

**The 1992 and 1998
Information
Management &
Technology
Strategies of the
NHS Executive**



Contents

Executive summary	1
<hr/>	
Part 1: Background	9
Information management and technology in healthcare	9
The 1992 NHS Information Management and Technology Strategy	9
The 1998 NHS Information Management and Technology Strategy	15
Reasons for examining the 1992 and 1998 Information Management and Technology Strategies	15
Report aims, scope and methodology	17
<hr/>	
Part 2: The design of the 1992 Strategy	19
Identification of a vision and principles for developing NHS information management and technology	19
Assessment of development needs	20
The setting of objectives	20
The selection and co-ordination of projects	22
Justification of the overall proposed expenditure	23
Justification of individual projects	24
Content and quality of project business cases	25
Financial analyses	26
Risk and sensitivity analyses	27
Proposals for project monitoring and post project evaluation	27
Lessons for the design of an information management and technology strategy	27
<hr/>	
Part 3: The implementation of the 1992 Strategy	29
Communication of the 1992 Strategy's objectives to the NHS	29
Co-ordination of the implementation of the constituent projects	29
Provision of support to the NHS to help implement the Strategy	31
Monitoring the implementation and completion of the Strategy	32
Monitoring of expenditure on the Strategy	36
Lessons for improved implementation	37

Part 4: The impact of the 1992 Strategy	38
Evaluation of the Strategy	38
Contribution to the development of NHS information management and technology	39
The Strategy's contribution to improved NHS communication and patient care	40
Lessons on increasing impact	42
Part 5: The 1998 Strategy	43
Information for Health – An Information Strategy for the Modern NHS 1998-2005	43
Improving the coherence of the Strategy by setting overall objectives	44
Taking local circumstances into account in the setting of milestones for local progress	45
Planning implementation more thoroughly, giving particular attention to interrelated projects	45
Developing complete business cases for all projects and for the overall Strategy	46
Better use of the experience and expertise of local NHS information management and technology staff	47
Developing effective means to communicate changes in the Strategy to the NHS	48
Linking training and support to specific Strategy projects	48
Thoroughly monitoring expenditure on the Strategy	48
Ensuring projects are independently evaluated and findings disseminated to the NHS	49
Providing practical advice on the development of information systems for community services	49
Increasing the use of the NHSnet, especially by general practitioners and community health trusts	50
Summary of progress made and the scope for further improvements	50
Appendices	
A: Study methodology	53
B: Projects included in the 1992 Strategy	56
C: Analysis of the objectives of the 1992 Strategy's six main projects and programmes	58
D: The impacts, and the problems that reduce the impacts, of the projects and programmes examined	63
E: An overview of the 1998 Strategy	68
Glossary of terms	69
Bibliography	72

Executive summary

Information management and technology in the NHS

1 Information management and technology (IM&T) concerns the design and operation of systems – computer based and manual – for handling information needed by an organisation. The National Health Service needs information, ranging from patients’ addresses to the results of the trials of new treatments, in order to provide appropriate care to patients. Each year the Service spends some £400 million on developing, acquiring and maintaining computer systems to handle such information.

2 In 1992, the NHS Management Executive launched its Information Management and Technology Strategy, *Getting better with information*, to “ensure that information and information technology are managed as the significant resources they are, and that they are managed for the benefit of individual patient care as well as for the population as a whole”. We estimate that the NHS Executive spent £152 million on the 1992 Strategy. This estimate excludes expenditure in the wider NHS.

3 In 1998, the NHS Executive launched a revised strategy. While it is not possible to forecast precisely what it will cost to implement the new strategy, the Government expects to support implementation with investment in excess of £1 billion.

Report scope

4 Our examination considered whether the NHS Executive’s design and implementation of the 1992 Strategy were likely to help the effective development of NHS information management and technology. In order to do this, we interviewed information management and technology staff at 20 NHS organisations, and interviewed staff and examined relevant documents at the NHS Executive’s headquarters. We concentrated on the implementation of six main projects and programmes within the Strategy (see Box 1). These projects account for £77 million, or some 80 per cent, of NHS Executive expenditure on the Strategy, excluding the expenditure on the Hospital Information Support Systems and Read Codes projects, covered separately by our reports in 1996 and 1998 (Bibliography 1 and 2).

5 During our examination, the NHS Executive developed a new information management and technology strategy, *Information for Health*. We have therefore examined how well the Strategy, launched in September 1998, has addressed the issues arising from our examination of the 1992 Strategy. And we make recommendations to help ensure that the substantial planned investment is effective.

Box 1 The six main projects and programmes examined

Infrastructure projects

The New NHS Number aimed to provide every NHS patient with a new unique identification number to allow easier retrieval of patient records and is important for the development of electronic patient records.

NHS Administrative Registers hold details of individual patients, such as name, address, date of birth, GP, etc. These are needed for many administrative activities, such as drawing up service agreements for patient care.

NHS-Wide Networking has three parts: establishing a secure electronic network (NHSnet) that NHS organisations can use to exchange information; improving NHS telephone systems; and expanding the use of radio mobile communications in, for example, ambulances.

GP-Health Authority Links allow electronic transfer of certain administrative information between health authorities and GPs.

Programmes

IM&T Training Strategy aims to stimulate, guide, and support training at the local level. The delivery of training is a local responsibility.

Community Information Systems for Providers comprises projects designed to identify community information needs for patient care and contracting, and to disseminate good practice, and demonstrator systems to address issues, such as links between systems.

Main findings on the design of the 1992 and 1998 Strategies

6 In designing the **1992 Strategy** in the early 1990s, the NHS Executive successfully identified a vision, and a set of basic principles for the development of NHS information management and technology. These principles addressed the need to provide information about patients so as to enable the NHS to provide better healthcare. The majority of NHS bodies we consulted regarded the Strategy as useful because it addressed this need.

7 In the **1992 Strategy**, the NHS Executive did not, however, fully address certain key aspects of information management and technology development among NHS bodies, such as skill levels. It also did not translate its vision and basic principles into a single set of specific, measurable, achievable, relevant and time-related (SMART) objectives for the whole Strategy. The NHS Executive told us that it decided quite consciously not to do so on the basis that ‘SMART’ objectives were inappropriate for a strategy document, and that Treasury guidance on the matter supported this view. We found that while all the objectives set for the six main projects and programmes were relevant, many were not specific, measurable or time-related. The NHS Executive did not consider how all the projects related to each other and, overall, the Strategy lacked coherence.

8 The **1998 Strategy** addresses the problem of coherence by containing a single set of objectives. These are relevant and time-related but not specific or fully measurable. The NHS Executive did not make these objectives specific or fully measurable because it considered these attributes irrelevant for a strategy document. The importance of achieving certain detailed targets is not as clear as it might be because they are not explicitly linked to the objectives.

9 HM Treasury guidance did not require the NHS Executive to prepare an overall business case for the **1992 Strategy**. But we consider that such a business case would have been useful in demonstrating the value to NHS bodies of participating in all the projects and would have complied more closely with Treasury good practice guidance, though the NHS Executive disputes this interpretation of the guidance. The NHS Executive did, as required, prepare business cases for the four infrastructure projects we examined. These business cases suffered from some weakness in their financial analyses, such as inadequate comparisons of the costs and benefits of alternative options, and from a lack of proposals for project monitoring and evaluation. The expenditure on these projects was therefore not as rigorously justified, and the proposals for monitoring and evaluation were not as comprehensive, as they should have been.

10 The **1998 Strategy** also has no full business case. Although the NHS Executive drafted an outline case for electronic patient records – the cornerstone of the Strategy, HM Treasury realised that the Executive could not realistically develop a full overall business case and meet the Government’s commitment to publish a new information management and technology strategy in 1998. Treasury therefore insisted on three steps: first, that there should be external expert review of the Strategy; second, that the Executive should prepare individual project business cases on the components of the strategy, and third, that the Executive recognises and manages the links between individual elements by

developing a project management framework. We consider that this approach suffers from the weakness of not demonstrating the interdependencies of the Strategy's individual elements.

Main findings on the implementation of the 1992 Strategy and the plans to implement the 1998 Strategy

11 The NHS Executive effectively communicated the **1992 Strategy's** vision to the NHS. But although the Executive's strategy documents included milestones for most of the constituent projects, NHS bodies were not always clear about the purpose of the projects. Its sequencing of the implementation of the projects adversely affected their impact.

12 In order to thoroughly plan the implementation of the **1998 Strategy**, the NHS Executive is developing a programme management framework that identifies essential tasks, the order of those tasks, their timing and necessary resources, and the parties involved in their execution.

13 The NHS Executive successfully intervened to give central direction to elements of the **1992 Strategy** when it discovered that its original approach of allowing individual NHS bodies to determine their own pace of implementation on the basis of local financial circumstances was leading to slow progress. But the majority of NHS bodies we visited would have welcomed more practical guidance on implementation. The NHS Executive considers that the lack of earmarked funds for information management and technology developments was among the main reasons for NHS bodies' criticisms of the levels of the NHS Executive support.

14 For the **1998 Strategy**, the NHS Executive proposes to provide more practical help in implementation by making better use of the experience and expertise of local NHS information management and technology staff. This will be done by pooling such staff across combinations of local NHS organisations. The Executive also proposes to fund the development and use of key infrastructure projects centrally in order to accelerate the rate of local developments.

15 The NHS Executive has monitored the implementation of constituent projects in terms of the progress made towards milestones it set in 1992 and subsequently revised following formal review. The original milestones for three of the four infrastructure projects were not met and although most revised milestones were met, some key ones, such as the connection of general practitioners to the NHSnet are scheduled to be met in the future. No overall milestones were set for the two ongoing programmes. The NHS Executive told us

that this was because they were to be run on an annual renewable basis at a level dependent on the financial priorities at the time. For the same reason, the NHS Executive did not set out the overall expected expenditure on the **1992 Strategy**, or for all its constituent projects. Annual budgets and expenditure for all elements of the Strategy were reviewed each year.

16 The **1998 Strategy** also has no lifetime expenditure plans, as the Executive believed there was no purpose in setting such plans. In our view, this will make it difficult for the Executive to monitor expenditure. The work on the programme management framework should, however, help produce expenditure plans as a basis for more effective monitoring.

Main findings on the impact of the 1992 Strategy and on increasing the impact of the 1998 Strategy

17 The NHS Executive has not evaluated the implementation of the NHS Number and NHS-Wide Networking projects. The NHS Executive expects evaluation work on the **1998 Strategy** to be done within the NHS, but has not yet made clear what evaluation plans it has overall. The NHS Executive intends to issue more detailed guidance on evaluation in 1999.

18 The **1992 Strategy** has given NHS managers a greater understanding of the importance of information management and technology in delivering patient services. This has led to information technology developments being more closely matched to the needs of NHS bodies. But the two programmes aimed at facilitating and enabling development – the Training and Community Information Systems for Providers programmes (Box 1) – had their impacts limited by design weaknesses and communication problems. And the four infrastructure projects had their impacts reduced or deferred for a variety of reasons, especially inadequate co-ordination with other projects.

19 The NHS Executive expects new liaison arrangements (the New National Information Partnerships) to provide better communication about the **1998 Strategy** in the NHS. And it expects work on developing a programme management framework to provide better co-ordination of projects. The new Strategy also includes measures to increase the impact of specific projects. For example, to encourage the use of NHSnet, the NHS Executive proposes to meet connection and usage charges centrally.

Overall conclusions

20 The NHS Executive effectively communicated a useful vision and set of principles for the development of NHS information management and technology when it launched the **1992 Strategy**. But the design of the Strategy was unsatisfactory and its impact was undermined by certain shortcomings in its implementation:

- we consider that a lack of overall objectives for the Strategy contributed to a lack of direction in the implementation of the Strategy;
- business cases contained most aspects expected, but were not always complete in terms of specific, measurable and time-related objectives, and in terms of financial analysis and proposals for monitoring and evaluation;
- a statement of how each project in the Strategy depended on, or enabled, other projects would in our view have been useful in planning and implementing the overall strategy. Some NHS bodies thought the sequencing of projects adversely affected their impact and were not always clear about their purposes;
- a national lead – local implementation approach allowed NHS bodies to interpret and incorporate national policies into local strategies, but specific funds were not earmarked for information and technology at the local level. As information management and technology developments had to compete with other expenditure proposals, many of which may have seemed more pressing, some bodies could not, or would not, justify implementing projects by expected savings and benefits.

21 The **1998 Strategy** represents an improvement in design in several important respects. The inclusion of overall objectives provides greater coherence and a better starting point for assessing success. The development of agreed local implementation plans should also help. But we consider that the Strategy's objectives and targets should be made specific and measurable if they are to be useful for monitoring and co-ordinating progress.

22 The NHS Executive's development of a programme management framework, which identifies essential tasks, their timing, resources implications and the parties involved, is essential work. This will enable the Executive to co-ordinate the constituent projects and may overcome some of the drawbacks of not producing an overall business case.

23 The NHS Executive's new Strategy contains proposals for improving the use of NHS information management and technology staff, improving communication about the Strategy throughout the NHS, and increasing use of the New NHS Number and the NHSnet.

24 The NHS Executive expects evaluation to be done and has issued general guidance to this effect. It is encouraging that the Executive has taken notice of a weakness with the original Strategy – its lack of overall evaluation. Given the scale of the expenditure on the new Strategy, it will be important for evaluation plans to be developed and implemented in good time to ensure that any emerging problems are identified as soon as possible, and to assess whether value for money is being achieved as expected.

Recommendations

25 We believe that existing progress made with the **1998 Strategy** needs to be supplemented by the following additional work to help ensure success. The NHS Executive should:

- develop operational versions of the objectives and targets of the Strategy, making clear what will be measured, and devise means of measuring in order to assess whether they have been achieved;
- take care when preparing business cases for individual components of the Strategy to ensure that interdependencies are taken fully into account and to avoid problems such as the double counting of benefits;
- continue its work on the development of the programme management framework for the new Strategy as a matter of priority. It should also ensure that this work leads to the production of expenditure plans for the life of the Strategy so as to provide a meaningful basis for monitoring expenditure, although we note the NHS Executive's reservations;

- summarise the results of the programme management framework in a diagrammatic form for dissemination throughout the NHS so as to provide the NHS with an overview of what the Strategy involves, when the various components are to be put in place, and what resources will need to be applied;
- monitor expenditure and progress against the objectives, targets and expenditure plans over the lifetime of the Strategy;
- produce clearer plans for the evaluation of the Strategy.

Part 1: Background

Information management and technology in healthcare

1.1 Information management and technology is the design and operation of systems – computer based and manual – for handling information needed by an organisation. The National Health Service needs information, ranging from patients’ addresses to the results of the trials of new treatments, in order to provide appropriate care to patients. Each year the Service spends some £400 million on developing, acquiring and maintaining computer systems to handle the information it needs. The Audit Commission has estimated, using a combination of structured interviews with clinical staff and literature review, that collecting data and using information (Bibliography 3 and 4) account for some 15 per cent of the costs of health service organisations, such as acute hospitals and community trusts. The NHS Executive has concerns about the reliability of this estimate but agrees that information management and technology is important to the operation of the NHS.

