

# Northern Ireland Health and Personal Social Services

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## Information and Communications Technology Strategy

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July 2002  
For Consultation



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## 1. MANAGEMENT SUMMARY

### 1.1 Background

The Information and Communications Technology (ICT) Vision Statement<sup>1</sup>, issued for consultation in July 2001, describes a long-term vision for the use of ICT in the Health and Personal Social Services (HPSS). Responses to the consultation strongly supported the Strategy Vision.

The ICT Strategy for the HPSS is aimed at delivering the Vision. It is based on analysis of the current use of ICT in the service and consultation with service users, those directly involved in health and social care, and the Department for Health, Personal Social Services and Public Safety (DHSSPS / the Department).

Developments under way and planned elsewhere, particularly in England, Scotland, Wales and the Republic of Ireland, have been reviewed. Suppliers of ICT products and services were invited to present their perspectives on the future of ICT in health and social care.

This report is a further step in the consultation process. It sets out a strategy for ICT in the HPSS in terms of:

- ? the work to be undertaken to deliver the Strategy Vision;
- ? proposed priorities;
- ? how the work will be managed;
- ? possible timescales, and the scale of resources required.

The pace of implementation will depend on the availability of funding, the availability of people with the required skills and experience, and the capacity of the HPSS to absorb change.

The strategy will be further amended to take account of responses from this consultation.

### 1.2 Strategy Principles

A number of high level principles to guide the ICT strategy were agreed at an early stage:

#### **ICT will:**

- 1. Improve the care experience for service users.**
- 2. Support and empower care professionals and support staff in undertaking their work.**
- 3. Improve the efficiency of current service delivery (better outcomes for equivalent or reduced resources).**
- 4. Facilitate service innovation and development, in terms of custom, practice, process and location.**
- 5. Facilitate cross-sector cooperation and working.**

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<sup>1</sup> HPSS ICT Strategy - Vision Statement – Consultation Paper, June 2001  
<http://www.dhsspsni.gov.uk/publications/archived/2001/vision.pdf>

6. Support the research activities of the HPSS and the wider academic communities.
7. Support the development of clinical and social care governance and risk management within the HPSS.

In achieving the above it will be crucial that ICT:

8. Is adopted as an integral part of the business processes of the HPSS.
9. Enables the creation, access and exchange of high quality information between all partners.
10. Is able to evolve, in terms of service change, technology advances, social expectations and legal/ ethical requirements.
11. Is organised and delivered efficiently and effectively, taking account of scarce resources and focusing on HPSS requirements.
12. Exploits existing ICT investment where appropriate.

### 1.3 The Strategy Vision

The Strategy Vision used perspectives from the public, the HPSS, care professionals and the Department to develop a statement of how ICT should, in the future, make a vital contribution to health and social care.



Although the Vision is described in relation to health and social care, each element extends beyond the HPSS:

- ? **HPSS for the Citizen** is one aspect of **Public Services for the Citizen** as part of wider e-Government initiatives;
- ? **Delivering Direct Care** involves services provided by the voluntary and private sectors and working with other parts of the public sector.
- ? **Planning and Commissioning** needs data from a wide range of sources.

A wider range of organisations will be impacted by this Strategy than previous strategies, including independent contractors and other stakeholders. The Strategy also impacts on all health and social care professionals and should be read with a broad perspective.

So, reference to appointment booking applies as much to social workers and the professions allied to medicine as to doctors and nurses. A referral may be to a community or hospital-based service but could also be to the Housing Executive or to a voluntary or community organisation.

The Strategy Vision describes health and social care supported by information about services, about each individual's care, about best practice, about performance – all securely stored and communicated using ICT and accessible to authorised users wherever and whenever it is needed.

The Strategy Vision is summarised in this report and is available in full on the Department's website at:

<http://www.dhsspsni.gov.uk/publications/archived/2001/vision.pdf>

#### 1.4 Current ICT Services and Projects

Comparing the current situation with the vision it is clear that there are very many gaps to be filled.

ICT is now a common business tool, but in many areas of the HPSS care professionals do not have access to any ICT services, and the core business of health and social care is still paper-based.

Where ICT has been deployed, many users consider the systems to be near the end of their useful life and limited in capability when compared with ICT services now available and used elsewhere. Provision of information services for the public, especially electronic information, is very limited.

