases, embedded guidelines, rules, electronic alerts, expert support systems
<b>LEVEL 3</b>	<b>Clinical activity support</b> As level 2, plus electronic clinical orders, results, reporting, prescribing, multiprofessional pathways
<b>LEVEL 2</b>	<b>Integrated clinical diagnosis and treatment support</b> As level 1, plus integrated master index, departmental systems
<b>LEVEL 1</b>	<b>Clinical administrative data</b> Patient administration and independent department systems

*Table 1: levels of electronic patient record (taken from Watson, 2001, Table 1)*

One of the main strengths of the 1998 IM&T strategy was that it combined strategic vision with an implementation plan (Brennan, 2001a) – something conspicuously absent from both previous and subsequent programmes (Ritter, 2008b). The strategy’s architects also understood the importance of using IT as a means to an end, rather than the end itself, stating ‘An information strategy for the NHS must be driven primarily by a careful and comprehensive analysis of the information needed to support the service objectives of the NHS and the policy objectives of Government [...] and not simply by the technical possibilities’ (NHS Executive, 1998, p.13).

Furthermore, the 1998 IM&T strategy championed local ownership of EPR systems, while supporting standards for data collection to allow for records to be shared seamlessly across healthcare providers:

It is not possible or necessary to undertake the development of all national clinical data standards centrally. An organisational framework is needed to create the national context for the work and coordinate existing work or commission new work as required. (NHS Executive, 1998, p.47)

Despite these assets, the 1998 IM&T strategy has gone down in history as another healthcare IT failure. Looking at NPfIT, it is easy to wonder how the 1998 strategy transmogrified into a centralised and unwanted system in less than four years. Brown (2001) identifies the lack of identifiable performance targets, lack of clear business case and lack of clarity about plans to evaluate the success or failure of the strategy as its main downfalls. The Public Accounts Committee has noted that, without full stakeholder understanding of the business case for IT programmes, failure is highly likely (2000a). Out of this failure, the NPfIT was born.

### ***Opposition: confidentiality and the electronic patient record***

Almost inevitably, new information technologies come up against opposition, both from within the sector they impact (in this case, healthcare) or without. The most damaging criticism of the proposed national EPR from the early 1990s onwards was that such a system ‘threatens to make private healthcare information available for misuse’ (Denley and Watson Smith, 1999, p.1328). Tonks (1993) warned that centralised databases of healthcare information would be a target for corporations and governments alike, while Anderson also advises against data aggregation, citing numerous examples of dangers posed by the military and banking sectors, and accuses the NHS of the time of ‘rushing headlong down this wide and slippery slope’ (1995, p.6).

There is some suggestion that concerns about confidentiality were used by some doctors and the BMA as a cover for more self-interested opposition (interview with Brennan, 2014), but it is doubtless that, on the whole, the issue of confidentiality was a genuine concern that attracted little government attention in the first half of the 1990s. This is probably because the government did not wish to address the necessary trade-off between clinical gains and confidentiality, with Denley and Watson Smith (1999, p.1330) asserting that ‘The need for patient privacy at some point comes into conflict with the benefits to be gained from sharing clinical information.’

The medical profession, however, refused to let the issue slide, with the BMA engaging Ross Anderson of the University of Cambridge to conduct a study into data security in clinical information systems. His nine principles (Anderson, 1996), as well as the suggestion of Mandl et al. (2001) that patients themselves be given control over access lists, were largely neglected by the 1998 IT&M strategy, possibly due to cost concerns (Denley and Watson Smith, 1999) or because the government was simply not interested.

Government activity vis-à-vis the confidentiality debate was limited to the 1997 Caldicott review, which came about as a result of the conflict between the 1992 IM&T strategy (which included a patient's HIV/AIDS status among its minimum dataset) and venereal diseases legislation, which limited knowledge of STDs to patient and provider (Anderson, 2001). The Caldicott review set out a number of principles aimed at protecting 'patient-identifiable information' (DH, 1997), defined to a greater or lesser extent as '[...] all items of information which [relate] to an attribute of an individual' (p.3). These were:

- Justify the purposes of the use of patient-identifiable information;
- Use the minimum necessary amount of patient-identifiable information;
- Keep access to patient-identifiable information strictly need-to-know;
- Ensure that everyone with access to patient-identifiable information is aware of their responsibilities; and
- Understand and comply with the law at all times.

However, the Caldicott review did little to assuage the fears of campaigners, especially following the decision in 2002 to pursue a far more centralised, nationwide EPR system.

### ***NPfIT: doomed to failure?***

The decision to pursue a new, more centralised IM&T strategy, which became known as the National Programme for IT in the NHS, was taken at the now infamous Downing Street seminar on Monday 18 February 2002. The seminar itself was the result of a meeting between the Prime Minister and then CEO of Microsoft, Bill Gates, after which the Prime Minister is said to have become 'hooked' on the technological possibilities for improvement in the NHS (Bacon and Hope, 2013).

The seminar, chaired by the Prime Minister, is said to have lasted just 90 minutes, though the PM was present for only half that time (Ehi.co.uk, 2008). No minutes were kept (Ritter, 2008a). In attendance were (Ehi.co.uk, 2008):

- The Prime Minister, Rt Hon Tony Blair MP;
- Secretary of State for Health, Rt Hon Alan Milburn MP;
- Parliamentary Under-Secretary of State for Health, Lord Hunt;
- Chief Executive NHS and Permanent Secretary, Department of Health, Nigel Crisp;
- Director, Department of Health, Sir John Pattison;
- E-envoy, Andrew Pinder;
- Chair, Office of Government Commerce, Peter Gershon;
- Representatives from the networking solutions provider Cisco; and
- The UK Managing Director of Microsoft.

The policies discussed at the Downing Street seminar were a response to several issues that had plagued the 1998 IM&T strategy from the outset, notably procurement ‘beauty pageants’ and fear that suppliers were failing to deliver integrated systems (interview with Brennan, 2014), the unwillingness of NHS Trusts to invest sufficiently in IT due to difficulty meeting other targets (Brennan, 2001b and 2001c) and slow progress implementing what few targets the strategy did have (Brennan, 2002a).

However, rather than address those issues at their core (that is, accept that changing working practices takes time and adjust programme management techniques accordingly, see Brennan, 2002a), the Prime Minister opted to force a radical and unwelcome change upon Trusts. In doing so, he had failed to learn the main lessons of other, failed IT projects in the NHS such as WHRA’s RISP and HISS (see above). That is, that ‘[...] large, centralised IT schemes imposed on semi-autonomous NHS sites rarely work. They engender a scepticism among doctors that becomes impossible to overcome’ (Computerweekly.com, 2007). Indeed, as ComputerWeekly.com reported:

Instead of avoiding this mistake, officials at the Department of Health and Downing Street made it the central ingredient of a new scheme of unprecedented scale and boundless complexity. Ministers further deepened scepticism among clinicians by conceiving the national programme in secret and announcing it as fait accompli.

(ComputerWeekly.com, 2007)

The government also seems to have failed to take confidentiality concerns seriously. The 2001 Health and Social Care Act had recently given the Secretary of State powers to collect and regulate the use of all personal health data in identifiable form (Anderson, 2005), and government language at the time of the Downing Street seminar is worryingly blasé about this issue, with the White Paper following the seminar stating ‘Plans for the longer-term approach [to the issue of patient confidentiality] are currently being drawn up’ (DH, 2002, p.10).

That the government was willing to press ahead with its plans without consulting further on the issue of confidentiality could be considered ‘imprudent to the point of being unethical’ (Anderson, 1996, p.29). However, there is some suggestion that the Prime Minister had been convinced by Microsoft and other suppliers that ‘big is beautiful’ (interview with Collins, 2014). This, combined with evidence about the brevity of the Downing Street seminar (see above), suggests that the Prime Minister had already made up his mind by 18 February 2002, regardless of confidentiality issues, and was unwilling or unable to change it.

Another aspect of the 1998 IM&T strategy that was ‘squashed’ (interview with Collins, 2014) by NPfIT was local ownership of EPR systems. As late as 2000, the Cabinet Office had noted the need for IT projects to be undertaken collaboratively with central government and local NHS Trusts (Cabinet Office, 2000). However, by 2002, the government was supportive of a fully- or mostly-centralised system. Why? The White Paper released to accompany the announcement of NPfIT blames the slow uptake of technology at local level under the 1998 strategy on low levels of local investment and lack of cohesion between individual systems (DH, 2002), but other sources (interview with Cundy, 2014) again point the finger at suppliers for convincing the Prime Minister and Department of Health to change tack despite there being no need.

The government may also have been influenced by the interim report into NHS funding by Natwest banker Derek Wanless, which pushed for a more centralised strategy to combat 'piecemeal' uptake of IT (Wanless, 2002, p.58). However, as Brennan (interview with Brennan, 2014) points out, a bank's branches all operate similarly, they use the same data, and their customers are free to choose who they open their accounts with. Conversely, NHS hospitals all operate differently using unique datasets and their patients have little or no choice about the services available to them. The Major Projects Authority (MPA) agrees with this view, stating that centralised arrangements did not fit with the needs of healthcare professionals on the ground (2011).

Policymakers often pursue large, ambitious healthcare information systems because they are high-risk and high-reward (Heeks et al., 1999). Brown (2001, p.377) states that policymakers who fit this profile are often 'politicians with a clear interest in undertaking policies relating to IT development that further their political aims'. Tech journalist Robin Guenier puts it more bluntly when he states that politicians see large IT projects as a 'sign of virility' (Ritter, 2008b). It is possible that NPfIT is yet another such demonstration. According to one source, the suppliers present at the Downing Street seminar appealed to the 'self-aggrandising egos' of the politicians and policymakers present (interview with Collins, 2014).

Compounding the above was the fact that the Prime Minister pushed hard for a severely curtailed implementation timetable for NPfIT in order to have something tangible to show voters by the next general election, due in 2005 (Ehi.co.uk, 2008; Ritter, 2008a). It is perhaps a sign of the Prime Minister's determination to drive through the programme come what may that no-one at the seminar felt able to say 'no'. Sir John Pattison reported having a conversation where he 'swallowed hard' and accepted a delivery timetable of two years and nine months (Ehi.co.uk, 2008). He reported that the Prime Minister wanted to do it in two years flat. This may also go some way in explaining why there was never a documented business case for the programme as a whole (MPA, 2011).