1.2 During the 1990s, there were major changes which increased the need for, and communication of, information in the NHS. The separation of the tasks of commissioning and providing healthcare between health authorities and commissioning general practitioners on the one hand, and trusts on the other, created the need for contracting information. The increasing transfer of care into the community increased the need for healthcare professionals working in different locations, such as general practitioners and district nurses, to communicate information about their patients. And the increased emphasis on clinical effectiveness requires the gathering and analysis of information about interventions and their effects on patients.

The 1992 NHS Information Management and Technology Strategy

1.3 In 1992, the then NHS Management Executive launched the Information Management and Technology Strategy to “ensure that information and information technology are managed as the significant resources they are, and that they are managed for the benefit of individual patient care as well as for the population as a whole”. The Strategy covered all aspects of the NHS in England, including purchasers and providers, and clinicians and managers. Although the NHS Executive intended it to involve the communication of all forms of information, its emphasis was on making the best use of computer systems.

Figure 1 summarises the conceptual components of the Strategy and the roles of the NHS bodies involved, and Figure 2 outlines the infrastructure and supporting programmes.

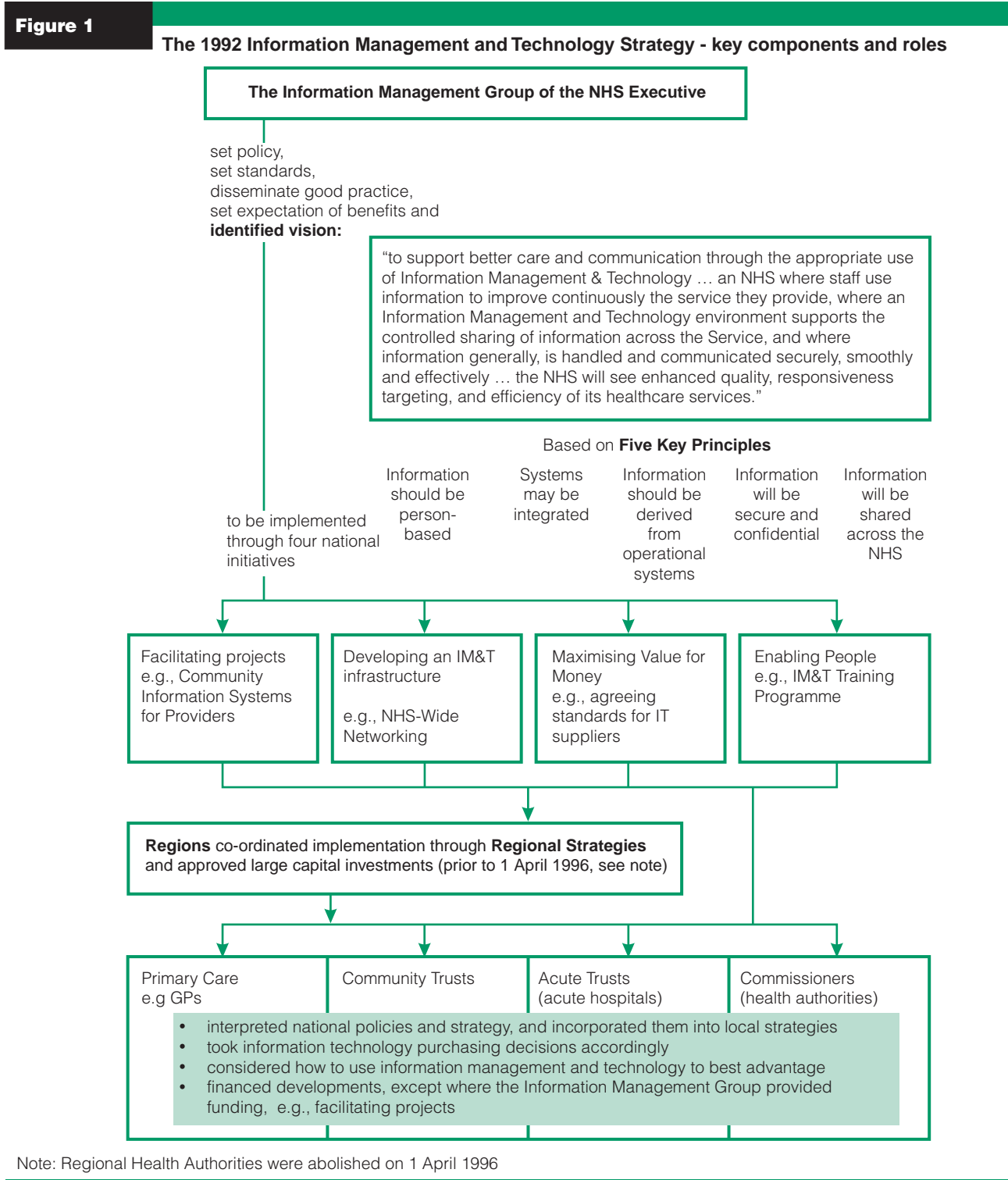
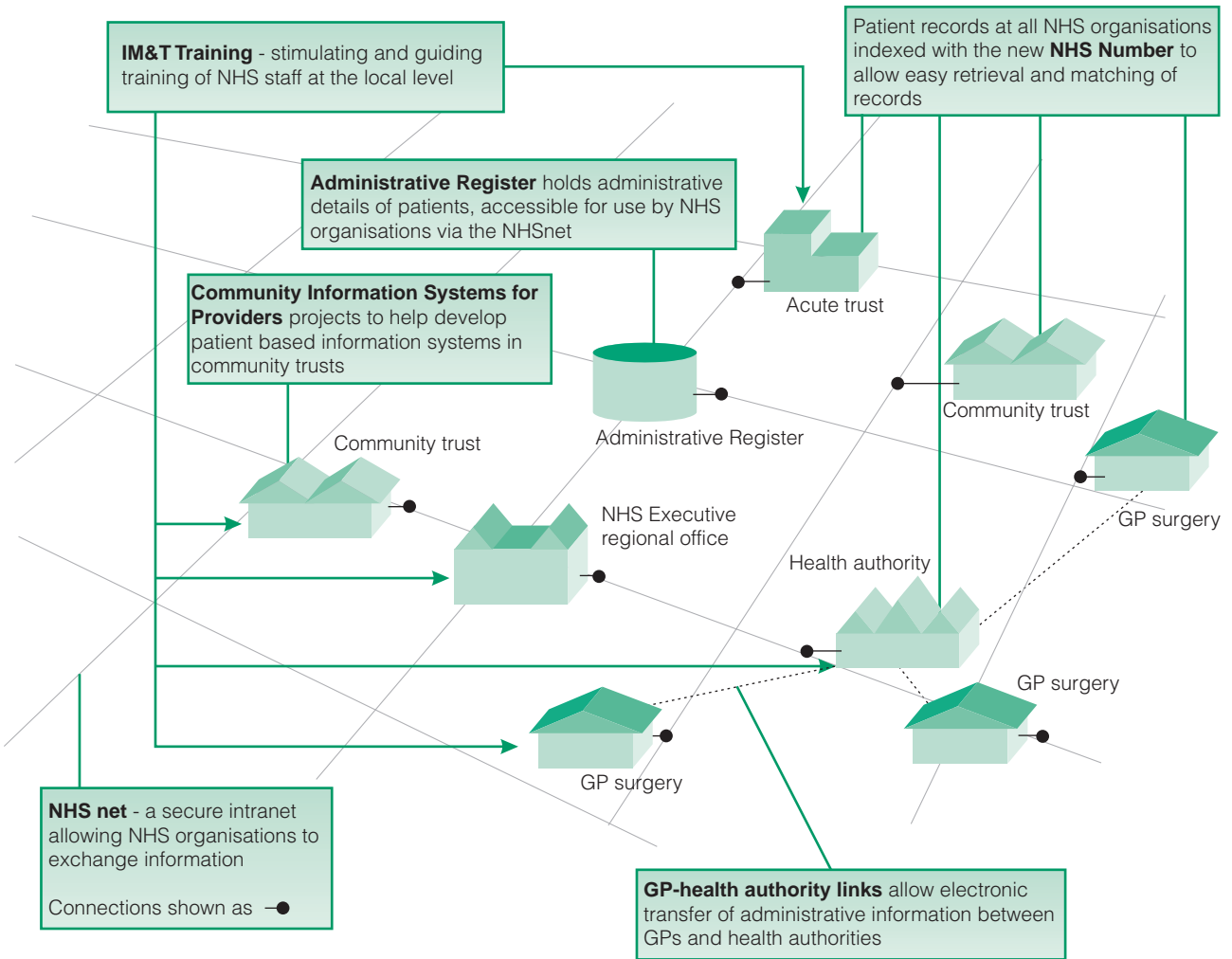


Figure 2 Outline of key infrastructure and supporting programmes of the 1992 Information Management & Technology Strategy



1.4 The Strategy set five key principles for the development of information management and technology across all sectors of the health service (Bibliography 5). These are summarised in Box 2.

Box 2 The 1992 Strategy's five key principles for the development of information management and technology in the NHS

Information will be person-based

Requires systems that hold records for individuals, such as computer databases and card indexes, to be cross-referenced to personal NHS numbers. This principle helps different parts of the NHS to co-ordinate the care they provide to patients and so helps patients to be treated conveniently and in a dignified manner.

Systems may be integrated

Requires that, wherever practical, data entered into an NHS computer is accessible by other appropriate NHS systems. This avoids resources being wasted on data being entered into NHS computer systems more than once.

Information will be derived from operational systems

Stipulates administrators and managers obtain the information they require from systems that are used by healthcare staff in their day to day work rather than requiring additional work and separate systems.

Information will be secure and confidential

Requires information held on computer to be available only to those who need to know it and are authorised to know it.

Information will be shared across the NHS

Provides that common standards and NHS-Wide Networking allow computers to share information, subject to confidentiality safeguards. This allows information to be used more than once, so more benefit is derived from it, and helps services to be developed and co-ordinated.

1.5 The NHS Executive formed four initiatives, from existing and new projects and programmes, to help put the Strategy's principles into practice. These are detailed in Box 3 and an example is given in Case Study 1.

Box 3 The 1992 Strategy's four initiatives

National facilitating projects

Designed "to understand the issues involved in developing particular information systems and to disseminate findings throughout the NHS".

Developing an IM&T infrastructure

Several nationally-led projects, such as NHS-Wide Networking, which aim to facilitate the sharing of information throughout the NHS.

Maximising value for money

Helping the NHS obtain maximum benefit from information management and technology investments by providing guidance on user requirements, assisting local procurement and setting standards with which suppliers must comply.

Enabling people

Aims to help NHS staff to manage information better through the use of information technology, mainly through education and training.

Case Study 1

Developing IM&T in general practices

East Riding GP Practices

Problem: In 1995, East Riding Health Authority recognised that information management and technology was underdeveloped in many of the GP practices within its area.

Action: The Health Authority sought advice from the Enabling People Programme's regional adviser and used the Programme's Practice Development Toolkit to run workshops with five practices to identify their IM&T maturity and the best way they could develop.

Outcome: The workshops not only identified means of improving the IM&T of the practices but also underlying organisational development needs, such as the clarification of staff roles. These results were then used in 12 practices to bring about improvements, including:

- Streamlining and automating elements of repeat prescribing so that most requests are dealt with in 24 hours rather than 48;
 - Computerisation of practice financial records, so reducing accountancy costs;
 - Abolishing dual appointment systems, allowing staff time to be used to improve patients' records.
-

1.6 The NHS Executive intended these initiatives to provide a focus for a number of separate initiatives funded, wholly or partially, by its Information Management Group (see Box 4). The Strategy initially consisted of 21 projects run by the Information Management Group (Bibliography 6), though this number increased to some 40 projects. Some of the original projects have been completed, while others were superseded or discontinued (see Appendix B).

Box 4 The Information Management Group

The Information Management Group (IMG) is part of the NHS Executive. In 1992, when the Strategy was launched, it comprised approximately 200 civil servants and NHS-based staff and employed a further 100 whole time equivalent contractors and consultants. Its annual budget was some £42 million, but this has now reduced to some £30 million.

The Information Management Group's aim is to improve the ability of the NHS to harness and benefit from the management of information and the use of information technology. In order to do this the Information Management Group seeks to work with other parts of the NHS Executive and the wider Department of Health to identify and secure the information technology implications of national policy initiatives.

1.7 To gain an understanding of the implementation of the 1992 Strategy requires an appreciation of the consequences of the changes to the NHS during the early 1990s. These led to a service whose bodies had considerable autonomy and independence from central direction. The Information Management Group did not have a remit to require NHS bodies to take action, although it sought to exert influence by means of guidance. The progress and performance of health authorities was reviewed by regional health authorities – and from 1996 by the regional offices of the NHS Executive – but trusts were not held directly accountable for their information management and technology arrangements. Health authorities could also exert influence on trusts through their contracts for health services but negotiations tended to concentrate on the costs and volumes of services rather than the means of delivering these, including information management and technology aspects. General practitioners are independent contractors and had no contractual obligation to participate in the Strategy.

1.8 Most implementation work in health authorities, trusts and general practices, was not financed by earmarked funds but rather from general allocations and, for general practitioners, from their normal NHS pay and expenses. As a matter of policy the NHS Executive generally avoided involvement in the information management and technology investment decisions of NHS bodies in order to allow the internal NHS market to function freely. Such investments were therefore one more call on the totality of funds available to individual NHS bodies and to the service as a whole.

1.9 Not all the activity of the Information Management Group was directed towards the Strategy. We estimate that in developing and implementing the Strategy, the Group has spent some £152 million between December 1992 and March 1998. This excludes the additional costs incurred by the NHS in implementing the Strategy.

The 1998 NHS Information Management and Technology Strategy

1.10 In 1997 and 1998, the NHS Executive reviewed the progress of the 1992 Strategy and examined how useful it was in contributing to the development of the NHS in the light of *The New NHS* white paper (Bibliography 7). As a result of this work, the NHS Executive decided to launch a new information management and technology strategy: *Information for Health - An information Strategy for the Modern NHS 1998-2005* (Bibliography 8). This builds upon the 1992 Strategy but has a long-term focus on the development and use of Electronic Patient Records. It also has a short-term emphasis on ensuring NHS computer systems are “millennium compliant” – that they recognise years as a whole, not just the last two digits, and so are able to function properly in the year 2000 and beyond. In view of the recommendations we made in our report *Managing the Millennium Threat II* (HC 724, Session 1997-98) (Bibliography 9), we welcome this emphasis. While the full costs of the new Strategy are unclear, the Government expects to support implementation with investment in excess of £1 billion. Figure 3 overleaf, outlines the 1998 Strategy.