Nevertheless, ICT in the HPSS is providing vital operational support and is used to analyse data for management at all levels.

There are some characteristics of HPSS ICT that have enabled efficient and cost-effective deployment and offer particular opportunities for the future:

- ? the HPSS has always worked together in ICT matters. The strength of the commitment to collective action is stronger now than ever before. This has many benefits:
  - ? the overheads of undertaking new developments are shared across the service rather than falling entirely on individual organisations;
  - ? co-operation promotes Value for Money in procurement;
- ? with very few exceptions, the HPSS has common application systems across all organisations:
  - ? this results in the same data structures being used across the HPSS and in effect creates data standardisation;

- ? users who become familiar with a system do not have to learn another when they move location or if they work in more than one organisation.

Recent commitments to increased investment in HPSS ICT mean that work is already under way in some areas that directly support the strategy programme:

- ? a new Health & Care Number is to be introduced, compatible with the New NHS Number in GB;
  - ? this will support reliable identification of data relating to service users wherever the source of that data may be within the HPSS;
  - ? it will promote secure and reliable electronic communication of data.
- ? ICT systems across the HPSS are being brought together, making it possible to consolidate data that is currently locked in systems within individual organisations:
  - ? this is the foundation for an HPSS-wide Electronic Care Record;
  - ? ICT consolidation will facilitate potential service re-structuring;
  - ? when the time comes to replace existing ICT services, the consolidation will facilitate value-for-money proposals and simplify the replacement process;
- ? new ICT services being introduced for GPs and HPSS care professionals will provide electronic mail and Internet access, electronic transmission of pathology and radiology results and remote booking of outpatient appointments.

Altogether, this is a robust and coherent foundation for strategic development of HPSS ICT services. The challenge for this Strategy is to exploit the unique strengths of the local situation, and the opportunities they provide, and move the HPSS rapidly towards the achievement of the Strategy Vision.

## 1.5 Strategy Overview

The Strategy can be regarded as having two major, interlocking themes – **Electronic Care Records** and **Electronic Care Communications**. The emphasis of the Strategy is on these themes, but the need to sustain and modernise ICT in other areas is also recognised.

### Electronic Care Records

The electronic care record would contain structured data, text and images generated from a variety of sources and accessible wherever and whenever there was a legitimate need. Access would be managed under a strict “need-to-know” regime complying with agreed rules and procedures for confidentiality and consent.

The need for electronic care records is most obvious where care is to be provided through managed care networks involving a range of professionals, different locations and different organisations.

It is also in this scenario that electronic records are likely to offer the greatest benefits, as an essential tool for communication amongst care professionals, to manage data about individuals and their care, and as a way to enable new patterns of care delivery.

To achieve an electronic care record it is necessary for the data to be created in electronic form, typically through use of ICT at operational level. At present, for

example, there are elements of electronic care records held in ICT systems in various different locations:

- ? general practice systems;
- ? community systems, with more extensive coverage anticipated through introduction of new Person-centred Community Information Services;
- ? hospital systems – patient administration, clinical specialties, pathology, radiology, accident and emergency and others.

The Strategy recognises that the scale of the HPSS and the use of common systems offer opportunities for an innovative approach to electronic care records. In effect, the combination of developing care records within all organisations, increasing use of HPSS-wide specialist systems, consolidation of ICT, the Health & Care Number, and the use of common systems creates a virtual electronic care record.

The position will be reviewed as developments in introducing Electronic Health Records elsewhere mature.

### **Electronic Care Communications**

Health and social care processes are familiar to all service users. Almost every contact with the HPSS involves communication between care professionals, between functions, between HPSS organisations, or with other public and private sector bodies.

Examples include:

- ? appointments;
- ? referrals between care professionals;
- ? requests for services and communication of the outcome;
- ? discharge letters and other follow-up communications;
- ? prescribing.

Current ICT systems manage some aspects of these processes, but in most cases only within individual organisations. As a result, communication of care information in the HPSS relies on paper.

For this to change, more widespread access to ICT is required, and capabilities that in some cases exist already need to be made simpler to use and seamless for the user. There could also be added benefit from:

- ? providing care professionals with current information on waiting times for referrals and options on where to refer;
- ? automating data input wherever possible to simplify administrative tasks and improve data accuracy and completeness;
- ? providing intelligent support, for example to the prescribing process or the selection of investigations.