Finally, there was little or no consultation with key stakeholders about the decision to adopt NPfIT. Ritter (2008b) compares the zeal with which the government took the decision with that behind the doomed launch of the space shuttle Challenger in 1986. This lack of consultation extended to Parliament, which was given little or no time to contribute to the plans, such was the government's desire to initiate the procurement phase of the programme swiftly (Ritter, 2008b). This severely limited opportunities to learn from policymakers who had been involved in previous IT programmes. PAC (2000a) highlights this as a common failure of governments where IT projects are concerned, probably caused by loss of institutional memory in government departments, such as that in the NHS in the early 2000s (Brennan, 2001b).

Was NPfIT doomed to failure? This is a complicated question to which there is no easy answer. We are unable to support Cundy's claim that the technological mix could never have worked (interview with Cundy, 2014), and EPR systems have been shown to work well on both a local and regional level (interview with Collins, 2014; interview with Brennan, 2014). However, NPfIT was more than a simple, local-level EPR system; it was a large and complex healthcare informatics system, and came with the same risks that one inevitably finds in huge, centralised databases that pay little attention to the needs and desires of users, the hardware they are using and the risks of aggregating large amounts of personal data in one 'secure' database.

In this sense, the scale of NPfIT rendered it highly likely to fail, and what followed should come as little surprise. This was compounded by the determination of the Prime Minister and Department of Health to drive through changes (and their questionable motives for doing so), the role of suppliers in convincing them of the need, a lack of consultation, time and attention to issues such as patient confidentiality, and the fact that the government seemed determined to repeat previous mistakes in IM&T implementation. To summarise, the decision to push ahead with NPfIT displays all the hallmarks of the themes discussed in the introduction: problems with haste, design, culture and skills.

However, it did not have to be this way. Some of the most striking evidence we heard in researching this case history came from Paul Cundy, Tony Collins and Sean Brennan, all of whom said that the 1998 IM&T strategy, 'Information for Health', could have worked, given the correct time and project management (2014). While the EPR was not doomed to failure, the heavily centralised NPfIT was.

## ***NPfIT: Launch, Delivery and Implementation***

### ***The launch of NPfIT***

The Parliamentary Under-Secretary of State for Health, Lord Hunt, announced the proposed major IT reform to the NHS on 12 June 2002, along with the publication of the Department of Health's 'Delivering 21st Century IT support for the NHS – National Strategic Programme' (the NSP Plan). The NSP Plan initiated what would subsequently become known as NPfIT, with its vision of "connect[ing] delivery of the NHS Plan with the capabilities of modern information technologies" (DH, 2002, p.1), through delivering the four key elements discussed at the 18 February 2002 seminar:

- i) an integrated electronic health records system;
- ii) electronic prescriptions;
- iii) an electronic appointment booking system; and
- iv) an underpinning IT infrastructure with sufficient capacity to support the national applications and local systems.

The NSP Plan described its strategy as taking "greater central control over the specification, procurement, resource management, performance management and delivery of the information and IT agenda", improving "the leadership and direction given to IT", and combining it "with national and local implementation...based on ruthless standardisation" (DH, 2002, i). As part of this strategy the NSP Plan provided an 'option appraisal' of a number of procurement approaches and identified the preferred option – selectively outsourcing major programme components, delivering some programme components at a national level, and setting national standards for local use and implementation of other components (DH, 2002, p.7). As Bacon and Hope write, the NSP Plan "sounded appealing to many health care professionals...promis[ing] just the combination of local control with national standards" (Bacon & Hope, 2013, p.121) which they had long been seeking.

The NSP Plan set out details of the proposed governance structure for the programme, with oversight by a ministerial taskforce and a single Department of Health Director as senior responsible officer (Sir John Pattison), who would report directly to Lord Hunt and Nigel Crisp, Chief Executive of the NHS and Permanent Secretary at the Department of Health. This was consistent with the structure of the NHS in 2002, with the Department setting policy for 28 Strategic Health Authorities (SHAs), which were responsible for the strategic supervision of the Primary Care Trusts (PCTs) and other NHS Trusts providing primary, secondary and community health services in their region (see *Appendix 1*). To support Pattison, a National IT Programme Director would be appointed who would be authorised to deal directly with the SHAs, manage programme funds, and work with the NHS Information Authority. The SHAs in turn would be required to appoint Chief Information Officers, who would be responsible for ensuring appropriate funding and effective IT management for PCTs and NHS Trusts in the SHA (DH, 2002, p.4).

While the NSP Plan did not detail the methods for key stakeholder involvement, it identified that a key risk was the "lack of co-operation and buy-in by NHS stakeholders to investment objectives" (DH, 2002, p. 26). Sir John Pattison took early steps to address this risk by enlisting "Dr Anthony Nowlan, a health informatics expert and executive director of the NHS Information Authority, to secure the involvement of health professionals in the programme" (Bacon & Hope, 2013, p.122). As part of this process, in September 2002 the Clinical Care

Advisory Group was established as an adjunct to the ministerial taskforce, to be chaired by Professor Peter Hutton and to represent the interests of clinicians and channel their advice and input regarding NPfIT.

### ***Recommendations from the Wanless Review***

Prior to the launch of the NSP Plan, an important review of long term trends in the NHS had been published in April 2002: 'Securing our Future Health: Taking a Long-Term View' (the Wanless Review). The interim Wanless Review, released in November 2001, had already highlighted the low investment in information technology in UK healthcare (1.5 per cent of NHS spending), both in comparison to other UK industry sectors and other countries' health ICT spending (Wanless, 2002, Annex C p.156). The final Wanless Review incorporated in its projections a substantial increase in ICT investment, doubling from its current levels "to around £2.2 billion in 2003-04, peaking at around £2.7 billion in 2007-08" (Wanless, 2002, p.55), and representing 3 per cent of total annual NHS spending.

Alongside the Prime Minister's 2000 commitment to increase NHS spending overall over six years, in order to bring spending up to the European average as a proportion of GDP, the Wanless Review helped pave the way for the Chancellor of the Exchequer, Gordon Brown, to approve the funding of NPfIT, a programme which had already received the Prime Minister's seal of approval. While this meant that funding was not an issue for the programme, it instead created a different problem: a lack of detailed cost-benefit analysis which normally would have been required to justify programme expenditure on this scale.

This lack of detail was at odds with the Wanless Review's recommendation that with any substantial increase in ICT spending, there needed to be "clear and well developed views about the benefits which [the Government and Health Service] want to achieve and how they will be delivered, with patients at the core of the system" (Wanless, 2002, p.102). The Wanless Review also recommended the use of ringfencing and auditing to ensure such funds would be spent productively and not diverted to other purposes, as well as the need for rigorous standards to maximise the benefits of ICT integration, and to ensure that any different systems used would be compatible with each other.

### ***Issues in the Gate Zero Review***

In July 2002, the Office of Government Commerce (OGC) completed a 'Gate Review 0 – Strategic Assessment' (the Gate Review) for the NSP Plan, part of the project management process of gate review whereby a project is evaluated at key stages to determine whether it should proceed to the next stage. The Gate Review concluded that while the programme was well covered on the primary issues relevant at this stage - funding, alignment to business strategy and senior management commitment and support - there were a number of significant concerns. In particular, the Gate Review observed that:

There is widespread appreciation that the programme is a change programme first and foremost albeit with significant IT elements. But the implications of this are not being pulled through into the way the programme is structured, into the level of engagement with stakeholders...and into detailed planning.

(OGC, 2002, p.5)



The Gate Review noted that a recurring theme was “engagement, or more specifically the lack of it”, and made a number of recommendations to improve stakeholder engagement, planning and procurement, in particular identifying that “effort should be concentrated in the short-term on getting right the essential preparations, plans and organisation for the programme which is not yet in a position to proceed to procurement stage” (OGC, 2002, p.6).

As King and Crewe comment, “at the beginning, in 2002, the idea was that national standards for NHS IT would be laid down but that local NHS trusts would be free to commission their own suppliers and choose their own software” (King & Crewe, 2013, p.196). This was consistent with Wanless’ ‘rigorous standards’ and the local control with ‘ruthless standardisation’ envisaged in the NSP Plan, as well as the Gate Review’s conclusion that “all the key stakeholders agree that a centrally managed approach is necessary as long as it is combined effectively with locally controlled implementation” (OGC, 2002, p.4). Despite this understanding, this was not the approach subsequently adopted and developed in the procurement for NPfIT.

### ***The draft OBS and NSP Plan Timetable***

At the same time as the NSP Plan was being developed, an outcome-based specification (OBS) for the heart of the programme - the integrated electronic health records system - was also being prepared. Outcome-based contracts involve specifying the required business deliverables, or outputs, but not the solution or the technical means for achieving these outputs, and are recommended by Government for major public sector contracting.

A month after the launch of the NSP Plan in July 2002, the Department of Health published a consultation draft OBS described as the ‘National Specification for Integrated Records Care Service’ (the National Specification), with submissions invited until the end of August. The National Specification largely “drew on documents from other procurements”, received over 190 responses from the consultation (PAC, 2007, Ev 35), and as was recognised by the Department, there was “a strong sense that we have given insufficient time for consultation” (PAC, 2007, Ev 36).

While the Department hoped to remedy this error in later steps, they were not assisted by the highly ambitious timetable set out in the NSP Plan, with the preparatory ‘Phase 0’ of NPfIT scheduled for completion by March 2003, including the awarding of contracts for the procurement of the key national services under the programme (a procurement timetable referred to in the Gate Review as ‘hyper-ambitious’). From that point, the NSP Plan allowed only two years and nine months for NPfIT’s major initiatives to be significantly implemented in ‘Phase 1’ of the programme, echoing Sir John Pattison’s promise to the Prime Minister.