Reasons for examining the 1992 and 1998 Information Management and Technology Strategies

1.11 We examined the implementation of the 1992 and 1998 information management and technology strategies because:

- there has been a high level of public expenditure so far on the 1992 Strategy – some £152 million by the Information Management Group alone;
- the importance of information in the delivery of healthcare is growing, as is the contribution that a national strategy could make;
- the findings of this report are aimed at informing the implementation of the new (1998) Information Management And Technology Strategy;

- our examination complements our work on the Wessex Regional Health Authority regional information systems plan, the Hospital Information Support Systems initiative and the NHS Centre for Coding and Classification and the Read Codes project (Bibliography 1, 2, 10, 11 and 12).

Report aims, scope and methodology

1.12 Our report reviews the progress of the 1992 Strategy from its launch in December 1992 to the launch of the new Strategy in September 1998. It examines the design and implementation of the earlier Strategy, and its impact on the NHS. It also examines how well the new Strategy incorporates lessons from the past.

1.13 Our examination covers both the 1992 and 1998 information management and technology strategies. Our previous examinations of the Hospital Information Support Systems initiative and the Read Codes project covered some £46 million of the expenditure on the 1992 Strategy. This report examines six other key projects and programmes, which together account for £77 million, or some 80 per cent of NHS Executive expenditure on the remainder of the 1992 Strategy (50 per cent of the whole Strategy). The six projects cover all the key elements of the 1992 Strategy: national facilitating projects, infrastructure development and enabling people. Box 5 summarises the features and purposes of these six key projects.

1.14 We interviewed Information and IT staff at 20 NHS organisations, including nine health authorities, six acute trusts and five community trusts. The selection of the health authorities and trusts was agreed with the NHS Executive and included those considered by the NHS to exhibit good practice. We also interviewed staff and examined relevant documents at the NHS Executive's Headquarters (see Appendix A). The Strategy's business cases, where extant, were analysed systematically with reference to HM Treasury and NHS Executive requirements and guidance.

1.15 Our findings on the design of the 1992 Strategy are set out in Part 2 of this report. Part 3 presents our findings on the implementation of the 1992 Strategy and Part 4 addresses its impact on the NHS. Part 5 looks at how well the 1998 Strategy incorporates lessons learned from the 1992 Strategy.

Box 5 The six key projects and programmes examined by the National Audit Office

Infrastructure projects

The New NHS Number aimed to provide every NHS patient with a new unique identification number to allow easier and more reliable retrieval of patient records. It potentially provides a common identifier for all records that need to be shared between different parts of the NHS. This is important for the development of the electronic patient records referred to in *The New NHS White Paper*. The Number underpins the first of the five key principles of the Strategy: that information will be person-based. (Cost to 31 March 1998: £17.4 million)

NHS Administrative Registers are population databases holding details of individual patients such as name, address, date of birth, GP, etc. These details are held in order to satisfy the common needs of NHS organisations for activities such as agreeing contracts and service agreements for patient care. Nationally-linked Administrative Registers were intended to reduce duplication and to enable the sharing of information, so that details need only be recorded once. The project underpinned the Strategy's principles that information should be person-based and that systems may be integrated. The project has now been superseded by the NHS Strategic Tracing Service project, which makes use of the lessons learned from the Administrative Register piloting phase, and which will deliver its functions. (Cost to 31 March 1998: £7.5 million)

NHS-Wide Networking has three parts: a secure electronic network (NHSnet) to which NHS organisations can connect computers and use to exchange information; reducing the cost and improving the performance of telephone systems used by the NHS, and expanding and improving the use of radio mobile communications in, for example, ambulances. NHS-Wide Networking underpins the fifth principle of the IM&T Strategy, that information would be shared across the NHS. The New NHS White Paper refers to NHS-Wide Networking as an element in the modernisation of the NHS. (Cost to 31 March 1998: £26.8 million)

GP-Health Authority Links established the use of Electronic Data Interchange (EDI) to transfer items-of-service claims and patient registration details between health authorities and GPs. Feasibility work suggested that the processing of GPs' items-of-service claims and the maintenance of accurate patient registration details could be done more accurately and speedily using electronic links. It also indicated that savings would accrue from consequent reductions in the numbers of administrative staff. (Cost to 31 March 1998: £1.7 million)

Ongoing programmes

IM&T Training Strategy produces guidance on training and some specific training materials to support local information management and technology training of NHS clinical, management and information management and technology staff. It includes a Local Training Infrastructure under which a Training and Development Adviser is funded in each NHS Region in order to provide a link between local training work at trusts and health authorities and the NHS Executive's central Enabling People team. It also includes a programme for the accreditation of NHS information management and technology staff. (Cost to 31 March 1998: £18.5 million)

Community Information Systems for Providers comprises projects designed to identify community information needs for patient care and contracting, disseminate good practice, and demonstrator systems to address issues, such as links between systems, security and confidentiality, and costs and benefits. In the long term the project was to facilitate person-based community systems, which, when run in parallel with integrated acute hospital systems, would enable seamless care. (Cost to 31 March 1998: £4.6 million)

Part 2: The design of the 1992 Strategy

2.1 This Part examines whether the NHS Executive designed the 1992 Strategy in a way that was likely to lead to success. It considers whether the NHS Executive:

- sufficiently identified major NHS information management and technology needs in order to formulate a relevant strategy;
- set specific, measurable, relevant and time-related objectives;
- selected and co-ordinated appropriate projects to put the Strategy into effect;
- ensured that the proposed expenditure was justified.

Identification of a vision and principles for developing NHS information management and technology

2.2 In 1989, as part of its consultation on the information requirements of the *Working for Patients* White Paper, the Information Management Group of the then NHS Management Executive received views on the information issues for the longer term. Its objective was to ensure that there was better management of information technology resources for the benefit of individual patient care and for the population as a whole. The findings, published in *Framework for Information Systems: The Next Steps* in 1990, were developed in further documents and the views of interested parties sought. During 1991-92, the NHS Management Board considered a series of key papers detailing the major proposals for the national infrastructure. With advice from the 14 regional general managers, among others, the then Head of Information Management & Technology developed, and consulted on, drafts of the Strategy until it was ready for publication in December 1992. Responses to the process of consultation that began in 1989 were not wholly representative insofar as the consultation was not a systematic survey of all NHS views. Nevertheless, 18 of the 20 information management and technology managers of health authorities and trusts we interviewed said that the Strategy was a welcome development.

2.3 Thirteen of the managers told us that the Strategy was useful because it had promoted a set of principles that emphasised the development of person-based computer systems, and networks that had the primary purpose of giving access to

information about patients. They said that this contrasted sharply with past practice where computers were mainly used as tools to provide financial and administrative data. The managers also welcomed the broad approach of developing information management rather than a narrow focus on technology.

Assessment of development needs

2.4 The NHS Executive designed the projects in the 1992 Strategy to meet known needs but, as these were not derived from a representative survey, the Executive did not, for example, fully assess information management and technology skills before including the Training Programme in the Strategy. From its previous training work, the Executive identified two broad strands of training needs: those of NHS information management and technology professionals, and those of all NHS professional staff in the use of information. And while it carried out a skills benchmarking exercise in 1992 this was not sufficiently well developed to be used as a baseline against which to measure changes in the skill levels of NHS staff. The Institute of Health Care Development is, however, currently assessing the IM&T skills possessed by senior managers and IM&T specialists to use as a benchmark to measure progress.

The setting of objectives

2.5 The NHS Executive described the character of its planned implementation of the Strategy as national lead – local implementation. The Information Management Group headquarters set policy, standards, guidance and the expected benefits, and provided support and disseminated good practice. It left individual NHS bodies to interpret and incorporate national policies into local strategies and choose options for benefiting from information management and technology.

2.6 The NHS Executive did not, however, translate its vision and basic principles into a single set of specific, measurable, relevant and time-related objectives as it saw the vision and principles as being delivered by the objectives of individual projects. The Executive told us that they quite consciously did not translate its strategy document into a single set of specific, measurable, achievable, relevant and time-related (SMART) objectives. It took the view that the purpose of a strategy document should be to convey a vision and set out a statement of broad principles so that the NHS would understand what it was being asked to do and the reasons why. The Executive believes that SMART objectives are not appropriate to a strategy document of this kind, but rather to individual

supporting projects framed to deliver aspects of the Strategy, and that the Treasury’s guidance on approving expenditure proposals entirely supports this view.

2.7 We consider that the lack of overall objectives contributed to a lack of direction in the implementation of the Strategy: individual NHS bodies said they were unable to prioritise their participation in the various projects and were unable to measure their individual contributions to the objectives of the overall Strategy. They were, however, able to measure the extent to which they were meeting the milestones of individual projects contained in the *Information Management & Technology Handbook* of December 1992 (Bibliography 13).

2.8 We examined the objectives of the six main projects and programmes as stated in business cases and overall strategy documents. The business case objectives are set out and analysed in Appendix C. We found that the stated objectives of the six main projects and programmes were relevant to the Strategy, but that most were not specific, measurable or time-related (Figure 4). The main causes of weakness were lack of definition of the terms used and the absence of completion dates. Box 6 gives an example of an unmeasurable objective from the NHS Number project business case. However, we recognise that, if the planning of a project has not been fully developed, for whatever reason, it may not be possible to set fully specific or time-related objectives without them being arbitrary. And we recognise that the Training and the Community Information Systems for Providers programmes, being ongoing programmes rather than projects with defined lifespans, were not required by HM Treasury to have specific, measurable, relevant and time-related objectives.

Figure 4

Assessment of the NHS Executive’s objectives for the six projects and programmes, as given in project business cases and programme initiation documents, against key criteria

	NHS Number	NHS Administrative Register	NHS-Wide Networking	GP-HA Links	Training Programme	Community Information Systems for Providers Programme
<i>Specific</i>	✓	✗	✗	✓	✓	✗
<i>Measurable</i>	✗	✗	✗	✗*	✗	✗
<i>Relevant</i>	✓	✓	✓	✓	✓	✓
<i>Time-related</i>	✗	✗	✗	✗	✗	✗

Note: * The objectives of the GP-Health Authorities link projects were redefined in 1994 to provide targets for coverage of the computerised GP population. These were measurable but not in terms of the original objective of improving service quality or efficient use of staff.

Source: National Audit Office analysis of project business cases and programme initiation documents

2.9 The 1992 Handbook was designed to give the detailed objectives and milestones for the Strategy, and milestones are given for some of the infrastructure projects. The Handbook and individual project booklets outline the benefits expected from the Strategy and its projects. All of the milestones in the Handbook are relevant and most are reasonably specific, have a time element and can be measured – though not all the terms are completely unambiguous. But, in our view, these milestones are not adequate substitutes for full objectives because although most are measurable in terms of inputs and outputs they are not measurable in terms of the desired outcome of improved information management. For example, for the NHS Administrative Registers project, the Handbook included the milestone of having a national network of administrative registers in place by 1995. The Handbook does not go on to set out measurable targets for the desired outcome of the project. Such a target could have been along the lines of: by 31 December 1995, all health authorities will have 20 per cent fewer staff applied to redirecting misaddressed post than in 1992 by using the national administrative registers.

Box 6 Example of an unmeasurable objective

“Starting from July 1995, to replace the present NHS number where it is currently in use and to begin active use of the new format NHS number in patient-based systems and data transfers throughout the NHS.” Source: NHS Number business case

This is relevant to the project and specific as it covers what is going to be done with the new number. But it is not fully measurable or time-related. There are no details of where the number is ‘currently in use’ or of what is meant by ‘active use’. There is no end-point to the project, so achievement of the objective cannot be measured using a timetable.

The selection and co-ordination of projects

2.10 To work effectively, different elements of a strategy need to be planned and implemented recognising the links between individual projects. We examined whether this was the case for the 1992 Strategy.

2.11 The NHS Executive prepared business cases for major elements of the Strategy, as required by HM Treasury. We found that, of the six major projects and programmes we examined, business cases showed that three – the New NHS Number, NHS-Wide Networking and the NHS Administrative Register – had been considered in a broader framework, but the analyses were not complete. Some important links between projects were not stated in the business cases (see Box 7). The NHS Executive has told us that these omissions were due to HM Treasury requesting freestanding business cases for projects. The NHS Executive had no record of systematic consideration of how the other project

and programmes – the GP-Health Authority Links project, the Community Information Systems for Providers programme and the Training Strategy – would contribute to the implementation of the overall Strategy. Some consideration of links between projects was contained in the wider strategy documentation. We consider that explicit statements of how each project depended on, or enabled, other projects would have been useful in planning and implementing the overall strategy.

Box 7 The NHS Executive's consideration, for three of the projects, of links with other parts of the Strategy

New NHS Number

The New NHS Number business case covered how the project related to the NHS Executive's objectives and ministerial policy but it did not show how the project fitted into the Strategy. The business case did not show how the Number would be used in community and acute trust systems, nor how the confidentiality of the Number fitted with the Security and Confidentiality Project. Neither did it show how the Administrative Register, NHS-Wide Networking and Number projects would ensure the provision of a tracing service for the Number needed to enable NHS bodies to access patient records at other NHS bodies.

NHS-Wide Networking

The 1993 business case for NHS-wide Networking summarised the need for a co-ordinated, strategic approach to networking. But it did not make clear how the project contributed to the overall Strategy. In 1994, the NHS Executive set out the links between the NHS-Wide Networking project and the NHS Administrative Register, the GP-Health Authority Links project and some other projects, in an internal document intended to help plan the NHS's 'migration' to the use of NHS-Wide Networking. While this stated that benefits could be achieved from these links it did not say what the benefits were.

NHS Administrative Register

Both the 1992 and 1995 business cases for the Administrative Register show how the project was intended to meet the objectives of the NHS Executive. But the 1992 business case did not consider how the Administrative Register fits in with the New NHS Number. This was remedied in the 1995 business case and the two elements are now integrated in the 1998 National Strategic Tracing Service business case.

Justification of the overall proposed expenditure

2.12 A key stage in the justification of a substantial amount of expenditure is the preparation of a business case. We and the Public Accounts Committee have previously criticised the lack of full business cases for the Wessex Regional Health Authority Regional Information Systems Plan, the Hospital Information Support Systems initiative and the Read Codes project (Bibliography 1, 2, 10, 14 and 15).

2.13 All individual projects exceeding proposed lifetime expenditure of £1 million were covered by business cases in line with H M Treasury guidance. The Treasury's *Economic Appraisal in Central Government: A Technical Guide for Government Departments* (The Green Book) (Bibliography 16) does not mention the preparation of business cases for strategies, and in its correspondence with the NHS Executive the Treasury only required business cases for component projects. However, we believe that an overall business case would have been useful. The Green Book states that "Where a number of expenditures are linked together and the costs or benefits are mutually dependent, it is important for the programme to be justified as a whole". We consider that the Strategy is an example of a number of expenditures that are linked together with mutually dependent costs and benefits. The NHS Executive, however, takes the view that if this passage were intended to apply to the elements of the Strategy rather than, for example, to options within individual projects, then the Green Book would have made this point explicitly.