Providing ICT support for care communications and transactions will, of course, capture key data to contribute to electronic care records.

The Strategy seeks to maximise, as soon as possible, the use of ICT to support communication of structured care data and general communications involving care professionals.

## 1.6 Implementing the Strategy

The Strategy Programme has to balance a range of factors and needs to recognise that:

- ? basic ICT services (access to networked PCs) must continue to be put into place and extended;
- ? staff need to be developed in terms of their readiness, knowledge and skills for wider application of ICT;
- ? further policies and standards must be developed and mandated;
- ? the Health & Care Number must be introduced as an underlying support;
- ? some current applications are robust and can evolve and be built upon;
- ? for some areas new proven solutions are in place elsewhere that could be implemented in the HPSS;
- ? other areas require much further development to ensure robust, practical solutions that reflect HPSS needs and can work in the day-to-day operating environment.

Working from the Strategy Vision, and taking a regional strategic focus, some 95 potential ICT projects have been identified. Many of these are interdependent and they could not possibly be taken forward as separate, individual initiatives. A practical, coherent work programme is essential, and logically-related areas of development need to be grouped so that they can be effectively managed.

The Vision focused on stakeholder perspectives. Although valuable as a way of presenting and describing the Vision, there is so much overlap of ICT projects across the perspectives that they could not realistically be used as groupings for implementation. For example, all of the projects have at least some element of "Support for Staff".

Projects have therefore been divided into four related groups. Projects with interdependencies are grouped together, but there remain dependencies between the groups that will have to be addressed as part of overall programme management.

The proposed Strategy Programme Groups are summarised below with their key outcomes and proposed targets.

### ? **Group 1 – Information Governance**

**Issues associated with obtaining and using information, including ensuring an information-oriented and information-valuing culture.**

- ? **Confidentiality and Consent** is the foundation of trust between the HPSS and the public on which all other ICT developments must rest.

This Programme will deliver:

- ? a clear understanding of the ethical and legal requirements for confidentiality and consent in relation to personal data and an agreed plan of action to ensure compliance. Full implementation is likely to take a number of years, covering existing procedures and systems. The plan will provide guidance for all new developments to ensure they comply with confidentiality and consent requirements;

- ? education of the public and HPSS staff on requirements for confidentiality and consent including issues of anonymisation and the indirect use of personal data by the HPSS for planning and performance management. There needs to be a shared view of expectations, requirements and responsibilities in this area;
- ? organisational, procedural and technical developments to ensure the confidentiality of personal data. This will include agreed standard approaches across the HPSS that are capable of regular inspection and audit;
- ? confidence for the public and service users about the use of personal data by the HPSS, including continued use for management, research and other indirect purposes. This is a key outcome from this programme, providing an environment of trust which will allow the HPSS to exploit the development of electronic records and communications proposed in the ICT Strategy.

Targets:

- ✍ Develop and issue a Consultation Paper on Confidentiality and Consent.
- ✍ Complete strategy for Confidentiality and Consent, setting out a development programme that is acceptable to the public, the Information Commissioner, the HPSS, and professional bodies such as the General Medical Council.
- ✍ Ongoing targets to be determined as part of the development process.

- ? **Education, Training and Organisational Development** are all-encompassing requirements across all aspects of ICT. The demands will increase and become more complex as the HPSS becomes more sophisticated in its use of ICT and more reliant on ICT services.

This Programme will deliver:

- ? recognition and acceptance by HPSS staff, particularly care professionals, of the value of ICT in supporting their work;
- ? more HPSS staff with the skills and knowledge to use computer-based training and electronic knowledge bases and the skills to pursue other electronic resources for self development – the key outcome being a better-trained and more effective workforce;
- ? changes in HPSS working practices resulting in efficiency and/ or effectiveness gains, with staff comfortable using electronic data and information flows instead of paper;
- ? ongoing and effective use of ICT, as a matter of routine, by HPSS staff in the course of their work;
- ? improvements in the overall quality and efficacy of HPSS data, based on increased access and use by staff with the skills and knowledge to recognise errors, discrepancies and inaccuracies, and the source of such problems.