According to the NSP Plan, by December 2005 basic broadband access would be available to all clinicians and support staff in the NHS, the National Bookings service would be implemented, the National Prescriptions service 50 per cent implemented, the full National Health Record Service implemented, and all Trusts would be actively implementing elements of the electronic patient record system (DH, 2002, p.6). Phases 2 and 3 were tentatively scoped to run from 2006 to the end of 2010, and involved delivering the full functionality for the remainder of NPfIT’s components.

## ***Director General's appointment and approach to contracting***

The new Director General of NHS IT, who would be responsible for driving both the procurement and implementation of NPfIT, was appointed in September 2002. Richard Granger was a former consultant from Deloitte (and before then Andersen Consulting/Accenture), with experience in managing public sector IT projects, including the contemporaneously successful London congestion charge scheme. While the NSP Plan timeline was not realistically achievable, under Granger's forceful leadership the procurement process was completed with remarkable speed for a public sector programme of this scale and complexity.

Richard Granger is normally identified as the person who shifted the procurement approach away from local implementation with national standards. However, this was already Sir John Pattison's view prior to Granger's arrival. In a mid-2002 interview with Sean Brennan, Pattison was asked whether the key elements of the programme could be achieved by setting national standards, providing dedicated and ring-fenced funding for the SHAs and Trusts, and having an accredited list of suppliers from which the SHAs and Trusts could select and contract with, in order to deliver projects meet the national standards. Pattison replied that because of the "scale of the programme" this approach would not work - there was a need to create a new tier in the procurement process "to ensure not only that technology solutions are available and accredited, but to underpin those implementations with comprehensive change management" (Brennan, 2005, p.193).

This new tier, originally called Prime Service Providers and subsequently Local Service Providers (LSPs), would become a fundamental part of the framework for NPfIT. LSPs were to be tasked with delivering the integrated electronic health records system, dealing with both the Department of Health and the SHAs. National Application Service Providers (NASPs) would also be contracted by the Department to deliver the national elements of the programme, in particular the electronic booking system and the Central Spine or Central Summary Care Record Service, intended to contain summary patient records for every individual served by the NHS. In addition there would be a National Infrastructure Service Provider or Providers (NISPs) to deliver the national broadband infrastructure, including a private network securely connecting clinicians to the system.

Granger was instrumental in taking an innovative (for the public sector) approach to all of these contracts, which was the adoption of "a service-oriented contracting strategy, whereby suppliers receive payment only after the systems they have developed are taken up by users, and the services they provide yield measurable benefits within the NHS" (QinetiQ, 2005, p.2). Granger's subsequent willingness to directly challenge contractors in relation to programme delays and non-delivery was defined by his likening the management of contractors to running a team of huskies:

When one of the dogs goes lame, it is shot. It is then chopped up and fed to the other dogs. The survivors work harder, not only because they have had a meal, but also because they have seen what will happen should they themselves go lame.

(Granger, cited in Bacon & Hope, 2013, p.121)

This 'take no prisoners' approach won Granger critics as well as admirers, and likely contributed to problems related to a culture of groupthink and intolerance for dissent in the

Department, as well as unrealistic timelines and disputes with the suppliers. However, as Tony Collins has commented, “Granger was hired to be the strongman, and that’s exactly what he did” (Collins interview, 2014), with many of NPfIT’s more fundamental problems preceding his arrival.

### ***The revised OBS***

Over winter 2002-3 a revised draft of the OBS for the NHS Care Record Service was developed, the National Audit Office (NAO) commenting that NPfIT then “engaged a broad spectrum of NHS stakeholders encompassing leading clinicians, practitioners, policy advisers, health informaticians and managers” (NAO, 2006, p.23). This extent of this engagement was called into question in a later Process Capability appraisal of the procurement process, which found that the “stakeholder requirements definition had proceeded directly to production of the OBS without the production of an analysed statement of stakeholder requirements” (QinetiQ, 2005, p.27).

The 2006 NAO report appeared to accept the NPfIT’s response that “much of the OBS was developed in workshops [...] and NHS Connecting for Health had not had the resources to record the attributions” (NAO, 2006, p.31). This was a contentious issue in the Public Accounts Committee’s 2007 report on NPfIT. In particular, Dr Nowlan and Professor Hutton commented that “clinicians were not taken into account and did not have sufficient say” (PAC, 2007, p.17), and the report cites the Comptroller and Attorney General as stating that “the approach from the top down had not permitted the full degree of consultation” (PAC, 2007, p.17).

One decision that was made in relation to the procurement which surprised some stakeholders was the division of the NHS into five regional ‘clusters’ for which the LSPs would be contracted: 1) North West and West Midlands; 2) North East; 3) East of England and East Midlands; 4) London; and 5) the Southern cluster. Each cluster contained between five and seven SHAs and populations ranging between seven and thirteen million. In early 2003, as Brennan states, “the favourite suggestion was that there would be 28 medium-sized procurements – one for each SHA” (Brennan, 2005, p.109). Amalgamating the SHAs into regional clusters was seen as a clean break with previous NHS approaches to procurement and implementation and as a way of attracting bids by multi-billion pound companies. It also marked a further reduction in local autonomy and flexibility, and had the side-effect of sidelining smaller companies which already serviced SHAs and individual Trusts.

### ***Procurement process***

In January 2003, the NHS issued potential suppliers with an initial questionnaire regarding their capacity to deliver the programme, followed by a more detailed and demanding questionnaire in March 2003, and the determination of a ‘long-list’ of 31 bidders. The finalised OBS was issued to potential LSPs on 16 May 2003, with responses required by the end of June, along with preferences as to which cluster they wished to work in. At this point, the LSPs were also firming up the main application partners they would be subcontracting with in relation to the IT deliverables and software solutions involved in NPfIT.

Cluster shortlists were announced on 1 August, and shortlisted LSPs were required to prepare for 'Proof of Solution' testing, to take place in September and October 2003, and involving both demonstrations and user testing with a number of different scenarios and user profiles. As Brennan commented, despite there being eight different potential LSPs left in the race at this point, "there were only three software solutions on offer" (Brennan, 2005, p.123). The shortlisted LSPs had all selected to work with one of three partners: iSoft, Cerner and IDX, a very small field considering £5 billion worth of main contracts at stake.

By December 2003, almost all the LSP cluster contracts had been announced – British Telecom (BT) and IDX in London; Accenture and iSoft in the North East; the Computer Services Corporation (CSC) and iSoft in the North West; Accenture and iSoft in the East; with Fujitsu and IDX later confirmed as the South contract-winners in February 2004 (Figure 2). The value of the cluster contracts was approximately £1 billion each, ranging from £934m for the Eastern cluster to £1,099m for the North East cluster (PAC, 2007, p.16). BT was also confirmed as the NASP responsible for delivering the New National Network (£530m), the National Spine (£620m) with Oxford-based software developer CSW as its main partner, while Atos Origin was contracted to deliver the Electronic Booking project - Choose and Book (£64.5m), working with US health IT giant Cerner (see Figure 3 for an overview of the main contracts at the outset of the programme).

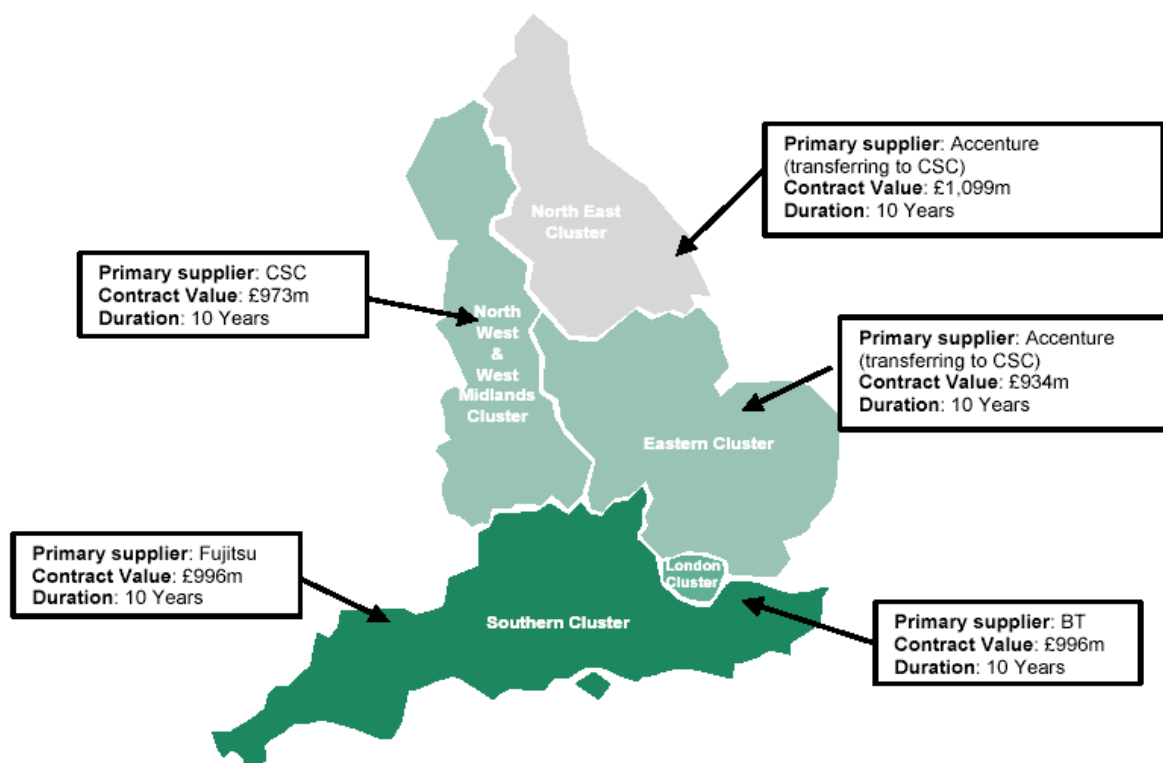


Figure 2: Regional clusters for LSPs (Source: Select Committee on Health, 2007, Figure 1)

NPfIT would subsequently add a number of other projects to the scope of the original programme, most significant of which were the NHSmail - a secure email and directory service for NHS clinicians and staff, contracted to EDS for £90m (NAO, 2006, p.40), and a Picture Archiving and Communications System (PACS) to replace film and paper with digital x-rays and scans in NHS hospitals, to be delivered by the LSPs with an additional total budget of £245m (NAO, 2006, p.25).