2.14 We also consider that the lack of a business case for the Strategy as a whole meant no clear case had been made for the benefits to trusts and health authorities from participating in all the Strategy projects. Some NHS organisations, such as West Kent Health Authority, were reluctant to become involved in projects that appeared to deliver few direct benefits. This slowed down the implementation of projects, such as NHS-Wide Networking, which have little initial direct benefit for participants but which benefit the wider NHS once a critical number of participants is reached. The NHS Executive does not, however, consider that an overall business case would have significantly helped implementation as it regards the main barriers to implementation as the lack of earmarked funding and the then prevailing organisational culture of the NHS, explored in paragraph 1.7. It also considers that its 1992 Handbook presented adequate arguments for full participation.

Justification of individual projects

2.15 The NHS Executive prepared or commissioned business cases for the four individual projects we examined in detail: the New NHS Number, the Administrative Register, NHS-Wide Networking and GP-Health Authority Links. Treasury guidance did not require the preparation of business cases for the two ongoing programmes we examined: the Community Information Systems for Providers programme and the Training Programme.

2.16 The NHS Executive did not prepare or commission a business case for the overall Information Management and Technology Training Programme. This programme is made up of some 30 individual small self-contained projects, some

of which have their own business cases, reviewed annually by a steering group. HM Treasury did not require an overall business case as all the individual projects' lifetime costs were below £1 million and none was prepared. But we consider that, as the total expenditure on the programme to 31 March 1998 was £18.5 million, a business case for the whole programme would have been desirable.

2.17 The Community Information System for Providers programme, like the Training Strategy, was a series of smaller projects run on an annual basis, with yearly reassessments. The NAO found no evidence of any justification for the Community Information System for Providers programme prior to its commencement. However, the 1992 Handbook (Bibliography 13) justified the Community Information System for Providers programme in terms of ensuring that systems are person-based and integrated.

Content and quality of project business cases

2.18 We examined the business cases for the four infrastructure projects against criteria based on the HM Treasury's Green Book (Figure 5). The business cases contained most aspects expected, such as considering the strategic context and setting objectives, but for three of the projects they did not meet all the criteria and fell short of complete business cases.

Figure 5

Analysis of project business cases against criteria based on HM Treasury guidance

Criteria	NHS Number	NHS Admin Register (1992)	NHS Admin Register (1995)	NHS-Wide Networking	GP-HA Links
<i>Strategic context</i>	✓	✓	✓	✓	✗
<i>Justification</i>	✓	✗	✓	✓	✓
<i>Objectives stated</i>	✓	✓	✓	✓	✓
<i>Option appraisal</i>	✓	✓	✓	✗	✓
<i>Assumptions for cost/benefit analysis</i>	✓	✓	✓	✓	✓
<i>Cost analysis</i>	✓	✓	✓	✓	✓
<i>Benefit forecast</i>	✓	✓	✓	✓	✓
<i>identification and assessment of risks</i>	✓	✓	✓	✓	✓
<i>Sensitivity analysis</i>	✓	✓	✓	✓	✗
<i>Project monitoring proposals</i>	✓	✗	✗	✗	✗
<i>Post project evaluation proposals</i>	✓	✓	✓	✗	✗
<i>Timetable of costs and benefits</i>	✓	✓	✓	✓	✗

Key: ✓ business case includes material to meet this criterion
 ✗ business case does not include material to meet this criterion

Note: For the NHS Administrative Register project, Coopers and Lybrand produced an initial business case in 1992 and the NHS Executive produced an outline business case in 1995. In 1996, the Administrative Register project was superseded by the NHS Strategic Tracing Service project, which makes use of the lessons learned from the Administrative Register piloting phase. The NHS Executive submitted to HM Treasury a business case for the NHS Strategic Tracing Service in March 1998 and received approval.

2.19 We considered in detail the quality of key elements of business cases against the following criteria: financial analyses covering costs and benefits; risk and sensitivity analysis; and proposals for project monitoring and post project approval.

Financial analyses

2.20 Showing that a project is a better option in terms of overall costs and benefits than doing nothing is an important factor in justifying expenditure on it. And comparing the financial implications of options for a project is an important aspect of selecting the most appropriate way of meeting objectives.

2.21 Our review of the business cases prepared and commissioned by the NHS Executive revealed some weaknesses:

- they analysed only a few options. Full financial analysis of a short list of options is in itself reasonable practice but it is not evident from the business case that these options were selected from a preliminary analysis of a wider range of options as recommended by Treasury guidance. The NHS-Wide Networking business case only included option appraisals for two forms of network. Other options were considered in terms of technical feasibility outside the business case and options for the supplier of the network were considered in the tendering process;
- the NHS Number, NHS-Wide Networking and GP-Health Authority Links projects did not cost the 'do nothing' option. In the case of the NHS Number, the NHS Executive considered that the do nothing option would not meet the Executive's objectives and therefore did not merit costing;
- for the GP-Health Authority Links project, only the preferred option, out of six considered, included estimates of financial costs and savings. The costs and benefits were only considered over four years – a shorter period than the life of the project – and were not discounted to take account of the time-value of money. Therefore there was no assessment of the balance of expenditure at the start of the project against benefits accruing towards its end. But the NHS Executive took the view that the preferred option was the only acceptable option in terms of viability, practicality and policy and that, in accordance with Treasury guidance, the other options did not need financial analysis.

Risk and sensitivity analyses

2.22 Treasury guidance states that: “Risk can take many forms. Most familiar is the risk that the project costs or benefits of an option are optimistic – that they do not fully reflect the chances of, say, cost or time overruns or shortfalls in demand”. The NHS Executive told us that it is committed to the Project in Controlled Environment (PRINCE) project management methodology, which requires monitoring and evaluation proposals. The identification of risk is an important element of business cases as it enables a well-informed investment decision. Sensitivity analysis informs the investment decision by showing the effects of risk.

2.23 Overall, the business cases we examined contained satisfactory risk and sensitivity analyses. The NHS Administrative Register business cases, however, omitted the risk of the NHS not making use of the service. The NHS Executive does not consider this a realistic expectation of the business case, as the project was their response to NHS pressure for better information. And the NHS Executive did not do a sensitivity analysis for the GP-Health Authority Links project.

Proposals for project monitoring and post project evaluation

2.24 The inclusion of project monitoring and post project evaluation proposals in business cases help ensure that key management disciplines are incorporated into projects so that they are properly controlled. Evaluation also ensures that lessons are learned and inform future decisions.

2.25 Only the NHS Number business case included both project monitoring and post project evaluation proposals (Figure 5). The NHS Administrative Register business cases included evaluation proposals, but these, like those for the NHS Number, lacked details such as dates. The NHS-Wide Networking and GP-Health Authority Links business cases omitted project monitoring and post project evaluation proposals. The NHS-Wide Networking project has not yet been evaluated, but the NHS Executive attributes this to the project not being sufficiently mature rather than the absence of post project evaluation proposals.

Lessons for the design of an information management and technology strategy

2.26 Part 5 considers how the NHS Executive has sought to improve upon the design of the earlier Strategy in their work on the 1998 Strategy. In particular, it looks at whether the NHS Executive is taking the following action to address the weaknesses we found in the design of the 1992 Strategy:

- improving the coherence of the Strategy by setting specific, measurable and time-related objectives for the Strategy as a whole and for its constituent projects;
- taking local circumstances into account in the setting of milestones for local implementation;
- planning the implementation of the Strategy as a whole more thoroughly, giving particular attention to interrelated projects. This planning should include the development of change and risk management strategies to take account of possible changes in the wider NHS and in information technology;
- developing complete business cases for all projects, and for the overall Strategy.

Part 3: The implementation of the 1992 Strategy

3.1 This Part examines whether the NHS Executive took steps that were likely to lead to the successful implementation of the 1992 Strategy. It considers whether the NHS Executive:

- communicated objectives effectively;
- co-ordinated the constituent projects;
- provided support to the NHS to help it implement the Strategy;
- monitored the implementation of the Strategy.

Communication of the 1992 Strategy's objectives to the NHS

3.2 In 1992, the NHS Executive produced overall strategy documentation, such as, *An Information Management & Technology Strategy for the NHS in England*, and organised conferences and meetings to tell NHS managers about the Strategy. Thirteen of the 20 health authorities and trusts visited by the National Audit Office said that the Strategy's vision had been clearly communicated, particularly to IM&T staff.

3.3 As mentioned in paragraph 2.6, the NHS Executive's Strategy documents did not set out overall objectives for the Strategy. Although they included milestones for most of the constituent projects, NHS bodies were not always clear about the purpose of the Strategy's constituent projects. In the case of the NHS Administrative Register, the project was seen as having no clear purpose by 16 of the 20 NHS bodies visited by the National Audit Office.

Co-ordination of the implementation of the constituent projects

3.4 Some NHS bodies thought that the sequencing of projects adversely affected their impact, as many of the projects were linked. Fourteen of the 20 health authorities and trusts we visited believed that the sequencing and co-ordination of projects in the 1992 Strategy had been fairly poor, or poor, while two thought it was fairly good. One body described the Strategy as, 'all the right elements implemented in the wrong order'. Box 8 illustrates some of the co-ordination problems with the infrastructure projects we examined.

Box 8 Co-ordination problems with infrastructure projects

GP-Health Authority Links – internal co-ordination

The implementation of the GP-Health Authority Links project was in the reverse order of usual practice. The contract was awarded in 1990, the business case was prepared in 1991 and the pilots were evaluated in 1993 and 1994. The NHS Executive was unable to show that the costs and benefits to the NHS projected in the 1991 business case had been realised.

NHS-Wide Networking and GP-Provider Links projects

The implementation of the NHS-Wide Networking project was not co-ordinated with the GP-Provider Links project. NHS-Wide Networking was started in 1992, while the GP-Provider Links project – mainly concerned with linking GPs to acute hospitals in order directly to access computer records of pathology results – was only started in 1996. The majority of health authorities visited believed that had the GP-Provider Links project started earlier this would have given greater incentive for GPs to use the NHSnet to obtain pathology results and other information. As most GPs cannot receive pathology results from acute trusts, they have little incentive to get connected to the NHSnet. Also the accreditation of GP computer systems does not ensure GPs purchase systems that can link to the NHSnet. The NHS Executive is now addressing the problems of encouraging GP use of the NHSnet through work on its GPnet project.

NHS-Wide Networking and HealthLink

The health authorities and trusts we visited criticised the NHS Executive for allowing two incompatible networks to develop alongside one another – HealthLink and NHSnet. Until late 1995, when the P1 Link between the two systems was introduced, GPs had to have two separate e-mail systems and sometimes even two separate computers if they wanted to be linked to both a local HealthLink network and to NHSnet. The P1 Link allows only limited use of NHSnet for HealthLink users. There was already a 'critical mass' of GPs using HealthLink so it was difficult to persuade them to join NHSnet. These two networks reflect, however, different stages in the development of networking technology and a certain amount of overlap was, perhaps, inevitable. Also the NHS Executive's contract with the supplier of HealthLink prevented it simply replacing one network with the other. But the health authorities and trusts said that the Executive had failed to give a clear lead to the NHS about the best way forward, and particularly whether this involved HealthLink. The NHS Executive's current work on the GPnet project is aimed at supporting the migration of GPs from HealthLink to NHSnet.

New NHS Number

The NHS Executive did not adequately co-ordinate the implementation of the New NHS Number with other areas of the Strategy, according to health authorities and trusts we visited. Two regarded the co-ordination as adequate. Five considered that, before most benefits of the New NHS Number can be obtained, the GP-Health Authority Links and the Administrative Register need to be implemented, Community Minimum Data Sets agreed, and New NHS Numbers allocated to all patients. As a result, they believe that GPs, and other NHS staff such as nurses and administrative staff, are either not using it at all, or are using it only as administrative data in letters rather than for clinical purposes. However, the Caldicott report (Bibliography 17) strongly supports the use of the New NHS Number as the only identifier, where practical and safe to do so, in order to protect patient privacy. The NHS Executive's new information strategy, *Information for Health*, launched in September 1998, sets out to clarify the pivotal role of the New NHS Number in the effective use of information in the NHS.

Provision of support to the NHS to help implement the Strategy

3.5 The NHS Executive funded national facilitating projects, such as the Community Information System for Providers programme, in conjunction with local NHS bodies. These projects aimed to avoid duplication of effort, identify costs and benefits and disseminate good practice. The Executive also funded the development of some information management and technology infrastructure projects, such as the new NHS Number designed to support the sharing of data across the NHS.

3.6 Despite these efforts, fourteen of the 20 health authorities and trusts we visited reported that the practical support provided to them by the Information Management Group was of a fairly poor, or poor, standard. They reported that there was often no source of advice available for detailed and practical guidance on the implementation of the Strategy. The 1992 Handbook and other Strategy literature did, however, include contact names for each individual project.

3.7 The NHS Executive does not accept the view that it did not do enough to support them in implementing the national infrastructure. The Executive believes that, given the pre-existing low base of information management and technology investment in the NHS, most of the 1992 Strategy's apparent impact was the imposition of a national infrastructure upon the NHS, with little scope for local choice. Such an infrastructure is necessary for the NHS to be able to record, store and transmit information so that it can be brought together wherever it is needed. The NHS Executive considers that its 1992 Handbook gave a clear timetable and milestones and that individual projects provided much support and guidance to the NHS to help with local implementation.

3.8 The decision as to whether, and how much, to invest in information management and technology was originally a local one (Bibliography 13). As noted at paragraph 1.8, developments had to be financed from general allocations rather than earmarked funds and therefore had to compete with other expenditure proposals, many of which may have seemed more pressing than information management and technology developments. By 1996, the Information Management Group discovered that some health authorities and trusts could not, or would not, justify implementing projects by the expected savings and benefits. In response to this, the NHS Executive sent Executive Letters to chief executives of health authorities and trusts expressing its expectation that their organisations implement certain projects, such as NHS-Wide Networking and the NHS-Wide Clearing Service, by specific dates.