Targets:

- ✍ ICT training to become a core component of all formal training programmes (both student and in-service).

- ✍ All care professionals to have access to electronic knowledge bases.

- ✍ Computer-based training applications to be generally available.

- ? **e-Information** includes information for the public, for care professionals and in support of planning, commissioning and performance management. Useful information for management and planning is available from current systems and will become more sophisticated as more applications are implemented.

This Programme will deliver:

- ? a well-established structure of valued and used HPSS web sites, with links to accredited external sites. This will provide up-to-date information about HPSS services and how to access them and will also facilitate those experiencing specific problems, and their carers, wishing to access information and support services external to the HPSS;
- ? improved information for the public about use of resources, services that are available and the results that are achieved. Publication on HPSS websites is one effective way to provide up to date information on how the HPSS operates, and how it is performing in relation to targets and in terms of trends;
- ? improvements in the range, quality and timeliness of data available to support HPSS planning, evaluation and performance management;
- ? information to support introduction and evaluation of developing models of care such as managed care networks.

Targets:

- ✍ Development and implementation of an integrated HPSS web-site structure and corporate design.

- ✍ Further development of HPSS epidemiological and performance management information.

- ✍ Improved organisational structure to manage the development of electronic information, support information analysis and service the needs of the public and care professionals.

- ? **Group 2 – Health and Social Care**

**ICT applications that make a contribution to care, contribute to the service user's overall care experience, and directly or indirectly support care professionals at the point of care planning and delivery.**

- ? **Direct Care Support** is concerned with ICT supporting key diagnostic and care support functions such as pathology, radiology and pharmacy. ICT systems in these areas are now relatively standard products.

This Programme will deliver:

- ? secure provision of ICT services for areas where current services are regarded as being at risk because relatively old systems are proving difficult to support and modernise;
- ? improvements in internal support for departments through identification and addressing of gaps in current functionality;

- ? better integration with other areas to make service user data more consistent across systems, to reduce duplication and data entry, and to support electronic communication of requests and results between care professionals and support departments.

Targets:

- ✍ Establish a regional programme to evaluate options for pathology ICT services, including replacement of the existing system.

- ✍ Agree an HPSS strategy for Picture Archiving and Communications Systems, including a strategy for radiology information systems.

- ✍ Implement new medicines management and stock control systems to provide a basis for subsequent implementation of electronic prescribing.

- ? **Care Communications** is a more complex and innovative area concerned with messaging and the flow of information around the HPSS. It is concerned with replacing current paper-based communications and will, in part, also depend on data from systems in the Direct Care Support area.

This Programme will deliver:

- ? much faster flows of key information (such as referrals, results of investigations, appointments), facilitating quicker decisions about care and earlier certainty for service users in relation to their condition and further care to be provided;
- ? increased structuring of information exchanges between care professionals (with guidance on completion), improving the quality of communication and decision taking;
- ? greater capability to provide intelligent, relevant advice to care professionals requesting investigations, seeking referrals or prescribing drugs – for example providing intelligent support for drug and dosage selection;
- ? greater capability to structure processes, adopt workflow methods and identify exceptions and problems in processes where normal variances are exceeded. This particularly applies to referral, booking and discharge activities;
- ? facilitation of new methods of working within and across professions and organisations to allow care processes to be re-designed to best meet the needs of service users – for example, managed care networks and proposed Community Care and Treatment Centres;
- ? new methods of communication between care professionals that are effective and quick, suited to requirements and support better and quicker taking of decisions.

Targets:

- ✍ Implement comprehensive electronic results reporting systems covering pathology and radiology.

- ✍ Introduce electronic requesting systems.

- ✍ Widespread use of electronic systems for referrals and bookings to community and hospital services.

✍ Develop structured ICT support for the discharge process and wider professional communications.

- ? **Electronic Care Records** are a longer term objective. Electronic records will build from data originating in systems in the area of Direct Care Support and services supported through Care Communications.