Figure 3: NPfIT structure April 2005\*

\*Red: NPfIT element; Green: Contractor; Purple: Main application/software subcontractor

### Procurement concerns

With procurement complete and established multi-billion pound companies contracted to supply the programme elements, NPfIT was to outward appearances in a very good position. The centralised approach to procurement, the competitive way in which the tenders were conducted and the scale of the clustered contracts were estimated to have “saved £4.5 billion in terms of the prices paid for goods and services” (NAO, 2006, p.2). In September 2003, respected career civil servant, Gordon Hextall, was appointed to finally fill the position of

Chief Operating Officer, and in summer 2003 the Clinical Care Advisory Group (CCAG) was succeeded by the National Clinical Advisory Board (NCAB). In September 2003 a Public Advisory Board was also established under the chairmanship of Ms Marlene Winfield to work in parallel with the NCAB.

However, some of the aspects of the procurement process being touted as advantages – the speed, centralisation and aggregation of services – were regarded as weaknesses by others, particularly in combination with a lack of proper testing and inadequacy of consultation with the hospitals, clinicians and patients who would ultimately be the end users of NPfIT. In evidence provided to the PAC, Dr Nowlan observed that “the haste to procure was overriding due diligence over the healthcare value and achievability of what was being done” (PAC, 2007, Ev34), and “efforts to communicate with health professionals and bring them more into the leadership of the programme were effectively obstructed” (PAC, 2007, Ev32). Dr Nowlan recorded how he had raised such concerns during the first half of 2003 with senior programme staff, including Sir John Pattison, with the end result that Granger perceived him as undermining his authority. In mid-June 2003 Dr Nowlan’s secondment was terminated, and in the absence of other duties he was made redundant in December 2003.

In April 2004, NPfIT would lose Professor Hutton, Chair of the CCAG and its successor the NCAB, and the most senior officer responsible for clinical input into NPfIT. In his evidence to the PAC, Professor Hutton noted that both bodies had raised significant concerns with the procurement process and aspects of detail in the contracts. On 31 March 2004, he had written to Sir Nigel Crisp to advise that “the constraints of the contracting process, with its absence of clinical input in the last stages, may have resulted in the purchase of a product that will potentially not fulfil our goals” (PAC, 2007, Ev30). Professor Hutton was asked to consider his position and he subsequently resigned on 19 April 2004.

### ***Leadership changes and Connecting for Health***

Less than a year after he had launched the programme, NPfIT lost Lord Hunt when he resigned from the Government over its decision to invade Iraq. December 2003 also saw the exit of the Senior Responsible Owner (SRO) for NPfIT and Chair of the National Programme Board (NPB), Sir John Pattison, who returned to his role as Director of Research and Development at the Department of Health prior to his retirement. The replacement of Sir John Pattison would not be complete until 22 March 2004, when Dr Aidan Halligan, Deputy Chief Medical Officer, was made joint SRO with Granger, and Department Group Director John Bacon was made the new Chair of the NPB.

Although respected and welcomed by clinicians, Dr Halligan would remain as SRO for just six months before resigning in September 2004, to be replaced by Alan Burns who in turn would serve only another six months from November 2004 before departing, with the post to be filled by Richard Jeavons in March 2005. In March 2006, the man who Sir John Pattison had reported to, Sir Nigel Crisp, would also depart, retiring from the NHS and Department of Health. The seemingly constant rotation of senior management and leadership impacted NPfIT through the loss of corporate knowledge and leadership, and through the diffusion of accountability and responsibility for the programme.

Despite these leadership and management changes, Richard Granger stayed in his role, and in April 2005 a new agency, Connecting for Health, was established under him as the

consolidated central command for the programme. Connecting for Health absorbed the former NHS Information Authority and additional elements associated with the NPfIT.

As King and Crewe observe:

Signs that the programme was in serious trouble were slow to emerge, largely because the principal players – the Department of Health, Connecting for Health, the main IT contractors and Granger himself – were all, for obvious reasons, anxious that no signs of trouble should be allowed to emerge.

(King & Crewe, 2013, p.197)

However, cracks were starting to show, in particular among the LSPs and their subcontractors. The contract with EDS to deliver NHSmail was terminated in March 2004 and replaced with Cable and Wireless in July 2004, Granger stating that “the service which was being delivered [by EDS] was not sufficiently reliable” (PAC, 2007, Ev.16). A number of penalties and fines were paid both by LSPs and Trusts, generally in relation to missed deadlines and delays, and the service-oriented contracts meant that LSPs were noticing the impact of non-delivery in the form of earnings shortfalls. In February 2006, Connecting for Health suspended the contract with ComMedica to supply Picture Archiving and Communications Software to the North West cluster. In June 2005 Fujitsu dumped IDX and took on Cerner as its software partner for the Southern cluster. BT also replaced IDX with Cerner in the London cluster after protracted negotiations during 2006.

### ***iSoft and Accenture***

The main IT partner for three of the LSPs, iSoft, had long-running internal problems, with the Guardian reporting that “questionable accounting at iSoft can be traced back to 2002” (PAC, 2007, Ev105). The Guardian’s investigations, which had uncovered serious accounting malpractice, were gagged by a court order obtained by iSoft in Autumn 2004. After a three year investigation, the Financial Services Authority would launch fraud proceedings against four of iSoft’s directors in 2010. The proceedings related to alleged misleading of investors which occurred during 2004 and 2005, and after the collapse of two trials for procedural reasons, the FSA decided not to pursue a third trial in July 2013.

From the view of the LSPs which had subcontracted with iSoft, the more visible and pressing issue in 2005 was the absence of any progress on iSoft’s flagship product ‘Lorenzo’, “despite statements by the company in its 2005 Annual report that the product was available from early 2004” (PAC, 2007, p.6). Management consultant Thomas Brooks, who was involved in NPfIT under contract for a number of trusts, commented that in the procurement process “the iSoft “Lorenzo” offering was selected from paper descriptions with minimal demonstrations of prototype software elements” (PAC, 2007, Ev102).

In 2006, iSoft’s financial situation deteriorated and was reflected by profit warnings issued in January and June, followed the announcement in August of a £344 million loss for the year. In March 2006, Accenture made allowance for US\$450 million of future losses related to NPfIT, citing the delays in iSoft’s development of Lorenzo and their impact on its ability to deliver the LSP contracts. By the time iSoft was canvassing for possible buyers in October 2006, Accenture had already announced its departure from NPfIT, reaching agreement to transfer the £2 billion North Eastern and Easter cluster LSP contracts to CSC. As Bacon and Hope note: “It was an eloquent comment on the seriousness of the problems facing the

programme that a firm such as Accenture, which undertook so much government work, and thus potentially faced such a risk of reputational damage by leaving the programme, had nonetheless walked away” (Bacon & Hope, 2013, p.125).

The departure of Accenture was all the more striking given Granger had previously emphasised that any supplier who walked away from NPfIT would face tough penalties under their contracts of up to 50 per cent of the total contract value, potentially £1 billion for Accenture. In the end, Accenture was asked to pay only £63m in compensation, testament to the likely legal challenge Accenture would have mounted against any significantly higher amount, and the damage such punitive action would have done to the relationship between government and Accenture, and to the relationships with other large consultancies doing business with government.

### ***Delivery and Implementation***

Problems continued beyond procurement and supplier departures through to the delivery and implementation of NPfIT’s systems and software. The implementation featured some successes with elements of the programme that were on schedule and functioning well, however it was also marked by missed deadlines, unreliable software and a lack of engagement with end-users particularly health-professionals and patients.

Among the success stories of NPfIT’s implementation were the electronic prescription service and the rollout of the New National Network in early 2007, three months ahead of schedule (PAC, 2007). The computer accessible x-ray system was also delivered smoothly and on time. The x-ray system was a rare product of consultation with health professionals, and was also assisted by plans that dated back to before NPfIT. This system was added to NPfIT well after the original specifications were approved following a meeting between Connecting for Health and health professionals (PAC, 2007; Interview with Cundy, 2014).

Elements of NPfIT that did not track so well in the implementation phase include Choose and Book, an electronic system to enable patients to book first outpatient appointments. In mid-2006 this had been deployed to over 7,600 locations however at this time the system was under-utilised and Choose and Book accounted for only 20 per cent of GP referrals. This was likely due to local implementation problems in clinics and out of date patient administration systems in many hospitals (PAC, 2007). The patient administration systems were out of date due to delays in the deliveries from LSPs. According to Connecting for Health’s plans from 2005, 151 NHS Acute Trusts would have their new patient administration systems by April 2007. In February 2007 only 18 NHS Acute Trusts had received their systems (PAC, 2007).

### ***Electronic Care Record Delays***

NPfIT’s aim to create a fully integrated Electronic Care Records system comprised of “Detailed Care Records” and “Summary Care Records”. The aim of this system was to reduce reliance on paper files and make up-to-date patient records available to different parts of the NHS at all times (NAO, 2011).



The Detailed Care Record (an evolution of the electronic health record introduced in the early 2000s by ERDIP) would contain full details of a patient's medical history for access from local GPs, community health organisations and hospitals involved in treatment. According to original timelines, Detailed Care Records were supposed to be delivered to all NHS Trusts and GPs by the end of 2007 and full implementation completed by 2010. The four suppliers contracted by the Department to support the development of the Detailed Care Record had a total budget of £5 billion (NAO, 2011; PAC, 2007).

The systems for hosting the Detailed Care Records were to be delivered and implemented in three releases. The first release involved enabling administrative functionality only with no real clinical benefits. The second and third releases supported clinical functionality and electronic integration between staff and settings. By late 2006, release one had not yet been completed and there were no published timelines with expected delivery dates. In May 2008, the National Audit Office published an updated review of NPfIT which highlighted the failure to deliver the Detailed Care Record, which by this point was four years late.