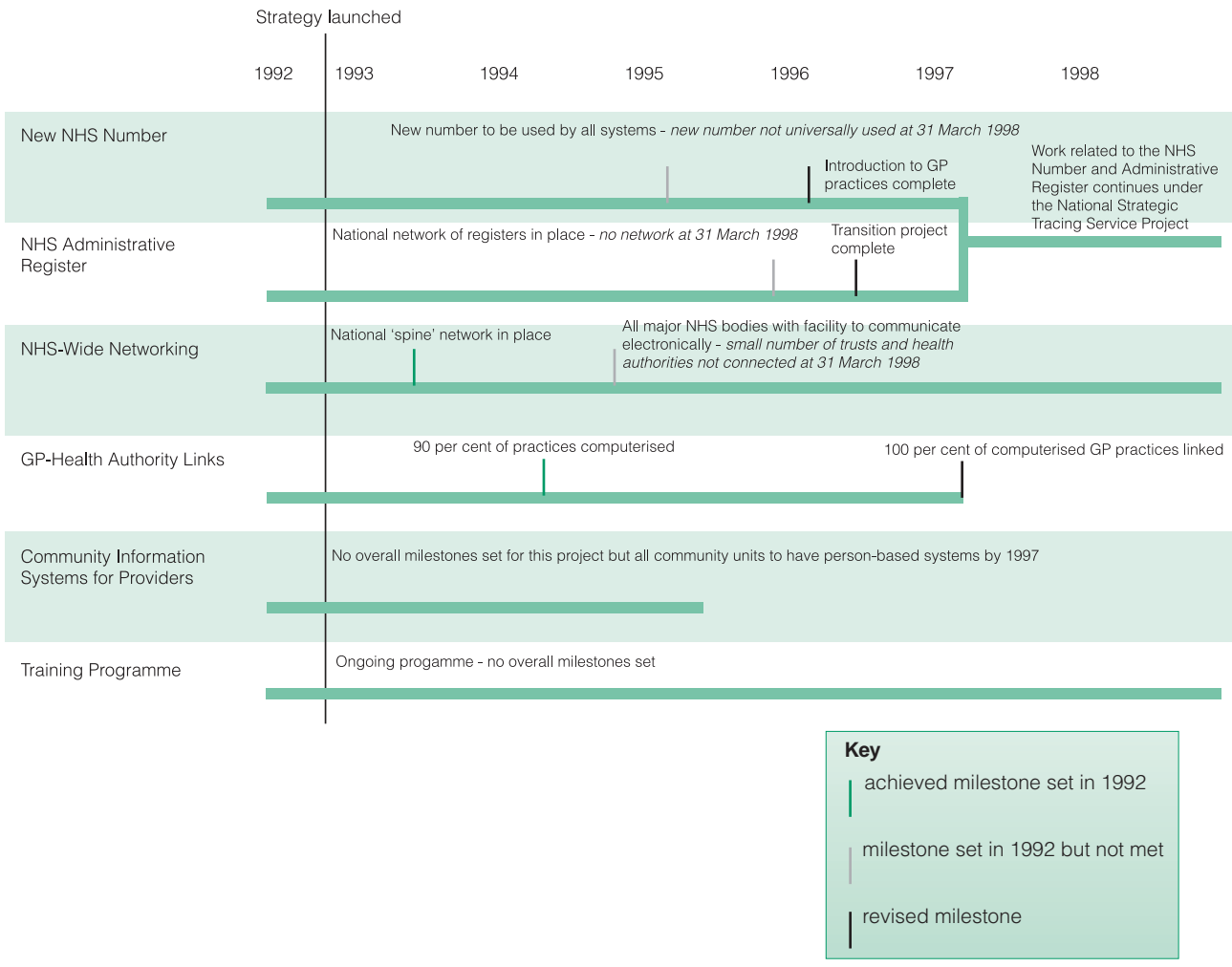
3.9 The NHS Executive believes that one of the main reasons for NHS bodies' criticisms of the level of support provided was the perceived lack of additional funds to meet the costs of implementation. Although additional funds were included in the Public Expenditure Survey allocations to the NHS, as a matter of wider resource allocation policy, funds allocated to the service were not specifically earmarked for information management and technology. The NHS Executive believes that the new Information for Health Strategy's proposed central funding of certain projects addresses these difficulties, and we examine this in Part 5.

Monitoring the implementation and completion of the Strategy

3.10 The NHS Executive has collected data to assess progress against the milestones it set in 1992. For example, the number of connections to the NHSnet by various types of NHS body is recorded. However, as Figure 6 shows, the original milestones for three of the four infrastructure projects we examined were not met and the NHS Executive replaced them with revised milestones following formal review. They were revised further in accordance with the PRINCE project management guidelines. Details of the progress of the infrastructure projects we examined are given in Box 9 and an example of implementation is given in Case Study 2.

3.11 Overall milestones were not established at the outset for the two ongoing programmes but were set on an annual basis. We do not regard this approach to be adequate as it does not help assess the long-term success of these programmes. But the NHS Executive does not consider it practical to set long-term milestones at the outset of ongoing programmes because such programmes do not have defined end-points and are run on an annual renewable basis.

Figure 6 Progress on three of the projects did not meet original milestones



Sources: NHS Executive, Handbook for IM&T Specialists, 1992 (Bibliography 13) and further information supplied by the NHS Executive

Case Study 2

Developing the IM&T communications infrastructure

Anglia & Oxford Networks

Problem: Computers in the NHS organisations of the old East Anglian and Oxford regions were linked by X.25 networks allowing them to communicate with their regional health authorities and the NHS Supplies Authority, and to access centralised databases of administrative information. But, after the regions were re-organised in 1992, the limitations of the X.25 networks became increasingly evident: NHS organisations outside the two regions could not readily be connected; they were slow and their maintenance costs were high.

Action: In 1994, the East Anglian user group – made up of representatives of the NHS bodies, such as finance directors – agreed to use NHS Executive's telecommunications branch (NHS Telecoms) to obtain tenders for a fully managed migration to the NHSnet. The group awarded a contract to Cable and Wireless Communications, who took on the existing contracts with the supplier of the previous network until their expiry, and undertook all liaison.

Outcome: The managed migration contract helped the East Anglian bodies to migrate smoothly by March 1998. Cable & Wireless Communications' provision of a single contact point for both the users and the former supplier, minimised users' inconvenience. The change to NHSnet is yielding annual savings of £300,000, as well as providing faster transmission, e-mail and connection to a national network.

The Oxford region also successfully migrated by the end of 1998. NHS Telecoms estimate that the change is leading to annual savings of £200,000, although this is hard to validate because the cost of the X.25 network was not clearly identified, as there was no user group before the migration.

Box 9 Progress on the infrastructure projects

New NHS Number

The NHS Executive originally set a target for all NHS systems to use the New NHS Number from April 1995. The experience of pilot sites showed that this was too ambitious and so the NHS Executive set a revised timetable. Progress against this is shown in Figure 7. Health authorities have issued numbers for all people whose birth has been registered with a Registrar of Births and Deaths and for all people who have become residents of the country. These numbers have been issued to all GP practices but not all practices have actually allocated the numbers to patient records. The New NHS Number is therefore not yet in universal use.

NHS Administrative Register

The NHS Executive originally planned to have pilot sites for the Administrative Register completed in December 1993 and the whole project completed in 1995. The pilot sites were not completed until June 1996 and both the 1992 and 1995 business cases changed the target so that all the local registers would be implemented by April 1998. In 1996, however, the project was incorporated into the NHS Strategic Tracing Service project. The full business case for the NHS Strategic Tracing Service project indicates that delivery of the service is to start by April 1999.

continued...

NHS-Wide Networking

The Information Management Group's implementation of NHS-Wide Networking concentrated on connecting computers at health authorities and trusts to the NHSnet. By February 1997, the NHSnet was ready for the connection of all main NHS organisations, and few problems were experienced in connecting to the NHSnet by the health authorities and trusts we visited.

GP-Health Authority Links

The milestone of achieving computerisation of 90 per cent of GP practices was achieved but the GP-Health Authority Links project failed to achieve its target coverage of GP practices by December 1996. While 82 per cent of computerised practices had implemented registration software, against a target of 80 per cent, only 33 per cent of computerised practices had implemented the items-of-service software against a target of 100 per cent. The NHS Executive's work with the GPnet project has replaced these targets with one whereby all computerised GP surgeries will be able to receive some hospital test results over NHSnet by the end of 1999.

The New NHS Number's revised timetable

Figure 7

Milestone	Expected Date	Actual Date
NHS Number tracing facility in place	March 1995	December 1996
New NHS Number issue begins	July 1995	December 1995
GP roll out to computerised practices complete	December 1995	June 1996*
GP roll out to non computerised practices complete	March 1996	September 1996*
Secondary Care commence use of the New NHS Number	April 1996	January 1997

Source: NHS Exception Reports to IMG Project Board, February 1997

Note: * Numbers were issued by all health authorities but not all GP information systems use them

3.12 The NHS Executive has also monitored the progress of the facilitating projects, such as the Community Information Systems for Providers programme. The first three phases of this programme were completed close to the original timetable set by the NHS Executive. But the NHS Executive has not assessed the long term overall progress of the Training Programme, relying instead on annual review of the 30 self-contained projects within it.

Monitoring of expenditure on the Strategy

3.13 The NHS Executive does not monitor the costs incurred by NHS bodies in implementing the Strategy as these were met largely from health authority general allocations rather than earmarked funds. The NHS Executive told us that the collection of information would have involved imposing an additional data collection requirement on the NHS at a time when every effort was being made in accordance with Ministers' policies to reduce collection to a minimum of key data. Therefore the overall NHS expenditure on the Strategy is not known. The NHS Executive also told us that it set no lifetime budget for its own expenditure on the Strategy because some elements were to be run on a renewable annual basis at a level dependent on the financial priorities of the time, and that in the light of this uncertainty about the progress of future development, there seemed little purpose to be served in setting a lifetime budget.

3.14 The NHS Executive indicated how much it expected to spend on the infrastructure projects in the business cases and project initiation documents (Figure 8). The Executive did not estimate at the outset how much would be spent in total on the Training Programme and Community Information Systems for Providers as these were designed as ongoing programmes without end-points. As Figure 8 shows, expenditure on two of the four infrastructure projects was greater than the Executive expected at the outset. But annual budgets and expenditure for all elements of the Strategy were reviewed each year. And the NHS Executive told us that PRINCE project management controls, which require the preparation and approval of revised business cases when costs are to exceed original plans, were applied.

Figure 8

Information Management Group expenditure on the Strategy to 31 March 1998 (£ million)

The Information Management Group's overall expenditure on the strategy amounted to some £152 million.

	1992 Lifetime expenditure estimate	Expenditure to 31 March 1998	Difference (less)/more
New NHS Number	26.0	17.4	(8.5)
NHS Administrative Register	6.2	7.5	1.3
NHS-Wide Networking	32.0	26.8	(5.2)
IM&T Training Programme	No lifetime estimate ¹	18.5	N/a
GP-Health Authority Links	0.6	1.7	1.0
Community Information Systems for Providers	No lifetime estimate ¹	4.6	N/a
Other projects ²	Not all elements had lifetime estimates ¹	75.1	N/a
Total	No overall estimate ¹	151.6	N/a

Notes: 1. The NHS Executive designed some elements of the Strategy, including the Training Programme and Community Information Systems for Providers, as ongoing programmes with annual budgets rather than finite projects with lifetime budgets.

2. Other projects includes NHS Executive expenditure on the Hospital Information Support Systems initiative (£26.9 million) and the Read Codes project (£32 million) since 1992.

Lessons for improved implementation

3.15 Part 5 examines how the NHS Executive has sought to achieve improvements in the elements of the 1992 Strategy that continue as part of the 1998 information strategy, and in the 1998 strategy overall. In particular it looks at how the NHS Executive have set out to:

- make better use of the experience and expertise of local NHS information management and technology staff;
- develop effective means to communicate changes in the Strategy to the NHS;
- link training and support to specific Strategy projects so NHS staff are in a better position to implement change;
- monitor expenditure on the Strategy more thoroughly.

Part 4: The impact of the 1992 Strategy

4.1 This Part examines the 1992 Strategy's contribution to the development of NHS information management and technology and the consequent improvement in communication and patient care. The examination was hindered by the lack of measurable outcome based objectives, as reported in paragraphs 2.5 to 2.8, the consequent lack of corresponding data, and because the NHS Executive has not yet evaluated all the projects. In our view, the evaluations that it has completed are of limited use for gauging the impact of the Strategy. The NHS Executive has, however, told us that evaluation has taken place where projects are sufficiently mature. The examination therefore relied on the opinion of the information management and technology staff we visited.

Evaluation of the Strategy

4.2 Evaluation provides guidance for the further implementation of projects and lessons for the design and implementation of future projects and is required by HM Treasury (Bibliography 16). The NHS Executive has commissioned or undertaken evaluations of the GP-Health Authority Links project and the Administrative Register pilot sites but has not evaluated the NHS-Wide Networking or NHS Number projects. In the case of NHS-Wide Networking, the NHS Executive consider that too few NHS organisations are connected to the NHSnet for the project to be sufficiently mature to evaluate.

4.3 Seven of the health authorities and trusts we visited considered that there had been insufficient evaluation of the projects by the Information Management Group. Only two of those we visited were carrying out their own local evaluations of impact. The NHS Executive is not able to demonstrate that the NHS-Wide Networking project is likely to yield the £100 million savings it expected in 1996, or the £41 million of benefits it expected each year from 1996-97 in the business case. As indicated in Part 5, however, the NHS Executive expects evaluation to be an integral part of its 1998 information strategy.

Contribution to the development of NHS information management and technology

4.4 The 1992 Strategy has given prominence to information management and technology issues. Twelve health authorities and trusts we visited believed that the 1992 Strategy had helped focus local developments in information management and technology. The Strategy caused health authority and trust boards to debate information management and technology issues. It had made managers and clinicians more aware of the value of, and potential for, good information management and technology systems. The involvement of managers in approving business cases had led them to a better understanding of the importance of information management and technology in delivering patient services. Consequently, information management and technology developments were more closely matched to the business needs of the health authorities and trusts.

4.5 The NHS organisations we visited said that the Strategy had given direction to local IT developments. The NHS Executive set milestones, which it expected every NHS organisation to work towards. This, combined with the NHS Executive's practice from 1996 of expressing its expectations about the implementation of elements of the Strategy in letters to chief executives, accelerated progress. The letters gave information management and technology departments more authority to co-ordinate developments across different departments.

4.6 The NHS Executive's milestones and targets were particularly useful for projects that required a large number of participants before they delivered benefits, such as the New NHS Number and NHS-Wide Networking. For example, according to staff at health authorities, the establishment of electronic links to 82 per cent of GP practices would not have been achieved to the same extent without an 80 per cent target.

4.7 The programmes we examined – Community Information Systems for Providers and the Training Programme – had their impacts reduced by poor project design and communication problems. These impacts and problems are detailed in Box 10 and Appendix D.

Box 10 The Impact of the Community Information Systems for Providers and Training Programme projects – problems with design and communication

The Community Information Systems for Providers programme

Impact

- helped some individual pilot sites to develop systems
- poor progress towards all community units having person-based systems by April 1997 – only 17 per cent

Problems

- pilot projects were mainly paper-based exercises and few developed operational systems able to demonstrate benefits to other community trusts
- the experience of the pilot sites was contained in numerous reports – 26 from the one of the three phases of the programme alone – so this was not readily disseminated
- the lack of a definitive Community Minimum Data Set (CMDS) put trusts off making the commitment of investing in information systems

The Training Programme

Impact

- only three out of 20 health authorities and trusts we visited believed the training material provided sufficient preparation for 1992 Strategy
- only four health authorities and trusts we visited said that they derived significant benefits from the training material.

Problems

- staff found most of the training material hard to use because of its extensive volume
 - search facilities are needed to locate key topics
-

4.8 The distribution of training materials via the information management and technology departments of health authorities and trusts also did not help it to reach the people who needed to be involved – non information management and technology staff, especially chief executives and clinical staff. The information management and technology departments were often regarded as providers of computer facilities rather than authorities on training needs and were not well placed to influence information management and technology training in their wider organisations.

The Strategy's contribution to improved NHS communication and patient care

4.9 The infrastructure projects are the Strategy's main mechanism for translating its vision and principles into improved communication and patient care. The NHS bodies we visited welcomed three of the four infrastructure projects we examined because of their potential benefits. The exception was the Administrative Register, which they did not regard as cost-effective.