This Programme will deliver:

- ? controlled access for care professionals to relevant electronic care data where and when they need it. This will reduce uncertainty about service users' history, previous investigations, and past care, providing a much better basis for care decisions and reducing uncertainty, waiting time and repeat appointments;
- ? accurate and timely electronic data relating to care planning and delivery that care professionals will value and rely on;
- ? ICT support to introduce new ways of working that enhance the efficiency and effectiveness of care for service users – for example making it possible to deliver care in regional, local and community settings with the complete, current care record being electronically available in each location;
- ? access for individual service users to their own electronic care records, in line with legislation; allowing them to check the accuracy of their records, be better informed about their condition and care, and take greater ownership of their records.

Targets:

✍ Provide HPSS-wide access to core hospital electronic care records – enabled through the consolidation of ICT services and introduction of a care data viewer (local access will be available first).

✍ Implement a Person-centred Community Information Service across the HPSS.

✍ Develop specialised electronic care records, focused on supporting managed care networks – over the period of the strategy.

✍ Finalise a strategic approach to life-long electronic care records.

? **Group 3 – Business Administration**

**Applications associated with operating the HPSS as an organisation (for example finance, supplies, personnel, payroll).** This is regarded as a relatively straightforward area for ICT applications as they can be mainly, though not fully, supported by well-developed package software.

This Programme will deliver:

- ? support in meeting the financial and related information requirements of the Northern Ireland Administration, including the Assembly, the Minister, the HSSPS Committee and the Department. New ICT services would provide much greater reporting flexibility and more up-to-date analyses;
- ? an efficient, flexible, modern, highly functional business environment to support organisational development and change;

- ? a fully functional suite of systems to fully meet the operational requirements of managers and staff and to support financial performance management;
- ? new services that are not subject to the shortfalls in the current systems environment;
- ? elimination of risk in relation to technical obsolescence, or limitations in support from current suppliers;
- ? services that will support effective migration to e-trading, reducing transaction costs;
- ? services that will facilitate multi-currency transactions including conversion to the Euro, should UK policy so require.

Target:

- ✍ Complete options analysis for ICT service provision in this area by, with the expectation that this will recommend procurement(s) to replace existing systems.
- ✍ Subject to that analysis, introduce new ICT services, in association with re-organised HPSS processes.

#### ? **Group 4 – Infrastructure**

**Infrastructure includes basic ICT and related services that are essential to underpin a fully ICT-enabled HPSS, for example the technical components associated with ICT, shared components such as networks, and standards for technology and data.**

This Programme will deliver:

- ? access to consistent and reliable HPSS (and other) data as a shared resource, for those who need it for planning, monitoring, commissioning, epidemiology, etc;
- ? basic ICT services, including desktop services, e-mail and Intranet/ Internet access, and electronic library services for HPSS and primary care staff;
- ? common technology, data and message standards for HPSS ICT, consistent with national and international standards; supporting initiatives to improve data sharing, communication and comparisons;
- ? reliable and sufficient network and server capacity (this will become an increasingly critical issue as care activities come to depend on ICT);
- ? secure, reliable and unique identification and authentication of service users and staff for HPSS ICT.

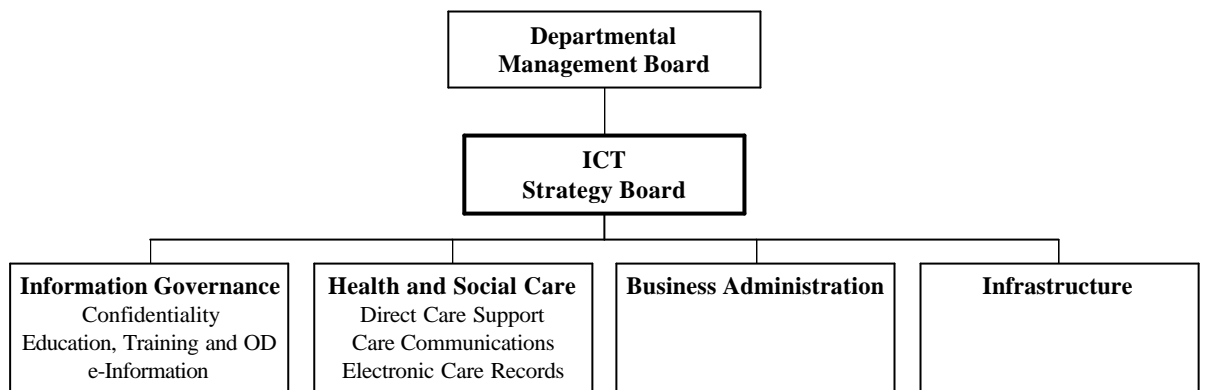
Targets:

- ✍ Implement the new Health & Care Number throughout the HPSS and family practitioner services.
- ✍ Implement an HPSS-wide electronic mail directory able to support Public Key Infrastructure services.
- ✍ Implement consolidated ICT systems with transfer of relevant services.
- ✍ Implement basic ICT services (PC access with mail and Internet access, fully linked to HSSnet) for all GP practices.
- ✍ Implement basic ICT services for all HPSS care professionals.

- ✍ Establish common services for publication of HPSS information on Internet and HPSS Intranet.
- ✍ Implement a common, shared HPSS data source or data warehouse, incorporating key HPSS and external data.

## 1.7 Strategy and Programme Management

The Regional focus and co-operation envisaged in the ICT Strategy needs to be reflected in strategy management arrangements. The proposed new arrangements, illustrated below, would replace all existing regional structures for ICT management.



The Strategy Board would include members from the Programme Boards and a total membership of up to 25 may be required to be representative of care professions and a range of HPSS organisations. Programme Boards would have between 8 and 12 members, drawn from the HPSS and DHSSPS.

The role of the Strategy Board would be to oversee the Strategy Programme, co-ordinate the work of the Programme Boards and ensure that the overall Strategy Programme continues to reflect strategic and business needs.

Programme Boards would have a more hands-on operational role to guide the work within individual Programmes and oversee individual projects, co-ordination between projects and co-ordination with other programmes.

## 1.8 Strategy Advisory Structures

Three advisory bodies are proposed to act as sounding boards and provide input to the Strategy Board and Programme Boards as required:

- ? the ICT Directors' Forum, consisting of Directors responsible for ICT from all HPSS organisations;
- ? the Care Advisory Forum. Membership would be drawn from across the professions and would consider strategic issues that cannot be resolved in conjunction with the professional representation in individual projects;
- ? the Advisory Group on Training and Education, an existing group established with an academic base that relates to, but is independent from, the HPSS.

These bodies would also have a role in assisting dissemination of information on progress of the ICT Strategy to HPSS staff, the professions, and academic institutions.

## 1.9 Strategy Support Services

There will be an overall Strategy Manager and each Programme Board will be supported by a Programme Manager who may also act as project manager for some of the constituent projects. Strong and effective working relationships between the Programme Managers will be essential.

The strategy will also require substantial administrative and other support. For example, procurement support will be required for a number of projects across all of the Programmes.

Strategy support services will include staff from the HPSS and the Department.

More detailed work on support structures and ICT support services will be taken forward during the consultation period.

## 1.10 Implementation Principles

These principles are intended to ensure that in taking forward the ICT Strategy the HPSS takes a common approach, recognises resource constraints and has the maximum likelihood of success. They will form part of assessment criteria for project proposals, business cases and project plans.

### IMPLEMENTATION PRINCIPLES

1. Confidentiality and security of all personal information will be recognised as a fundamental requirement for all new ICT development. Clear statements on these issues showing adherence to the forthcoming confidentiality policy and strategy will be required in business cases and implementation plans.
2. All ICT application software related projects will be led by senior staff from the relevant business or care area with appropriate levels of project management and technical support. Proposals, business cases and specifications must focus on service need, processes, outputs and benefits. Identification and resourcing of education and training requirements will be essential.
3. The Health & Care Number will be the key identifier for service users and its use will become mandatory on all care records and communications as soon as possible.
4. Where they exist, the use of regional ICT technical and data standards will be mandatory, with new standards adopted as they are developed and published. Regional standards will be derived from UK and International standards. The Region is presently represented on the UK and ROI Information Standards Boards and Sub-Boards.
5. In view of limited resources, maximum benefit must be gained from existing applications. Replacement of existing applications must be justified on the basis of failure to meet critical business needs, which may include inability to support other key ICT developments, or significant technical or organisational risk.
6. There will be a presumption in favour of common, HPSS-wide solutions and procurement. Any deviation from this principle for alternative local solutions will require a very high level of justification founded on unique business need and benefits.
7. There will be a presumption in favour of package software solutions sourced from reputable and stable suppliers with proven previous implementations. In-house development and bespoke solutions will only be considered where package solutions have been clearly demonstrated to be inadequate.