The Summary Care Record (a centralised version of local electronic patient records of the 1980s and 1990s) would contain only limited information including allergies and major treatments, and would be accessible nationwide to all NHS staff involved in treating the patient. However, it presented ethical issues around privacy that needed to be addressed by Connecting for Health. According to original plans, a Summary Care Record for each patient was supposed to be delivered by 2010 and had a budget of £150 million (NAO, 2011; PAC, 2007).

The specifications for Electronic Care Records in 2003 detailed a clear vision and timeframe however the scope became vague and inconsistent. By 2007, there was no word from the Department on a detailed timeline of when Trusts should expect to have the systems delivered. In 2007, the testing and deployment of the shared electronic records was two years behind schedule, the clinical software development was incomplete and work on the administrative software had 'scarcely begun' (Health Committee, 2007). According to Connecting for Health, by the end of 2007, 155 of the 176 acute trusts should have installed operating systems, however by this deadline only 15 of the 155 were installed (NAO, 2006; Shackman, 2007).

This delay not only undermined the credibility of NPfIT but also made it harder to persuade Trusts to shift IT systems again to Lorenzo. In 2008, it was reported that usage of Lorenzo was low with only 24 people using the system (Kablenet 2008). The availability of iSoft's 'Lorenzo' system to other Trusts suffered continued delays and was not expected to be fully installed in some places until 2016, although the product was supposed to be available from early 2004. While announcing on numerous occasions that contracted suppliers would not be paid until they had delivered the product, and declaring that the finance and completion risk had been largely shifted to suppliers, Connecting for Health still made forward payments to suppliers. In December 2006, these payments totaled £639 million (PAC, 2007). By March 2007, the total expenditure on NPfIT was over £2 billion and this spending was not backed up with any detailed information on advances to suppliers, service improvements or a statement of the costs and benefits of the programme (PAC, 2007).

The delivery of the core software from LSPs was continually delayed. NHS Trusts waiting on the software were left with the decision of whether to extend contracts with existing software

that was not necessarily part of NPfIT or to transition to the Department's interim software until the planned NPfIT software was ready. Rather than funding all contract extensions for each Trust's existing software, Connecting for Health funded only the new interim software which it purchased through the LSPs, giving Trusts a choice of Cerner Millennium or an old version of Lorenzo (Bacon & Hope, 2013; PAC, 2007). Using only two major software providers inhibited innovation, progress and completion of the delivery and implementation of NPfIT systems.

Installing interim systems was disruptive to the day-to-day operation of Trusts. Changing IT systems required upgrading of hardware, networks, staff training and data transfer, all of which took time and resources. Data transfer was difficult because methods of information input differ between organisations and clinical care settings, and the individual fields needed to be matched to the available fields on the new system (Cross, 2006, p.657). The effort to shift to the new interim system seemed worthwhile to some Trusts, particularly those with limited funding and out-of-date software. There were other Trusts however that were satisfied with their pre-NPfIT IT systems and were not comfortable with the Department's pushing its own systems. Trusts that did not purchase NPfIT software were billed for the software regardless and issued fines. IT Journalist Tony Collins refers to this as a "forceful and manipulative" policy (2014).

The Public Accounts Committee found the Department's decision to fund new patient administration systems rather than upgrading a Trust's current system was insufficient and was failing to find solutions that were fit for purpose (2007). Their report called for secondary care Trusts to be able to select from a wider range of patient administration systems and clinical systems, much like GPs had been able to since the RFA of the late 1990s and early 2000s. Strategically, this could have secured much needed support from clinicians and managers whose feedback had been largely ignored from NPfIT's inception.

Despite the many calls for NPfIT to improve stakeholder engagement, such as the 2002 Gate Zero Review, this did not happen. In March 2007, Chief Executive of the NHS, David Nicholson, announced the creation of the NHS Local Ownership Programme admitting 'It's clear that up to now people locally, NHS staff, boards of NHS organisations, have not felt as fully involved as they ought to have done' (Ritter, 2007). The new local approach meant local Primary Care Trusts, strategic health authorities and hospitals would take over the local delivery and implementation, while the commercial strategy and contracts would remain the responsibility of Connecting for Health.

On the implementation side, the newly established Strategic Health Authorities carried most of the responsibility to individually tailor each system to fit local needs. This arrangement reinforced the significant fragmentation between central delivery of IT systems and their local implementation (PAC, 2007; Bacon & Hope, 2013). The 2002 Gate Zero Review's conclusion regarding NPfIT's centralisation, as mentioned earlier, was it was that it needed to be "combined effectively with locally controlled implementation" (OGC, 2001, p.4). There were claims however, that the Local Ownership Programme did not go far enough, for example by extending flexibility in choice of IT systems for secondary care Trusts. This fueled concerns that the NHS Local Ownership Programme was less about local control and more about Connecting for Health distancing themselves from accountability for the programme (Santry, 2007; Bacon & Hope, 2013).

## ***System Functionality***

In January 2008, Richard Granger resigned. His post was replaced with two positions, a Chief Information Officer and a Director of IT Programmes and System Delivery (Bacon & Hope, 2013). This, and other changes in leadership positions within the Department further hindered engagement and rapport with health professionals and other NHS staff (PAC, 2007).

It is possible that thorough consultation with health professionals could have mitigated some of the risks of sharing electronic care records, one of which was the potential for miscommunication of information. During the initial implementation phase of NPfIT, there was no whole-of-system coding language. A universal coding language is needed when critical health care decisions are made by complete strangers, for example in Accident and Emergency Departments. For example, the word 'diabetes' in a patient care record could be interpreted as a family history of diabetes, a predisposition to the illness or a diagnosis. Any shorthand, assumed knowledge or incomplete information in a patient's care records is potentially a risk to patient safety. Such concerns were reflected in a 2007 House of Commons Report which recommended that there be clear standards and timetables for the introduction of a universal coding language.

The delivery and implementation of Connecting for Health's IT systems was characterised by ongoing functionality concerns which began soon after the earliest installations of NPfIT software. In 2005, the software in the Summary Care Records Demographics Service froze and was shut down because it was incompatible with other versions of the GP systems and prevented doctors from having access to Choose and Book (Cross, 2006: 657). According to IT Health Campaigner Dr Mary Hawking the overall integration of the care records between different systems and organisations was not planned for in the original specifications that were provided to LSPs (2014).

There were also reliability concerns with individual software packages. CSC's patient administration system, Millennium, was proving to have a number of functionality problems which caused clinicians to disengage from NPfIT and look elsewhere for clinical solutions. In 2006, the National Patient Safety Authority received reports on behalf of 79 doctors and administration staff at Milton Keynes hospital that the software was not fit for purpose and posed potential risks to patients as systems froze and files were lost (Ungoed-Thomas & Rogers, 2006; Cross, 2006; PAC, 2007). In some cases the IT systems were not capable of producing information used to record the immunisation status, or monitor the immunisation side-effects among children (PAC, 2007). This contributed to delays in providing vaccinations to children; one report claimed that up to 3,000 children were not up-to-date with their vaccinations (Reville, 2006). The following year, in April 2007, Connecting for Health admitted that there were unacceptable problems with some Millennium Care Records Systems and that they required immediate attention (e-Health Insider, 2007).

There were growing concerns that Connecting for Health was focused more on the local implementation of NPfIT systems than protecting technical and clinical standards. To test the reliability and functionality of NPfIT systems, early-adopter sites were set up. There were instances among some early-adopters, such as Morecambe Bay, where system upgrades failed. When malfunctions such as this occurred it discouraged other hospitals from

implementing the systems. This suggests the lack of a clear strategy in ensuring there was technical infrastructure to support both the systems and organisational requirements for roll out (PAC, 2007).

### ***Changes in suppliers***

In the face of frustrations about continuing delays and system functionality problems, questions surfaced on whether the centrally designed system could be legally imposed on all NHS Trusts. Where LSPs were contracted to provide all the GPs in their region with IT systems (the London, North East and Eastern clusters), GPs were given a choice of two IT systems – the LSP subcontractor’s system and an alternative. As the LSP subcontractor systems (e.g. iSoft’s Lorenzo) were not yet developed, this choice was actually between an older interim system supplied by the subcontractor and an alternative provider’s system. GPs fought for recognition of an entitlement to a wider choice of systems, consistent with provisions under the General Medical Services contract agreed with Government in February 2003 and approved by national ballot in June 2003 (PAC, 2007). When this entitlement was recognised by the Department, the new approach, packaged as the ‘GP System of Choice Programme’, meant potential negative impacts on suppliers’ sales (King & Crewe, 2013).

In July 2007, Fujitsu, Connecting for Health, and the Department entered negotiations for Fujitsu’s 2004 contract, worth £896 million, to be ‘reset’. Fujitsu was contracted to deliver the Cerner Millennium system across 86 local health Trusts in south and west England. In light of the changes within NPfIT (including the GP System of Choice Programme) since Fujitsu’s 10 year contract had been signed, there were disputes over whether the costings in the original 2004 contract were still sufficient for timely delivery of fully functional care records systems. After ten months, discussions broke down and Fujitsu withdrew from further negotiations. This move effectively breached contractual obligations with Connecting for Health and resulted in Fujitsu’s contract being terminated in 2008 and transferred to CSC.

### ***Privacy Concerns***

A major task of NPfIT was for the NHS Care Records Service to include a Secondary Uses Service to provide access to aggregated data for management, research and other ‘secondary’ purposes. A House of Commons Report in 2007 into Electronic Patient Records found a lack of transparency and clarity in communicating the type of information contained in the aggregated records and there was also little clarity about the main purpose of sharing their information. The Report cited a lack of communication to both health professionals and patients around consent arrangements and recommended these arrangements be better communicated (Health Committee, 2007). In 2008, the NHS contacted households about the NHS’ use of patient information via an information campaign consisting of a leaflet drop to cover off the Secondary Uses Service, the Summary Care Record and the Detailed Care Record (NHS, 2014). The leaflet, however, omitted to explain in any detail what their information would be used for and who would receive the data.

An ‘opt-out’ system, which was recommended some time earlier by Information for Health (NHS Executive, 1998) was decided upon during NPfIT’s implementation phase. The opt-out was to be developed for the creation of the aggregated care records, and all additional clinical

information would be added on an opt-in basis (Health Committee, 2007). Opting-out of the system takes some effect as it requires a visit to a local GP. The required effort, combined with a lack of information, pushes the ethical standard of 'implied' consent and privacy set by the Information Commissioner (Thornton cited in Anderson *et al.*, 2006).