4.10 There were aspects of the four projects that curtailed or deferred their impacts. For three of the projects, inadequate co-ordination with other projects was a significant factor, as is outlined in paragraph 3.4. These aspects and the impact of the four projects are summarised in Box 11 and Appendix D.

Box 11 The impact and problems of the four infrastructure projects we examined

The New NHS Number

Impact

- the new number is not yet in full use throughout the NHS – few actual benefits to date but there are likely to be more in the future
- GPs and other NHS staff, such as nurses and administrative staff, are either not using it, or are using it only as administrative data in letters rather than for clinical purposes

Problems

- Inadequate co-ordination of the implementation of the New NHS Number with the other parts of the Strategy, as mentioned in box 8

The NHS-Wide Networking project

Impact

- the NHS Executive did not use the NHSnet to communicate with the NHS until mid-1998
- less than 10 per cent of GP practices are fully linked to the NHSnet so limiting its benefits

Problems

- no national directory of organisations connected to the NHSnet, so the benefits of rapid communication tend to be confined to local groups of NHS organisations who are aware of each others' connections
- GPs face several barriers in connecting to the NHSnet: delays and weaknesses with the accreditation of GP systems, GP systems not being compatible, and expensive connection and use charges

The GP-Health Authority Links project

Impact

- the health authorities and trusts we visited considered that GP-Health Authority links were needed and 14 of the 20 we visited said that they had gained some, if rather limited, benefits from them
- two evaluation reports commissioned by the Information Management Group provided no evidence that the financial benefits projected in the business case had been realised

Problems

- savings were estimated on the assumption that the links would reduce the number of administrative staff needed but in many health authorities this was already at a necessary minimum

The NHS Administrative Register project

Impacts

- the experience of the Administrative Register pilot sites informed the design of the National Strategic Tracing Service
- the NHS Executive's 1996 evaluation of Administrative Register pilot sites concluded that there had been no direct cash-releasing savings

Problems

- the health authorities and trusts we visited regarded the NHS Administrative Register as overlapping with two other systems providing essential administrative information on patients: the Exeter system and the existing number tracing service.
-

Lessons on increasing impact

4.11 Of the projects we examined, most were well received by NHS bodies but the Administrative Register was not. The NHS Strategic Tracing Service has now superseded the Administrative Register. Overall, the NHS bodies we visited view the potential benefits of the projects as greater than those so far achieved. The NHS Executive therefore needs to address the barriers to successful implementation of individual projects we have identified. Part 5 considers how the new 1998 Strategy addresses these problems, including how it will:

- establish a programme to ensure that information management and technology projects are independently evaluated and findings disseminated effectively to the NHS;
- provide more practical advice on the development of information systems for community services using the results of the Community Information System for Providers programme;
- facilitate and encourage the use of the New NHS Number in the community sector and for health screening;
- increase use of the NHSnet, especially by general practitioners and community health trusts.

Part 5: The 1998 Strategy

Information for Health – An Information Strategy for the Modern NHS 1998-2005

5.1 During our work on the 1992 Strategy, the NHS Executive formulated a new information management and technology strategy entitled *Information for Health – An Information Strategy for the Modern NHS 1998-2005 (Bibliography 8)* and launched it in September 1998. Appendix E gives an overview of the new Strategy.

5.2 The NHS Executive prepared the new Strategy following its review of the progress of the 1992 Strategy and its examination of how useful that Strategy was in contributing to the development of the NHS along the lines set out in *The New NHS* white paper. This part looks at the extent to which the NHS Executive's work on the 1998 Strategy and its implementation will address our concerns arising from our examination of the 1992 Strategy. This work is outlined in Box 12.

Box 12 Action taken, or proposed, by the NHS Executive that addresses our concerns with the 1992 Strategy

The NHS Executive has:

- set objectives for the Strategy as a whole in order to improve coherence;
 - planned arrangements for taking local circumstances into account when setting milestones for local progress;
 - started planning the implementation of the Strategy as a whole, giving attention to interrelated projects;
 - developed an outline business case for the overall Strategy;
 - planned means of making better use of the experience and expertise of local NHS information management and technology staff;
 - designed mechanisms to communicate to the NHS about the Strategy more effectively than in the past;
 - drafted guidance that sets out its expectation that evaluation is to be done regularly and systematically;
 - published its intention to review the data collected by community staff for management returns and so help clarify the overall requirements of community information systems;
 - committed to implementing the Caldicott recommendations so that the New NHS Number is the main and, where possible, sole identifier of patients;
 - committed to overcoming reluctance to use the NHSnet by centrally funding connection and usage costs and reviewing access agreements and codes of connection.
-

Improving the coherence of the Strategy by setting overall objectives

5.3 Unlike the 1992 Strategy, the 1998 Strategy contains a set of objectives for the Strategy as a whole. These overall objectives are set out in Box 13. All the objectives are relevant to the achievement of the overall Strategy and are time-related, as they are to be achieved by 2005, but they are not specific or fully measurable, and in our view they should be. As explained at paragraph 2.5, the NHS Executive does not accept that fully measurable objectives are appropriate for a document giving an overview of the new Strategy. It regards *Information for Health* as conveying the direction of change rather than setting out the items that are to be delivered. The NHS Executive told us that the items to be delivered will be identified as part of the process of implementation.

Box 13 The objectives of the new Strategy

- to ensure that patients can be confident that the NHS professionals caring for them have reliable and rapid access, 24 hours a day, to the relevant personal information necessary to support their care
- to eliminate unnecessary travel and delay for patients by providing remote on-line access to services, specialists and care, wherever practicable
- to provide access for NHS patients to accredited, independent, multimedia background information and advice about their condition
- to provide every NHS professional with on-line access to the latest local guidance and national evidence on treatment, and the information they need to evaluate the effectiveness of their work and to support their professional development
- to ensure the availability of accurate information for managers and planners to support local Health Improvement Programmes and the National Framework for Assessing Performance
- to provide fast, convenient access for the public to accredited multimedia advice on lifestyle and health, and information to support public involvement in, and understanding of, local and national health service policy development

5.4 The Strategy also includes three other tiers of targets:

- a) fifteen specific targets for key tasks to be completed over the seven-year period of the strategy. These are a combination of input, output and outcome targets. For example, 'completion of essential infrastructure' is an output target while '24 hour emergency care access to patient records' is an outcome target, as it represents a desired improvement in the management of information;

- b) priorities and milestones with specific timescales for the short-term national implementation programme;
- c) eighty-six 'actions' relating to specific projects throughout the Strategy, though only eight of these are time-related. The remainder do not have completion dates because the NHS Executive is yet to identify technical solutions for some actions.

5.5 While the fifteen specific targets appear to relate to one or more of the Strategy's objectives the links between them are not explicit. Identifying such links would highlight the importance of achieving individual actions in order to achieve the overall objectives. The NHS Executive assures us that this work is in hand and will be disseminated throughout the NHS.

Taking local circumstances into account in the setting of milestones for local progress

5.6 Twenty-one targets have also been set for the local implementation programmes, divided into three phases: 1998 to 2000; 2000 to 2002; and by 2005. These are all relevant and broadly time-related. But many are not sufficiently specific to be measurable. For example, "Completion of essential infrastructure" is ambiguous because "essential infrastructure" is not defined. And, as with the 15 specific national targets, the importance and relevance of the local implementation targets to the overall objectives would be strengthened by cross-referencing them to those objectives. Again the NHS Executive assures us that such work is in hand.

5.7 Regional offices will, following review and discussion, agree the exact timing of the milestones included in local implementation plans with the relevant health authorities, trusts and primary care groups. Regional offices will also review the performance of those local NHS organisations in achieving the milestones.

Planning implementation more thoroughly, giving particular attention to interrelated projects

5.8 The NHS Executive is in the early stages of developing a programme management framework for implementing the Strategy and expects this work to be completed by the end of January 1999. This aims to identify what needs to be done, in what order, to what timescale, with what resources, by whom and with whom. We consider that this work is essential to the successful implementation of the Strategy. It should be used to provide senior managers with an overview of the

Strategy and as a basis for managing risk across the Strategy. We also believe that the results of this work should be summarised diagrammatically, for example, as a Gantt chart, and widely publicised in the NHS in order to make the timescales and interrelationships of all the Strategy's elements clear.

5.9 The NHS Executive recognises the importance of a co-ordinated system of project development and implementation in the new Strategy. It acknowledges in the Strategy document that, "In the past local organisations have found themselves hampered by delays in national projects". The NHS Executive will disband the Information Management Group and set up an Information Policy Unit within the NHS Executive to set NHS information policy. It will create a special health authority – the NHS Information Authority – to deliver the national aspects of the Strategy. The Information Policy Unit will hold the NHS Information Authority to account on the basis of agreed corporate contracts. The NHS Executive also expects the New National Information partnership arrangements to help co-ordinate implementation at the national level by keeping the formal bodies responsible for implementation fully informed by the wider NHS.

5.10 At the local level the NHS Executive will require health authorities, NHS trusts and general practitioners to develop shared local implementation strategies with agreed objectives and priorities that correspond to the objectives and milestones of the overall strategy. Regional offices of the NHS Executive will monitor the delivery of the local implementation strategies.

Developing complete business cases for all projects and for the overall Strategy

5.11 As with the 1992 Strategy, the NHS Executive did not prepare a full business case for the overall 1998 Strategy. The NHS Executive did, however, prepare an outline business case for electronic patient records – the cornerstone of the Strategy. HM Treasury realised that the NHS Executive could not realistically develop an overall business case that would rigorously test different options for all elements of the Strategy on equal terms and meet the Government's commitment to publish a new information management and technology strategy in 1998.

5.12 The Treasury therefore insisted on three steps. First, they required the NHS Executive to obtain expert opinion on the Strategy from outside the NHS before its launch, as a means of gaining wider assurance on the feasibility and value of the proposals. The NHS Executive obtained the views of information specialists from the Scottish Office, the CCTA, police services and the views of an internationally recognised information academic. We consider that obtaining the

opinions of people with relevant experience from outside the NHS is a useful addition to the strategy development process and that the NHS Executive should use similar outside sources to inform its further work on planning and implementing the Strategy. It will be important for the NHS Executive to ensure that it has the right expertise and skills in project management and procurement available and that good practice, including that from outside the NHS, is employed. Second, HM Treasury has required proper business cases for all the key elements of the Strategy, including national standards, central policies to subsidise or create incentives for implementation, and individual IT investments. Third, to ensure the links between elements are recognised and managed properly, HM Treasury has also required the NHS Executive to develop the programme management framework mentioned in paragraph 5.8.

5.13 We consider that the preparation of individual business cases is a less satisfactory approach because it does not demonstrate the interdependencies of different elements of the Strategy. The approach also increases the risk of double counting benefits.

5.14 For individual component projects, business cases must be prepared if their lifetime costs exceed £1 million. But when accredited by HM Treasury, regional offices of the NHS Executive will be able to approve information management and technology business cases with lifetime costs of up to £20 million. The NHS Executive and HM Treasury are currently updating the business case processes and thresholds. The Executive plans to maintain the quality and rigour of business cases by requiring the use of revised business case criteria and checklists for documentation, backed by a new approach to business case monitoring, including sampling of approvals by its regional offices and providing annual reports to HM Treasury about the level of activity, with summaries and findings from the sampling.

Better use of the experience and expertise of local NHS information management and technology staff

5.15 The NHS Executive propose, as part of the new Strategy, to develop the pooling of specialised information management and technology staff, and clinical staff employed to support informatics and clinical audit work. The NHS Executive also proposes the creation of larger specialist Health Informatics Services to serve combinations of NHS organisations. These are to ensure the full and appropriate employment of the different skills required for the Strategy and are to allow some scope for greater personal reward to the most senior and experienced specialists.

Developing effective means to communicate changes in the Strategy to the NHS

5.16 The NHS Executive expects the New National Information Partnerships element of the 1998 Strategy to improve communication with the NHS and other key stakeholders. The 1998 Strategy also includes “effective and continuous dialogue between stakeholders” as an implementation principle.

5.17 The NHS Executive will also require change management strategies to be incorporated into Local Implementation Strategies by March 2000. And one of the actions included in the Strategy requires local NHS organisations to “consider the wider change management agenda and ensure that they have adequate organisational and personal development programmes in place to plan and deliver the change agenda”. The NHS Executive has issued the first instalment (HSC 1998/225) (Bibliography 18) of a series of guidance to support the 1998 Strategy that will highlight the need to identify risks associated with the development and implementation of new systems and to include these risks and risk management plans into Local Implementation Strategies.

Linking training and support to specific Strategy projects

5.18 The NHS Executive will develop a specific national information management and training education strategy in 1999. It intends the learning programmes to be fully integrated with organisational changes. Likely areas for learning include managing records and clinical coding. The NHS Executive considers, however, that short-term system-specific training needs to be complemented by training aimed at the long-term goal of developing an information culture in the NHS.

Thoroughly monitoring expenditure on the Strategy

5.19 The NHS Executive has not set a lifetime budget for the new Strategy or lifetime budgets for its constituent projects for the reasons explained in paragraph 3.13. The Information for Health document does, however, mention that over the lifetime of the Strategy, the Government will support implementation of the Strategy with investment in excess £1 billion. It also refers to using the Modernisation Fund to aid implementation and lists the national infrastructure to be funded centrally. The NHS Executive intends supporting documentation on implementation to provide more detail on funding arrangements, such as how Modernisation Fund money is to be distributed among the various projects. But we consider that, without overall expenditure plans, the NHS Executive will face

difficulties in adequately planning the constituent projects that make up the Strategy and in monitoring expenditure on it. The Executive has told us that the work it is undertaking, to ensure that local health communities produce costed implementation strategies, and to ensure that the work of the National Information Partnership is properly directed, will ensure such expenditure plans are developed during the first phase of implementing the Strategy.

Ensuring projects are independently evaluated and findings disseminated to the NHS

5.20 The NHS Executive has issued a circular (HSC 98/225) that states that there are three levels of evaluation to be considered:

- evaluation of implementation of the national strategy;
- evaluation of implementation of Local Implementation Strategies;
- evaluation of individual information systems implementation projects.

5.21 The circular makes clear that the NHS Executive expects evaluation to be undertaken regularly, in a systematic manner, with the results of the evaluations incorporated into the implementation process. But the Strategy and the supporting circulars provide only general criteria and milestones against which to assess projects and they do not give detailed guidance on developing evaluation plans, or carrying out evaluations, for component projects or the completed overall strategy. The documents also omit what evaluation plans the NHS Executive itself has for the overall Strategy. Given the scale of the expenditure on the new Strategy, it will be important for evaluation plans to be developed and implemented in good time to ensure that any emerging problems are identified as soon as possible, and to assess whether value for money is being achieved as expected. The NHS Executive intends to issue more detailed guidance on these points in 1999.

Providing practical advice on the development of information systems for community services

5.22 The NHS Executive intends to review the costs and benefits of the time spent by community staff on collecting data for Körner returns (data collected largely for contractual purposes). It expects this review to lead to the end of such data collection. This is likely to change the overall requirements of community

information systems. The NHS Executive will use results of the Community Information System for Providers programme to develop new guidance on information systems for community services.