While access controls and audit systems were attempted by Connecting for Health, the successful implementation of these systems was not guaranteed and electronic care records continued to be installed and shared regardless. Public debate on this issue peaked from around 2006, during which support from the professionals working in the sector was also low. In June 2006, the Local Medical Committees' Conference passed a proposal to advise GPs to consider withdrawing from the Spine on privacy and security grounds (E-Health Insider, 2006). Several data risks with NPfIT around patient awareness, confidentiality, accuracy and security were also acknowledged by the Information Commissioner, Richard Thomas (Thomas, 2007).

Access to the Electronic Care Records is available via a smartcard that is issued to relevant staff members. However, breaches of security and confidentiality were still possible and evident. In 2007 for example, the board of a hospital agreed that clinicians working in an Accident and Emergency Department could share their personal Smart Cards to access patient records (Thomas, 2007). In the event of inappropriate use of patient records, this allows the system to trace who provided the access. While this may discourage inappropriate use of care-record access, it does not necessarily prevent abuse from taking place in the first instance. To access patient records, only one Smart Card holder open to bribery or coercion is needed (Cross, 2006, p.658).

The Department currently relies on pseudonymisation of data to mitigate risks around privacy. The pseudonymisation and level of aggregation for Summary Care Records and Secondary Uses Services does not appear to be based on any best practice evidence to ensure it is enough to protect individual privacy rights (Health Committee, 2007). A 2009 report into government databases found the Secondary Uses Service and the Detailed Care Records to 'almost certainly' be in breach of human rights and/or data protection law. The Report also raised concerns in relation to Summary Care Records regarding the potential for abuse of staff access privileges and lack of clarity on the terms and conditions of opting-out of the system (Anderson *et al.*, 2007).

The continued push to implement NPfIT in the face of serious concerns about privacy, protection and security reflected a desire to avoid resolving the necessary trade-offs between clinical gains and confidentiality. This attitude can be traced back at least to the NHS Information Management and Technology Strategy of the early 1990s.

NPfIT's apparent disregard for these issues was particularly problematic in the wider context of the reported lack of communication and consultation with the end users particularly health professionals, patients and the public (Health Committee, 2007). On the ground, hospitals were also still being subjected to pressure from the Department to accept immature technology, 'in order to help the programme save face' as some critics described (Bacon and Hope, 2013, p.131). The same critics describe this period as 'a stalemate between hospitals who refused to be guinea pigs for poor software and suppliers who were in so deep that they didn't know how to find a way out' (p.133).

## ***The End of NPfIT***

A death knell had begun to sound from January 2009, when the Public Accounts Committee criticised costs and progress to date. Costs were escalating without evidence of benefits, despite the programme having run for seven years already. The Committee suggested that it might be time to start looking beyond the NPfIT framework (PAC, 2009).

In June, Martin Bellamy, the Director of Programme and Service Delivery who had taken on part of Richard Granger's role, moved on after only nine months. Computer Weekly reported that "Bellamy's job description was not clearly defined", and quoted one executive as saying, that "Bellamy had vague responsibilities for everything and clear responsibilities for virtually nothing" (Computer Weekly, 2009b). Despite setbacks and rotation at the senior level (never a good sign on a major project) there were persistent claims that everything was fine. In January, Richard Bacon MP had called for Connecting for Health to wake up and face reality; instead, NHS CIO Connelly wrote to colleagues inside her organisation about "maintain[ing] the movement of delivery", a confusing goal given that delivery had been conspicuously lacking. Connelly herself moved on in June 2011 after a "fascinating and challenging time" (Hall, 2014).

Much of the debate over NPfIT could be characterised as a clash between those closest to it, who were committed to defending the programme and pushing through at all costs, and those who objected on practical, technical or professional grounds. The financial crisis of 2007-08 and the ensuing recession caused a step change in the surrounding political environment. "Investment" was no longer a byword for good governance; soon, "waste" and "fiscal responsibility" dominated the national debate. This instigated a new line of attack on NPfIT: scrap a failing programme to save money. It was easier said than done.

In December 2009, the Secretary of State for Health, Andy Burnham, claimed in debate that the programme was "essential" (House of Commons Debate, 2009-10, 502, col. 21). Alistair Darling said the exact opposite in a television interview a few days later and duly cut the budget from £12.7 billion to £12.1 billion (Computer Weekly, 2009c). The Conservatives and Liberal Democrats went on to denounce the programme during their 2010 election campaigns and made promises to drastically change or scrap it (Barr, 2010; Bruce, 2010).

In 2010 and afterwards, some in the IT sector maintained the project was still viable and that problems were the result of "negative vibes" from clinicians (ITProPortal, 2010) and public concerns over data privacy rather than the failure of those implementing the programme (Parker, 2010). This was all the more incredible given the litany of errors and failures to date.

There was plenty of pre-election speculation about what a new government would do with NPfIT. In Autumn 2010, the coalition announced that a "centralised, national approach is no longer required" and that a further £700 million would be saved by allowing Trusts to choose their systems from a more plural supplier base (DH, 2010). This was a concession to clinicians' anger at being left out of the original planning but CSC and BT were by no means being ditched – as health minister Simon Burns admitted to Parliament, "Existing contracts

will be honoured” (HC Deb., 2010-1, 515, col. 21WS). It was realised early on that political will alone was not enough to extricate the NHS from the programme.

The next twelve months brought further criticism, not least from the NAO, PAC, and the Major Projects Authority, causing the Government to announce an “acceleration of the dismantling” in September 2011. The Cabinet Secretary exaggerated the Government’s decisiveness, announcing that “This Government will not allow costly failure of major projects to continue” (DH, 2011). In fact, contracts and the associated expenditure still remained, although each component in the programme would have its own Senior Responsible Owner with responsibility for delivery. Connecting for Health was abolished in March 2013.

The coalition government did its best to present each announcement as the expunging of the previous government’s costly mistakes. Such declarations were undermined by requirements to honour the existing contracts with Local Service Providers. PAC Chairman Margaret Hodge branded the announcement of the programme’s disbandment “a deck chairs on the Titanic exercise” (PAC, 2011, Q13). As the Guardian put it, scrapping NPfIT had turned into “a journey, not a destination” (Matthieson, 2011).

This journey saw the programme morph into a vague imitation of the project the health sector actually needed, although still within the strictures of contracts that could only be unsatisfactorily renegotiated rather than escaped. Fragmentation, it turns out, does not have to be the disaster the programme’s architects thought it would be. This contrast was best expressed by Computer Weekly, one of the programme’s most committed critics:

At the time the programme was initiated, way back in 2003, the concept of regional providers with some national applications was pitched as a compromise between total centralisation and complete decentralisation. In truth, it was what the technology available at the time was best at delivering [...] Since then, the internet has connected everyone, and if you started NPfIT today, it would be blatantly obvious that you set common standards, and allowed everyone to do their own thing with a standardised, interconnected infrastructure.

(Glick, 2010)

While the programme has been disbanded, controversies over privacy did not subside entirely. As of April last year, more than 27 million Summary Care Records had been created. The scope of the data in the records was reduced but there remains controversy over implementation, although the focus for campaigners has now shifted to the wider sharing of information as part of care.data.

## ***Delivery***

In any discussion about the programme, the Department and suppliers stress that important parts have been delivered. The Major Projects Authority acknowledged this much in 2011:

The Spine, N3 Network, NHSmail, Choose and Book, Secondary Uses Service and Picture Archiving and Communications Service are all business as usual and form essential infrastructure. They represent approximately one third of the £6.4bn total programme expenditure up to 31 March [2011].

(MPA, 2011)

These, however, are not the most important parts of the programme, nor the most expensive (see *value for money*, below). A group of IT experts who challenged government in written evidence to the PAC made clear that the central point of NPfIT, if there was one, was the Local Care Record Systems (Kwo *et al.*, 2007). Despite this, there is a persistent unwillingness among those closest to the project, be they contractor or official, to acknowledge the extent of the problems with delivery of these systems.

## ***CSC***

In 2008, CSC's Deputy Head of Testing emailed his Chief Executive saying, "The project is on a death march where almost as many defects are being introduced as are being fixed" (Bowers, 2011). Despite this, senior executives continued to maintain to investors that Lorenzo was on track. In 2011, having failed to meet deadline after deadline, CSC's representative at a PAC hearing claimed:

[...]I think we are on a track that we still can deliver the programme, and, as my experience has been in the past, this is the point in the programme where we have the base functionality in place, and it will start to pick up through the ensuing developments.

(PAC, 2011)

This was shortly before CSC's own investors sued the company for making misleading statements about progress on the contracts, leading to a \$100m settlement late last year. The spokesperson also implied that payment received for Lorenzo to date had been only £24 million. In fact, a £200 million advance payment had been made to CSC the month before. Despite nine years of work and charging millions of pounds, they could offer only "base functionality". In reality, not even this had been achieved. By June 2013, Lorenzo had been delivered on ten sites (out of a contracted 166), of which seven were running the off the shelf 1.0 version as an interim. Three other sites were running the desired 1.9 version but not with satisfactory functionality. NHS England Chief Tim Donohoe admitted to MPs that at the "key" Morecambe Bay site, this system was working "with the exception of the parts of the software that have not been fully delivered". The first Trust to take Lorenzo was still reporting patient safety risks at the beginning of 2014 (Renaud-Komiya, 2014).



New agreements between CSC and the Department for Health called for funding of £600 million, which included payments to the 22 Trusts who, it was anticipated, would take up the software. These were described as a “bung” by Richard Bacon MP, as although Trusts in the relevant areas could look for other software, additional money would only be on offer to those that took the centrally mandated offering. The Department asked Trusts to demonstrate value for money with a cost/benefit ratio of 2.4 to 1 if they wanted to qualify for the extra cash (PAC, 2013, Q71). It’s unclear how the figure of 2.4 was chosen, but a Trust determined to access this fund has probably not been deterred by the barrier. It also raises, once again, the question of what Government is hoping to achieve by facilitating and paying for the introduction of these systems – whether they are trying to improve the NHS for patients or offer the same quality of care for less money.

## **BT**

By 2010, BT had delivered systems to just five London hospital Trusts, when it had been contracted to provide for all of them by 2005. It had a similar renegotiation of its contract with the Department but while its obligations were massively reduced by no longer having to provide systems for 1,234 GP practices and the London Ambulance Service, only £73 million was knocked off the price of their £1 billion contract (PAC, 2013).

In October 2013, BT was responsible for installing Cerner’s Millennium patient records system for Croydon Health Services NHS Trust. This was hailed as a “success” by its chief executive, although the next month’s board papers reported network downtime, A&E delays, loss of patient data, budget overruns, and loss of income (Davies, 2013). The Health and Social Care Information Centre, the Connecting for Health successor body, had to step in with funding to account for shortfalls and cost overruns, on top of central funding to facilitate the installation in the first place (Collins, 2013a and 2013b).

Both BT and CSC have thus struggled to make their systems work where they are introduced. American researchers looking at the installation of electronic health record systems by both LSPs have found that the Croydon experience is not unique. Hospitals end up incurring significant unexpected costs in training staff, testing the software (due to “inadequate vendor testing”), and lost productivity. Overall, implementation is much slower and more challenging than planners anticipate (Slight *et al.*, 2014). Tony Collins claims that a general attitude has taken hold in which “patients may have to suffer for the benefit of the system in the long term”, and alleges that Cerner has a template document apologising for the disruption caused by the introduction of systems on its sites (Collins interview, 2014).

## **Value for Money**

The Department and NHS England have resolutely stuck to the line that despite the reduced obligations on contractors and continued problems with delivery, the sums being spent might still represent value for money. After being asked more than once, the Department finally delivered a cost benefit analysis last year. The NAO reported on it in June 2013. This showed that after twelve years, the programme looks set to deliver £10.7 billion of benefits compared to £9.8 billion of costs.

The National Infrastructure element of NPfIT will have cost £2.3 billion and delivered expected benefits of £1.6 billion by the end of the project's life (DH, 2013). These parts account for a relatively small proportion of the total benefits of the programme overall and are not cost effective in their own right. The national infrastructure and applications' anticipated benefits are the ones the Department is most certain of achieving because most of them have been delivered already, whereas the regional programmes remain far from delivering any of their anticipated benefits (NAO, 2013). Our point here is that the success or failure of the national elements cannot be used as the measure of NPfIT's success, though this is something those closest to the programme try to hide behind.

For the South Programme for IT, and the London Programme (plus the Electronic Prescription Service and Summary Care Record), 98 per cent of the anticipated benefits were yet to have materialised in 2013. In the North, Midlands and East Programme for IT the figure was 86 per cent. Together, these account for the majority of the £7 billion of the anticipated benefits that are yet to be delivered, and as noted above, these roll outs are proving extraordinarily difficult to achieve. On top of this, the £9.8 billion figure excludes future costs for Lorenzo and the cost of any ending to the dispute with Fujitsu.

For these reasons, the NAO concludes there is “very considerable uncertainty” and “considerable potential risks to the realisation of future benefits” (NAO, 2013), a warning that has been borne out by the recent experiences of installing the systems. Any realistic assessment does not suggest that the programme will show itself to have been value for money. *Figure 4* tries to explain the point by visualising the relative sizes and benefits, both expected and actual, for each part of the programme.

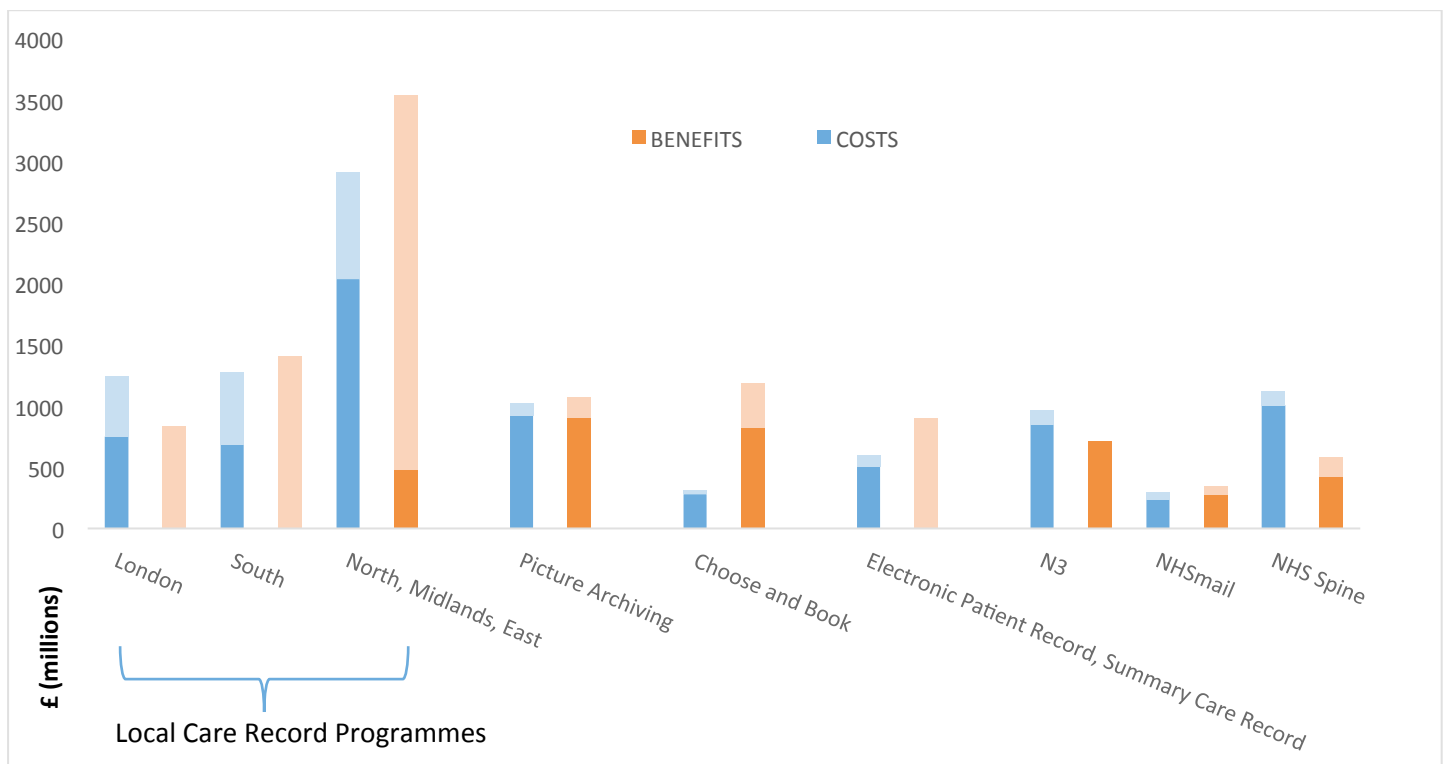
Why would the Department conclude that it has secured “a good deal for the taxpayer”, as a senior official claimed in a Public Accounts Committee evidence session last year? One of the factors muddying this question is that there was no comprehensive baseline established at the outset of the programme against which progress could be compared. The baseline officials are comparing against is what would have happened without contract renegotiations. The feeling among those currently in charge appears to be that they are doing quite well given the mess they started with. However, no-one has seriously claimed that this is what they would wish for had the slate been wiped clean. The programme has certainly not been value for money compared to the much cheaper and much less complex programme that should have been implemented, which was the creation of common standards and support for Trusts to produce their own systems, though it is impossible to know how much would have been saved had this been the chosen path.

The continued pursuit of the now dismantled programme begs another question – why not simply walk away from the contracts? The answer is that it is not possible. After investing many millions of pounds, suppliers were obliged to realise the expected value of the programme. The Department tried terminating Fujitsu's contract (though what happened is variously described as a “termination” or a “withdrawal”, depending on who is asked). They later explained:

When we cancelled the contract with Fujitsu, the advice we were given at the time was that everything would be fine. But of course several years later we are still involved in legal details.

(PAC, 2013)

Contractors accused of contractual breaches are incentivised to counter-sue and recover as much of their costs (and perhaps some of the value of the contract) as they can. The cost of lawyers alone has exceeded £30m and that's before the cost of any settlement (PAC, 2013). With such complex contracts, it was not a surprise to discover that the Department had undermined its negotiating position by failing to meet some of its own contractual obligations, most notably the obligation to provide Trusts that would be willing to buy the systems. The Department could thus only negotiate weak settlements with CSC and BT. This was tantamount to paying a similar amount for less, and was contrary to the obvious political desire to scrap the whole thing.