Increasing the use of the NHSnet, especially by general practitioners and community health trusts

5.23 In the new Strategy document, the NHS Executive acknowledges that reluctance to connect to, and use, the NHSnet stems, at least in part, from the cost of using the service. The NHS Executive will therefore meet these costs centrally from April 1999 in order to encourage more rapid adoption of the service. The NHS Executive also acknowledges that perception in the NHS of the Access Agreements and Code of Connection as overly restrictive is another disincentive to use of the NHSnet. The Executive will therefore review the Access Agreements and Code of Connection to ensure that the balance between arrangements for security and accessibility is appropriate.

Summary of progress made and the scope for further improvements

5.24 The new Strategy represents an improvement in design over the 1992 Strategy in several respects. The inclusion of overall objectives is an improvement in terms of coherence and provides a better starting point for assessing the success of the Strategy. The development of agreed local implementation plans should also help. But we consider the 1998 Strategy's objectives and targets should be made specific and measurable if they are to be useful.

5.25 We consider that the NHS Executive's development of a programme management framework, which identifies essential tasks, their timing, resources implications and the parties involved, to be essential work, especially as it will enable the Executive to co-ordinate the constituent projects. This work will overcome some of the drawbacks we see of not producing an overall business case and we look to the NHS Executive to ensure that they meet their target to complete it.

5.26 The NHS Executive has proposals for improving the use of NHS information management and technology staff, improving communication about the Strategy in the NHS. The Executive also plans to increase the use of the new NHS number. Case Study 3 provides an example of how the NHS number can be used to advantage. The NHS Executive has also stated that it expects evaluation to be done but has not made clear what overall evaluation plans it has.

Case Study 3

Using the NHS Number to link healthcare data to improve service provision at Walsall Health Authority

Problem: Walsall Health Authority wanted to link datasets for three key conditions – diabetes, coronary heart disease and strokes – so they could examine how effective the care they commissioned was and review the resources needed for that care. The treatment, care and outcomes for any given patient with one of the three conditions was recorded in various computer files according to whichever part of the NHS provided the services: GP, hospital and community trust. Without a unique identifying number, records for the same patient could not be linked and summarised without very labour intensive matching of names and supporting details.

Action: The authority linked the datasets within each condition using the NHS Number and provided the information to GPs to review the care received by patients.

Outcome: Valuable information on the effectiveness of different treatments was obtained. GPs commented on the effectiveness of services provided, particularly with regard to the balance of acute and community care. The health authority used their comments to develop clinical protocols, particularly for referrals and the co-ordination of a community service. The authority sees this approach as being at the centre of GP commissioning.

5.27 We believe that existing progress made with the 1998 Strategy needs to be supplemented by the following additional work to help ensure the success of the Strategy:

- the NHS Executive should develop operational versions of the objectives and targets of the Strategy so as to make clear what will be measured to identify whether they have been successfully achieved. The NHS Executive should devise means of measuring targets and make early arrangements to measure progress during the life of the Strategy;
- the NHS Executive should take care when preparing business cases for individual components of the Strategy to ensure that interdependencies are taken fully into account and to avoid problems, such as the double counting of benefits;
- the NHS Executive should, in the absence of a full overall business case, continue its work on the development of the programme management framework for the new Strategy as a matter of priority. It should summarise the results of the work in a diagrammatic form for dissemination throughout the NHS so as to provide the NHS with an overview of what the Strategy involves, when the various components are to be put in place and what resources will need to be applied. It should also ensure that this work leads to the production of expenditure plans for the life of the Strategy, so as to provide a meaningful basis for monitoring

expenditure – though we note the Executive’s reservations on this point, and ensure that it provides the basis for managing risk across the Strategy;

- the NHS Executive should monitor expenditure on the Strategy using expenditure plans covering its lifetime;
- the NHS Executive should produce clearer plans for the evaluation of the Strategy.

Appendix A

Study methodology

Selection of the six projects

1 We used two main criteria to select the six projects reviewed in this report. The first was that the study should include the projects with the highest incurred direct costs to the NHS Executive and the NHS. The New NHS Number, the Administrative Register, NHS-Wide Networking and the IM&T Training programme represent some 80 per cent of central spending on the IM&T 1992 Strategy, excluding that on the Hospital Information Support System and Read Codes projects – covered by separate Comptroller and Auditor General reports (Bibliography 1 and 2). We considered that the Community Information System for Providers and GP-Health Authority Links projects were likely to involve substantial expenditure by NHS Trusts, GPs and health authorities.

2 The second criterion was that the six projects should cover the four initiatives of the 1992 Strategy. The New NHS Number, the Administrative Register and NHS-Wide Networking are part of the IM&T infrastructure. The centrally funded Training programme represents the Enabling People initiative; and the Community Information System for Providers and GP-Health Authority Links projects are two of the National Facilitating Projects. The other initiative is Value for Money, which is the subject of this report.

Methods and analysis

The work of the NHS Executive

3 We assessed the work of the NHS Executive by reviewing the documents relating to the six projects and programmes, and the Strategy as a whole. We interviewed NHS Executive staff involved with individual projects to clarify points of detail in the documentation and to help us to understand the contexts in which key decisions were made.

4 The NHS Executive informed us that it was using the Project in Controlled Environment (PRINCE) project management methodology in much of its work, including the six projects, though not for the Strategy as a whole. We assessed the Executive's activities in the six projects and programmes against good practice criteria included in the PRINCE methodology. We developed detailed checklists, drawing on a specially commissioned PRINCE audit checklist produced for us by

CCTA, and on the NHS Executive Capital Investment Manual (Bibliography 19). We also developed criteria based on HM Treasury's guidance, *Economic Appraisal in Central Government, 1991*, in order to examine the business cases.

- 5** We reviewed the Strategy's documents as a whole to assess:
 - the extent to which there had been analysis of the overall costs and benefits of the Strategy;
 - the methods used to select one particular set of projects for inclusion in the Strategy rather than another;
 - the consideration of the ways in which the different projects would complement one another;
 - the consideration of the order of implementation of each project where this was critical to achieving any projected costs and benefits.
- 6** We also interviewed the former Executive Director of the Information Management Group about the rationale for the Strategy.

Progress in the NHS: individual projects and whole Strategy

7 Data obtained from the NHS Executive could, by its nature, only provide one perspective on the progress of the IM&T Strategy. To obtain the views of NHS staff directly involved in implementation about progress 'on the ground' we held meetings and conducted in-depth interviews with NHS staff involved in implementing the Strategy in 20 health authorities and trusts in the Spring and Summer of 1997. They were asked about their own progress and their views about the extent to which the activities of the NHS Executive had contributed to progress locally.

- 8** We selected health authorities and trusts using a number of stages:
 - six NHS regions were selected randomly, with replacement (that is the same region could be selected more than once);

- for each of the six regions a trust was selected at random: Crawley Acute & Mental Health Trust, Exeter & District Community Health Trust, Scunthorpe Community, Sheffield Children's Acute, South Downs Community, Thameslink Community;
- for each trust the main purchasing health authority was selected (West Sussex; North & East Devon; South Humberside; Sheffield; East Sussex, Brighton & Hove; West Kent);
- we agreed with the NHS Executive a selection of a further nine health authorities and trusts which were considered likely to exhibit good practice in view of the progress they had made in implementing projects: Tees Community Trust and Tees Health Authority (GP-Health Authority Links); Bradford Community (Community Information System for Providers); Doncaster Royal Infirmary (NHS Number), Royal Shropshire (NHSnet), Scunthorpe & Goole Acute (Efficiency Scrutiny: Patients not Paper), Avon Health Authority (GP-Health Authority Links and NHS Number) and Lincolnshire (NHS-Wide Networking).

9 Analysis by method of selection (random and good practice) showed no significant differences in terms of results obtained. We therefore pooled the results from all of the health authorities for the main analysis. This analysis took the form of a content analysis: the frequency with which issues were mentioned was taken as an index of their importance to NHS staff.

10 The site visits enabled us to establish what was actually achieved in terms of outcome and impact. The views obtained from the NHS health authorities and trusts, based on the opinions of informed observers, also allowed us to understand the problems faced and the issues to be resolved, before further progress can be made.

Other Sources of Evidence

11 We checked our analyses against those made elsewhere, particularly the Cabinet Office-sponsored reports 'Patients Not Paper' and 'Seeing the Wood, Sparing the Trees' (Bibliography 20 and 21), and the Audit Commission report on community systems (Bibliography 3), and found that our overall conclusions were broadly consistent.

Appendix B

Projects included in the 1992 Strategy

Projects originally included in the 1992 Strategy

Infrastructure Projects

New NHS Number

NHS Administrative Register

NHS-Wide Networking

Thesaurus of Clinical Terms (Read Codes)

International Classification of Diseases project (ICD-10)

Standards for Communication

Framework for Security

Electronic Data Interchange

Common Basic Specification Demonstration

Security & Data Protection

IM&T in Primary Care Projects

GP-Health Authority Links

GP Morbidity Data

FHSA Core Systems Re-write

Analysing Activities of GPs

IM&T in Community Health

Community Information Systems for Providers

IM&T in Hospitals

Hospital Information Systems Support

Integrated Clinical Work Station

IM&T in Commissioning

Developing Information Systems for Purchasers

Health Information Workstation

Patient Groupings for Health Data Analysis

Enabling People

IM&T Training Programme

Projects subsequently added to the Strategy

Central Clinical Coding Co-ordinators project

Community Grouping

Data Administration Project

Data Quality Initiative

Data Standards Programme

Electronic Patient Record

Enabling IM&T Support for Community H'care

General Practitioner-Provider Links

GP Systems Accreditation

Health Benefit Groups

Healthcare Modelling Programme

Information Technology Standards Programme

New Health Authorities Programme

NHS-Wide Clearing Service

Scoping Project for Planning Procedure Classification

Standards Enforcement in Procurement

Organisation Codes Development Programme

NHSweb

Standards Policy Group

Data Interchange Standards Programme

GP Health Data Collection (MyQuest)

Appendix C

Analysis of the objectives of the 1992 Strategy's six main projects and programmes

The New NHS Number

Objective

Starting from July 1995, to replace the present NHS number where it is currently in use and to begin active use of the new format NHS number in patient-based systems and data transfers throughout the NHS. ¹

Comment

In terms of the usefulness of the objectives, it is relevant to the project and specific, as it covers what is going to be done with the new number. However, it is not fully measurable or time-related. There are no details of where the number is 'currently in use' or of what is meant by 'active use'. There is no end-point to the project, so achievement of the objective cannot be measured using a timetable.

NHS Administrative Register

Objectives

It should be as economic and accurate as possible.

To enable basic administrative information to be shared between the organisations of the NHS. This will increase the accuracy and timeliness of the information and reduce the overall cost to the NHS of maintaining such information.

To improve the cost effectiveness and quality of service provided to patients.

¹ Source: business case for the NHS Number. The starting date of July 1995 differs from the February 1992 given in the 1992 IM&T Handbook.

Comment

The business case did not define 'economic' or 'accurate' in this context, so the objective is not measurable. There is no definition of 'as possible', so the objective is not specific. There was no timetable provided within which this objective should be achieved.

The objective is not specific as there is no definition of 'basic administrative information'. There is no benchmark to show either the current state of information sharing, or the level of sharing that is expected, so it will be difficult to measure whether or not this objective has been achieved. There is no timetable, so the objective is not time-related.

There is no definition of 'cost effectiveness' or 'quality of service', and no benchmark for the current levels of cost effectiveness and quality of service or exactly how much improvement is expected.

There is no specific timetable in the 1992 business case, only a statement that 'the majority of the registers will be installed in the financial year 96/97; the remainder will be installed in 97/98'.

NHS-Wide Networking

Objectives

We were unable to identify objectives for the NHS-Wide Networking project as a whole in the business case. The objectives of a major element of the project, as originally designed, the spine network, were stated in the business case as:

The task of the spine network would be to carry:

- **traffic flowing between Local networks, for example about 6 per cent of CMDS flows between purchasers and providers;**
- **traffic related to national applications or central administrative bodies, for example between the PPA and FHSAs and GPs;**

- **traffic between General Dental Practitioners (GDPs) and the DPB. This application currently runs on HealthLink. Since HealthLink is likely to be recommended as the spine network, then physically the GDP/DPB traffic would flow over the spine. However, the GDP/DPB traffic should be considered to be using its own logically separate network.**

These objectives do not make clear what the project is expected to achieve and do not provide anything against which progress can be judged.

Milestones were, however, set out in the 1992 *'An Information Management and Technology Strategy for the NHS in England - Handbook for IM&T Specialists'*.

A costed business case for NHS Networking and plans for its achievement will be presented to the ME [NHS Executive] in December 1992.

Subject to a favourable decision by the NHS Executive, the management arrangements for NHS Networking will be put in place during 1993, and the national spine network will be put in place by April 1994.

All major NHS organisations are expected to have the facility to communicate electronically with each other by 1996.

Comment

These targets are not sufficiently specific to be useful. The term 'major NHS organisations' is not defined. There is no specification that NHS organisations communicate information relevant to their business of healthcare using the NHSnet.

IM&T Training Programme

Objective

To stimulate, guide and support local training and development which will help all NHS staff to improve information management and technology skills and knowledge and to implement the national Information Management and Technology Strategy.

Comment

This objective is specific and relevant but not measurable or time-related. Owing to the annual basis of the Programme, there is no timetable for the overall Training Programme, only for the individual projects. This means that there is no expected time frame for achievement of the overall objective.

GP-Health Authority Links

Objectives

“to start moving towards a paperless transaction base between GPs and FHSAs to improve the productivity and deployment of surgeries’ and FHSAs’ staff, and the quality and timeliness of information transmitted. The link will initially concentrate on a two way exchange of data covering Registration changes and Items of Service Claims commencing in the first half of 1993. In the longer term the link could be used by GPs to send FHSAs summary morbidity and demography data; cytology reports; call and recall selections; annual reports; and other data sets.

Comment

This objective is specific, at least in the short term. It makes clear that the project aims to improve the productivity of staff and the timeliness of information in terms of registration changes and items of service claims. These aims are also relevant to the Strategy. But the phrase “to start moving towards” renders the objective practically unmeasurable. The lack of a completion date means that it has no effective time element.

From 1994, the objectives of the project were defined in terms of coverage rather than service quality or financial savings, with a target set of software for patient registration implemented in 80% of computerised GP practices by March 1996. In 1995, the targets were refined, with 100% of computerised practices to have implemented the registration software, and 80% of computerised practices the Items-of-Service software, by March 1997.

Community Information Systems for Providers

Objective

To support community providers in delivering high quality, seamless care through the effective use of IM&T.

Comment

This objective is relevant, but not specific, measurable or time-related. No benchmark of NHS staff skills is indicated against which progress could be measured. Owing to the annual basis of the project, there was no timetable for the overall Community Information System for Providers programme. Phase 3 was due to be completed in November 1994, but was formally closed in February 1995. Some further work continued into May 1995 called Community Information System for Providers 3.5.

Appendix D

The impacts, and the problems that reduce the impacts, of the projects and programmes examined

The Community Information System for Providers programme

1 The Community Information System for Providers project helped some individual pilot sites by providing momentum for local developments. Funding from the NHS Executive gave the opportunity for the pilot sites to identify their local information management and technology needs. But the pilot projects were mainly paper-based exercises and few went on to develop operational systems. This lack of examples of working computerised information systems limited the programme's demonstration of benefits to other community trusts. The dissemination of the lessons learned at the pilot sites was also not helped by being contained in numerous reports – 26 from the one of the three phases of the programme alone.

2 Nine of the 12 health authorities and trusts we visited who were aware of the Community Information System for Providers project believed that it poorly met the information needs of community trusts. And poor progress has been made towards the NHS Executive's 1992 aim that all community units should have person-based systems in operation by April 1997. In November 1996, a survey by the Information Management Group showed that only 17 per cent had such systems in operation. The NHS Executive expects the majority of the remaining 83 per cent to take up to two years to have person-based systems running, with the rest taking up to four years.

3 The continuing lack of a revised Community Minimum Data Set (CMDS) was regarded as a major problem for development of community systems, in the trusts visited. The trusts saw this as an issue that needs resolution at a national level to allow suppliers and organisations to invest in CMDS compliant systems, knowing that their investments will not be wasted. The new 1998 Strategy states, however, that development of community trust information systems is not to be determined by the needs of central returns but rather by the purpose of supporting treatment and care.

The Training Programme

4 The health authorities and trusts visited agreed with the NHS Executive's view that a training strategy is necessary. But only three out of 20 health authorities and trusts we visited believed current information management and technology training material provided sufficient preparation for the requirements of the 1992 Strategy. Only four health authorities and trusts we visited said that they derived significant benefits from the training material. Most said that some of the material had been useful for reference and local training.

5 The information management and technology staff of the organisations visited found most of the training material hard to use because of its extensive volume. Some suggested that the NHSnet would be a more appropriate medium for dissemination, if search facilities allowed key topics to be easily located, thereby saving time reading through the accumulated literature. Since our visits all new material has been made available on the NHSnet.

The New NHS Number

6 All the information management and technology staff interviewed by the National Audit Office welcomed the New NHS Number and identified potential improvements in administration and communication from its use. But they also said that the failure to co-ordinate the implementation of the New NHS Number with the other parts of the Strategy, as mentioned at paragraph 3.8, has slowed the realisation of most benefits. GPs, and other NHS staff, such as nurses and administrative staff, are not convinced of the benefits of the Number. They were either not using it, or are using it only as administrative data in letters rather than for clinical purposes.

7 As the New NHS Number is not yet in full use throughout the NHS the staff visited felt that there had been few actual benefits to date but that there are likely to be many in the future. The use of the Number in the pilot site visited has shown up duplicate records caused by changes of patients' names. The New NHS Number also allows 'health event linkage'. This means different health care professionals dealing with an individual, for example, a surgeon and general practitioner dealing with a stroke patient, can access the same medical records and so co-ordinate their care. The New NHS Number's check digit also allows most clerical errors in typing the Number to be detected.

8 The registration procedures for new-born babies can cause problems similar to those when using the previous NHS number. Under the Data Protection Act, only the Registrar of Births, Deaths and Marriages is legally allowed to issue

the Number. This means that details of the first health events in the life of a patient – antenatal care and birth – may not be linked to the patient, as the Number is only allocated after a birth is registered. The NHS Executive is exploring the scope for revising the allocation of NHS Numbers in order to address this problem.

The NHS-Wide Networking project

9 All the health authorities and trusts visited, except one, welcomed the NHSnet and saw many potential uses and benefits. But because there is no national directory of organisations connected to the NHS, the benefits of rapid communication and its facilities to search for information tend to be confined to local groups of health care purchasers and providers who are aware of each others' connections. The NHS Executive did not use the NHSnet to communicate with the NHS until mid-1998.

10 Those with well developed information management and technology saw the most potential for improving communication in the NHS. Those with a good infrastructure welcome the NHSnet and are keen to make more use of its facilities. Those with a low base are more concerned with getting their own information management and technology developed and are less concerned with using the Net.

11 Nearly all the 361 organisations connected to the Net are health authorities and acute trusts. Less than 10 per cent of GP practices are fully linked to the NHSnet, though the NHS Executive regards all GPs as linked since the introduction of the P1 link, which allows HealthLink users to access a limited set of NHSnet functions. Fourteen of the health authorities and trusts visited believed that the low involvement of GPs on the NHSnet limited its benefits.

12 General practitioners face several barriers in connecting to the NHSnet. Delays with the accreditation of GP systems have in turn delayed the connection of GPs to the Net. Weaknesses in the accreditation process allow systems that are not suitable for working on the NHSnet to be connected, thereby making the NHSnet difficult to use. The health authorities visited by the National Audit Office considered that the NHS Executive had not successfully addressed the problem of many systems available to GPs not being compatible with the NHSnet. They felt that the NHS Executive could have intervened in the market to encourage suppliers to develop systems that were able to link easily to the NHSnet, and failure to do so had undermined central efforts to promote the NHSnet to GPs.

13 The main method of funding the development of NHS-Wide Networking is through charges to NHS organisations. The health authorities and trusts visited viewed these charges as very expensive, prohibitively so in the case of GPs and community trusts. As part of the 1998 information strategy the NHS Executive will address this problem by paying for such charges centrally.

The GP-Health Authority Links project

14 The health authorities and trusts we visited felt that GP-Health Authority links were needed, and fourteen of the 20 we visited said that they had gained benefits, albeit limited ones, from them. But they were disappointed that the project had sought only to automate the exchange of specific administrative data, and had not taken a wider view of the information needs – particularly clinical information needs – of local sites, and had not promoted networks to support those needs.

15 The health authorities we visited were sceptical about the savings indicated by the NHS Executive's piloting of the GP-Health Authority Links project. This was because the savings were based on the assumption that a network would lead to the loss of administrative jobs, and hence cash savings. But in many health authorities this was not possible because the number of administrative staff was already at the minimum necessary to run the service. The health authorities also pointed out that the introduction of simplified patient registration and GP Items of Service forms had reduced the scope for savings as administrative costs had already been reduced through simplification of the forms. Two evaluation reports commissioned by the Information Management Group provided no evidence that the financial benefits projected in the business case had been realised.

The NHS Administrative Register project

16 The health authorities and trusts we visited regarded the NHS Administrative Register as overlapping with two other systems that provide essential administrative information on patients. These are the Exeter system – a system designed and operated by a consortium of health authorities – and the existing number tracing service. Sixteen of the health authorities and trusts we visited did not regard the Administrative Register project as cost-effective.

17 In June 1996, the NHS Executive evaluated the Administrative Register pilot sites and its report concluded that there had been no direct cash-releasing savings. The benefits realised were in fractions of whole time equivalents, with any savings at individual sites unlikely to reduce administrative staff employed.

Extrapolating savings across the NHS was therefore inappropriate unless organisations could combine administrative functions. The project has now been superseded by the NHS Strategic Tracing Service project, which makes use of the lessons learned from the Administrative Register piloting phase, and which will deliver its functions. The NHS Executive is reviewing the future of the elderly Exeter system.

Appendix E

An overview of the 1998 Strategy

1 The stated purpose of the 1998 Strategy is “to ensure information is used to help patients receive the best possible care”. The Strategy document also states that it “will enable NHS professionals to have the information they need both to provide that care and to play their part in improving the public’s health. The strategy also aims to ensure that patients, carers and the public have the information they need to make decisions about their own treatment and care, and to influence the shape of health services generally”.

2 The 1998 Strategy builds upon the 1992 Strategy, retaining many of the elements of the former strategy. For example, due to their continuing relevance, the 1998 Strategy retains the five key principles for the development of information and technology in the NHS (Part 1, Box 2) set down in the 1992 Strategy.

3 One of the cornerstones of the 1998 Strategy is the creation of Electronic Health Records (EHR). An EHR is a life-long record of a patient’s health and healthcare, combining individual Electronic Patient Records (EPR) from healthcare providers such as hospitals, specialist units, mental health services and community services. The objective is to create an EHR “that is eventually universally accessible and which records the health care of individuals throughout their life”.

4 Other projects included in the 1998 Strategy are:

- ensuring the NHS computer systems are millenium (Year 2000) compliant;
- connecting computerised general practitioner practices to NHSnet;
- establishing local Health Informatics Services;
- opening the National Electronic Library for Health;
- developing a national information management and technology training and education strategy;
- implementing the NHS Strategic Tracing Service.

Glossary of terms

Acute services	the treatment and care of patients that is usually relatively short in duration at least fairly intensive in nature. Typical acute services include accident and emergency, surgery and medical treatment under the direction of a physician.
Acute trusts	NHS bodies that provide acute services, usually through either district general hospitals or teaching hospitals.
Central Computer and Telecommunications Agency (CCTA)	an executive agency of the Cabinet Office providing expert guidance on information management.
Community health services	services, such as district nursing, health visiting, physiotherapy and chiropody.
Community NHS trust	an NHS organisation that provides community health services.
Community Minimum Data Set	a standard set of measures aimed at recording healthcare activity in the community health services, such as visits by district nurses. The continued development of the Community Minimum Data Set is to be reviewed in the light of the New NHS White Paper.
District health authorities	NHS bodies that were responsible, until 1996, for identifying the healthcare needs of their residents and commissioning health services to address those needs.
Electronic Health Record	a record of a person's health and healthcare from birth (or first contact) until death (or final contact). It summarises the records of a person's various Electronic Patient Records.
Electronic Patient Record	a record of a patient's personal details (name, date of birth etc.), their diagnosis and details of treatments. The record typically covers the care provided by a single NHS body.
Family practitioner committee	an NHS body responsible for managing the NHS services provided by general practitioners, dentists, community pharmacists and ophthalmic opticians. Family practitioner committees became family health services authorities, which in turn were merged with district health authorities to form health authorities combining the functions of both types of authority.
HealthLink	the networking system that enables suitable general practitioners' computers to communicate with similar machines at health authorities.

Health authority	an NHS body responsible for assessing the health needs of the population of its area, commissioning the healthcare required to address those needs, and for managing the services provided by general practitioners, dentists, community pharmacists and ophthalmic opticians.
Information management and technology	the design and operation of human, electronic and paper-based systems for handling the information needed for an organisation to function.
Information Management Group	a part of the NHS Executive that aims to improve the ability of the NHS to harness and benefit from the management of information and the use of information technology.
Infrastructure	in information management and technology terms, the hardware, software and standards that provide the basic structure for systems.
Internet	the international 'open' network of computers that uses mainly existing telephone lines for connection. Almost any modern computer can be connected to the internet.
Intranet	a networked, computer-based, electronic communication system that is either confined to a single organisation or is shared by a number of organisations with strict access controls. An intranet may provide access to the Internet but is usually protected from unauthorised access by Internet users. Is also known as a virtual private network.
Institute of Health Care Development (IHCD)	a not for profit organisation, formerly part of the NHS, that is concerned with the development of healthcare workers' skills.
Items of service	activities for which general practitioners receive specific payments. General practitioners submit items of service forms to health authorities in order to claim payments.
Körner Data	NHS data requirements devised by the Körner working party to record NHS service activity. Körner Data formed the basis of most performance measurement in the NHS during the internal market era.
Local network	in information management and technology terms, a network that connects a relatively small number of computers and is usually contained in a single organisation.
Network	in information management and technology terms, a means of enabling computers, telephones and other devices to communicate with one another. Networks may be 'virtual' – meaning that they do not exist as separate physical entities but rather as electronically defined ones.

Operational systems	in the context of NHS information management and technology, systems that are used for patient care as opposed to those that are used purely for other purposes. Patients' records in a GP practice constitute an operational system, as they are used for patient care, whereas a health authority payroll system does not.
Patient Master Index	the definitive list of the names, addresses, NHS numbers and other information, of the people served by an NHS organisation.
Regional health authorities	former NHS bodies that were responsible for, among other things, allocating resources to district health authorities and family health services authorities and monitoring their performance. Regional offices of the NHS Executive replaced regional health authorities in 1996.
Regional Offices (of the NHS Executive)	parts of the NHS Executive that manage the performance of regional groups of health authorities and hold trusts to account for matters that are outside the scope of service agreements (formerly contracts). The regional offices are responsible for approving capital investment in both health authorities and trusts within their areas.
X.25	a standard that enables the electronic communication of data. X.25 is used for some local networks.

Bibliography

- 1** The NHS Executive: The Hospital Information Support Systems Initiative; National Audit Office, HC332, 1995-96
- 2** The Purchase of the Read Codes and the Management of the NHS Centre for Coding and Classification; National Audit Office, HC607, 1997-98
- 3** For Your Information, A Study of Information Management and Systems in the Acute Hospital; Audit Commission, July 1995
- 4** Comparing Notes, A Study of Information Management in Community Trusts; Audit Commission, September 1997
- 5** An Information Management and Technology Strategy for England; NHS Management Executive, 1992
- 6** IMG Programmes and Projects Information Pack, B2214, NHS Executive, February 1997
- 7** The New NHS: Modern, dependable; Department of Health White Paper, Cm3807, December 1997
- 8** Information for Health: An Information Strategy for the Modern NHS 1998-2005; a National Strategy for Local Implementation; Department of Health NHS Executive, September 1998
- 9** Managing the Millennium Threat II; National Audit Office, HC 724, Session 1997-98
- 10** Managing Computer Projects in the National Health Service; National Audit Office, HC 22, 1990-91
- 11** Appropriation Accounts 1991-92 Volume 9: Classes XIII and XIV – Health and Office of Population, Censuses and Surveys and Social Security, HC 197- IX, 1992-93, pp 7-9
- 12** Wessex Regional Health Authority Regional Information Systems Plan, Committee of Public Accounts, Sixty-third Report, Session 1992-93, HC 658

- 13** Handbook for IM&T Specialists, Getting better with information; NHS Executive, 1992
- 14** The Hospital Information Support Systems Initiative, Committee of Public Accounts, Seventh Report, Session 1996-97, HC 97
- 15** The Purchase of the Read Codes and the Management of the NHS Centre for Coding Classification, Committee of Public Accounts Sixty-Second Report, Session 1997-98, HC 657
- 16** Economic Appraisal in Central Government: A technical guide for Government Departments; HM Treasury, April 1991
- 17** Report on the Review of Patient-identifiable Information, Caldicott Committee, Department of Health and British Medical Association, 1997
- 18** Information for Health: Initial Local Implementation Strategies, NHS Executive, HSC 1998/225
- 19** Capital Investment Manual; NHS Executive, 1994
- 20** Patients Not Paper: A Report of the Efficiency Scrutiny into Bureaucracy in General Practice; NHS Executive, 1995
- 21** Seeing the Wood, Sparing the Trees: Efficiency Scrutiny into the burden of paper work in NHS Trusts and Health Authorities; Department of Health, 1996