**Figure 4.** Data taken from DH, 2013.

*This chart compares costs and benefits for each aspect of the programme. Blue columns represent costs, orange columns represent benefits. The dark lower halves of the columns represent actual costs or benefits as they stood in March 2012. The light upper parts represent further anticipated costs or benefits that were to accrue over the life of the components.*

*Those overseeing the programme have pointed to national infrastructure and applications (picture archiving and everything else to the right of the chart) as evidence that the programme has been relatively successful. While there have undoubtedly been benefits, much of it has been relatively modest compared to that expected from the programme as a whole, and even then in some cases the benefits have failed to match cost. This is especially true for the Summary Care Records, which was another high profile element of NPfIT that failed to deliver.*

*£6.4 billion of the £9.7 billion overall cost is tied up in the Local Care Records Systems (the London, South, North, Midlands, and East programmes). Here, very high costs have already been accrued for almost no benefits. The costs analysis presented here does not take into account money that has been or will be spent settling with Fujitsu or future costs that may be associated with the deployment of Lorenzo. It does not take into account the cost burden experienced by Trusts which were left with poor functioning systems due to delays. The chart does not take into account the benefits that might have accrued if functional systems had been delivered to the 150-plus Trusts that were originally meant to receive them. The anticipated benefits are very soft. They depend on further roll outs which are far from guaranteed.*

*We should acknowledge the warnings we heard from some quarters that these figures are not as reliable as their specificity would suggest. But we do believe they help convey one of the key criticisms of NPfIT. Its success or failure was not about the Spine, Choose and Book, or the Summary Care Record. The real potential of NPfIT, and its costs, was in the local care records for which there was proven need. Compared to what might have been, the programme has been a costly – even abject - failure.*

## ***Conclusion***

The opening chapter listed a whole series of IT failures and reports based on those failures. It made clear through its examples that the causes of IT project failure were well understood when NPfIT was set in motion. NPfIT's story contains many well-worn themes, which we can group into three broad categories:

### **Haste**

- An unrealistic timetable
- No time to engage with users and privacy campaigners
- Inadequate preliminary work
- Failure to check progress against expectations
- Failure to test systems

### **Design**

- Failure to recognise the risks or limitations of big IT projects
- Failure to recognise that the longer the project takes, the more likely it is to be overtaken by new technology
- Sheer ambition
- The project is too large for the leadership to manage competently
- Confidentiality issues

### **Culture and Skills**

- A lack of clear leadership
- Not knowing, or continually changing, the aim of the project
- Not committing necessary budget from the outset
- Not providing training
- A lack of concern for privacy issues
- No exit plans and no alternatives
- Lack of project management skills
- Treasury emphasis on price over quality
- IT suppliers depend on lowballing for contracts and charge heavily for variations to poorly written specifications

All of these issues can be identified to varying extent in the story of NPfIT and they have been repeated in government projects since. We acknowledge that many of these problems interact. For instance, politicians inexperienced in the creation of complex systems allow their political ambitions to influence their desire to create large projects that can be completed in the life of a single Parliament. This is, all at once, a problem of haste, design, skills and culture.

### ***Would it happen again today?***

There has been a major overhaul in government procurement policy since NPfIT was initiated. Recently, the Government Chief Procurement Officer railed against the IT "oligopoly", citing the example of a department buying a new computer cable (BBC, 2013).

The far reaching, comprehensive contract that had been signed with the supplier required the new cable to come from them only. It cost £65 despite having a retail value of £20. One industry figure commented, “The main thing that surprises me about this statement is that someone from inside government has been prepared to openly go on record about it.”

Clearly, government has become leery of being lured into such captive relationships. Since February last year, the government has adopted a policy of “buying and managing government goods and services more efficiently and effectively”, part of which aims to “make sure that small and medium-sized enterprises (SMEs) have access to government contract opportunities” and also includes the formation of a Crown Commercial Service to consolidate procurement knowledge within government (Cabinet Office, 2013). To date, lead in times for all forms of procurement have fallen from an average of 200 days to fewer than 100 (Cabinet Office, 2011; Government Procurement Service, 2012). The Cabinet Secretary has also announced his “red lines” for IT purchases. These include:

- no IT contract over £100 million in value will be allowed unless there is an exceptional reason to do so. Smaller contracts mean competition from the widest possible range of suppliers
- companies with a contract for service provision will not be allowed to provide system integration in the same part of government
- there will be no automatic contract extensions and no existing contracts will be extended unless there is a compelling case
- new hosting contracts will not last for more than 2 years

(Cabinet Office, 2014)

There are challenges in breaking up contracts, as government will have to co-ordinate multiple suppliers. But as one of our interviewees pointed out, it’s not as though the private sector has been doing a good job at this to date. Smaller contracts also means government will be able to follow through on its promise to open up access to contracts to SMEs. Perhaps more public money will start flowing to the small scale health IT providers that were so badly hit when central government imposed its own solutions.

There has also been the news that an open-source database will be used to rebuild the Spine, part of a general push to use more open-source technology in government. This is a positive step for government, which thought being risk averse meant signing long term contracts with high profile companies, only to make itself captive to proprietary technologies and liable to enormous long term costs (Baldwin, 2013).

A long term, aggregated, disjointed, multi-billion pound monster like NPfIT could never fit inside the newly defined red lines. Smaller programmes mean less complexity, less time, and lower costs. This addresses two of our criticisms, regarding design and haste. We cannot say, however, that these reforms will be enough on their own to prevent NPfIT style disasters. There are skill deficits in government and serious cultural issues in both government and its suppliers.

For one thing, the end of big IT contracts and emphasis on procuring from SMEs does not mean an end to big company involvement. Even while in legal dispute with Fujitsu, government was signing new deals for IT services with them (HC Deb. (2013-14) 573, col. 609W). The major supplier habit is one that will be hard to break. There are also clear signs that whatever the intentions of government, big companies are strategising to maintain their privileged positions. Fujitsu recently published research entitled “Collaboration Nation” (2014) which claimed that just 6% of SMEs felt Government contracts had become easier to access and that a majority of SMEs want to partner with bigger companies on major contracts - presumably they mean companies like Fujitsu.

Another problem is that government is already supposed to have methods for keeping projects on the straight and narrow but the culture of political expediency can overwhelm them. There are supposed to be risk assessments before major projects are initiated. As Bacon has pointed out, NPfIT’s were created and then expunged or ignored (PAC, 2011, Q145). There are supposed to be senior responsible owners to ensure continuity of leadership and accountability. NPfIT had any number of leaders, some of whom lasted for only a matter of months. Creating new paperwork or processes is no guarantee of change.

The latest push to improve has come from the Cabinet Office but other Departments do not seem to appreciate the interference, reflecting a deeply engrained protectiveness and the siloed nature of government. The Government Digital Service, although lauded for its success to date, is yet to prove that it can bring modern, “agile” IT project management methods to bear on major public initiatives, or that it can successfully overcome Departments’ efforts to block them from intervening.

There are also major problems that these plans simply cannot address: lawyers, officials and negotiators in industry who are better co-ordinated and better incentivised than their government counterparts; the skills deficit among the ministers and officials who initiate and manage such projects; civil servant rotation, which aggravates skills deficits, breaks up continuity of leadership and lines of responsibility, and causes a lack of institutional memory; ministerial activism, driven by a desire to be noticed and promoted; an electoral cycle that demands results within the life of a Parliament; even the very system of departmental government itself (Bacon and Hope, 2013; King and Crewe, 2013).

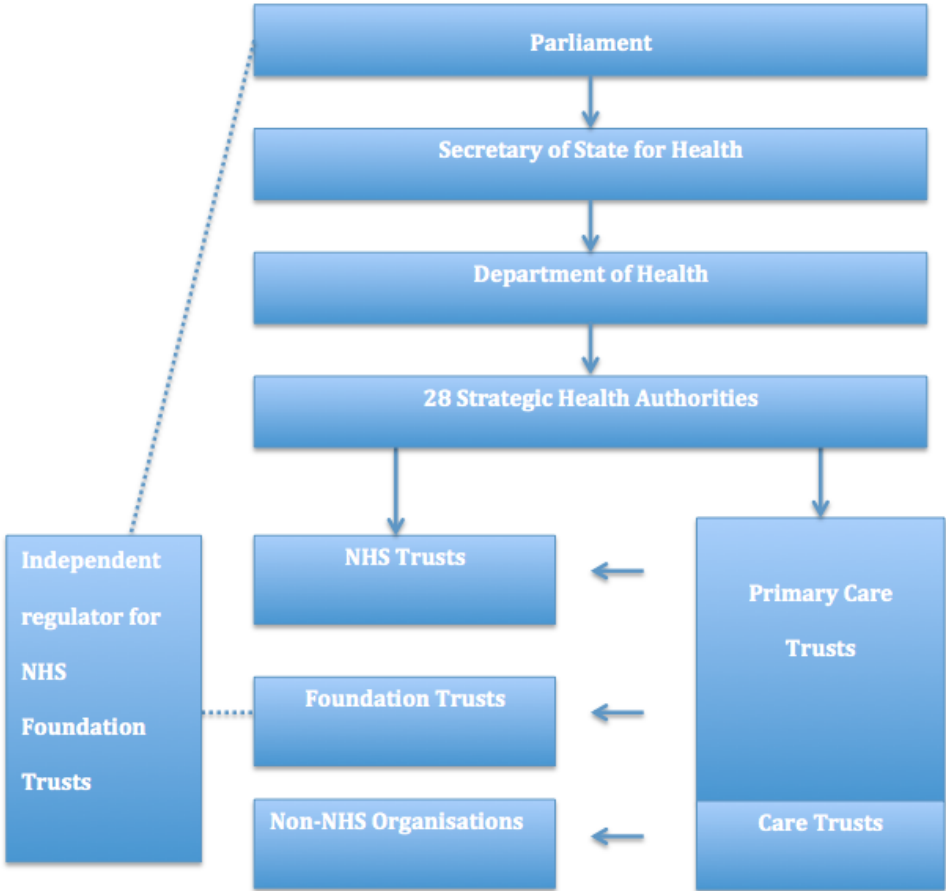
In short, there’s not yet any failsafe way of stopping a new senior minister with a strong personality, a big mandate, campaign promises, short deadlines, and no experience of major IT systems from sweeping all before them and initiating yet another disaster. Producing a solution to this is tricky. Tony Collins glibly suggests that as “politicians want to be immortalised by their actions”, instead of letting them launch ill-advised IT projects, “it would be much cheaper to just build them a statue” (Collins, 2014).

One senior civil servant we spoke to acknowledged that, given many ministers have never run anything like a government department before, it is too much to expect them to know the challenges inherent to IT procurement. In this person's view, the burden lies on officials to stand in the way of politicians' ambitions:

If a senior official lets a politician dictate such a situation, it will end with poor results. The fault lies with the official. That is poor service. The minister is probably not an expert in a subject such as IT. If Tony Blair demanded it today, and I yield, then more fool me. I should be articulate in giving advice.

“Speak truth to power” is a phrase that has become associated with the cause of civil service reform (Maude, 2013, and Public Administration Committee, 2013). We look forward to the day when officials in all departments are willing and able to better address policies that entail IT procurement. We put equal emphasis on both willingness and ability. We put emphasis on the development of those at every level of the civil service, be they advising on policy or implementing it. We identify this as the key remaining challenge, though how to address it is beyond the scope of this project.

**Appendix 1**



Structure of NHS in 2002, (adapted from Brennan, 2005, p.24, Figure 3.1)



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