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| <p>8. Partnership working between HPSS and FPS bodies, the wider public sector and private sector solution suppliers will be crucial to the success of the Strategy, will be expected as a matter of course, and in many cases can be expected to be based on long term working relationships. Widespread ownership and commitment will be encouraged.</p> <p>9. ICT expenditure will not be regarded as a separate area of investment but as a core and integral part of service delivery expenditure when new developments are being planned.</p> |
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## 1.11 Funding Requirements and Timescales

The costs of each element of the Strategy have been estimated and an overall funding profile has been developed. This is based on a challenging but achievable programme of work that reflects the views expressed during consultation on the Strategy Vision, the scale of change required, dependencies between projects, and reasonable timescales allowed for options analysis, procurement and implementation. The targets quoted elsewhere in the Strategy are based on this programme.

The total funding requirement amounts to some £110 - £120 million with ongoing annual costs in the region of £15.5 million. This represents a major step change in the level ICT investment in the HPSS, but it is relatively modest in comparison with commitments and plans elsewhere.

If additional funding at this level were to be made available over an eight-year period, the total annual ICT expenditure in the HPSS would be some £30million – 1.2% of revenue.

The target for the NHS in Wales is to increase ICT spend to 2% of revenue by 2005 – for the HPSS that would represent a total of £50 million.

In England, the NHS is projecting an ICT spend of around £2billion pa. This is more than 3% of revenue – in excess of £75million in HPSS terms.

These figures make a number of assumptions and do not include a number of areas where requirements and costs cannot be fully estimated at this point. These assumptions are as follows:

- ? developments associated with funding already agreed will have ongoing revenue costs beyond 2003/04. These costs are included within the Total Spend figures;
- ? costs have been included for ongoing PC replacement. This eventually rises to the region of £4-5m per annum;
- ? the costs of implementing any PACS developments, associated radiology system enhancements and ongoing network (additional bandwidth) costs have not been included. These will need to be assessed as part of a separate project to develop a Northern Ireland wide PACS strategy;
- ? ongoing cost of supporting electronic reporting to GPs is assumed to be a GMS expense as opposed to a cost on the ICT Strategy;
- ? funds have been included for the development of specialised electronic care records to support specialist areas and managed care networks. However, these estimates are effectively a pool of funds for such projects and cannot be assumed to include all possible developments in this area. Costs for ICT support should in future be included within the overall costs of funding the service developments;

- ? costs for developing longitudinal, lifelong electronic care records are not included given the poor state of definition at present of this area. These will be evaluated in a review study to be undertaken as part of the ICT Strategy and this will draw on experience from the rest of the UK. There is likely to be a significant funding requirement but this will depend on the final definition and scope of these records;
- ? no contingency sums are included. Given the complexity of this area of ICT a 15-20% allowance would be a wise precaution.

A funding profile based on an eight-year programme has been used to develop and support bids submitted as part of the 2002 Spending Review, covering the three years 2003/04 to 2005/06. As part of the process, the total demand for those three years has been expressed in prioritised funding blocks, each of around £3million per year.

**Block A – Introducing electronic communication of basic care information.**

This would provide and maintain services for General Practitioners and HPSS care professionals so that they could access ICT systems across organisational boundaries, receive results of requests, and use a range of electronic libraries and other reference sources.

Specific initiatives to be taken forward, together with their impact, are:

- ? Booking outpatient appointments from GP practices.  
Patient involvement in the booking process; Reduction of patient uncertainty; Anticipated increase in attendance rates at clinics.
- ? Common system for Cancer Chemotherapy prescribing.  
Support for oncologists developing chemotherapy regimes; Shared access to patient data across the Cancer Centres and the Regional Centre.
- ? Electronic reporting to GPs of Pathology and Radiology results.  
More rapid and reliable reporting to GPs; Reduction in patient waiting time for results; Reduction in phone queries to hospital departments.
- ? Access to National Electronic Library for Health.  
Increase in evidence-based care; Improved quality, and equality, of care.

**Block B – Helping care professionals to assess, plan and deliver care.**

This block would fund new person-centred information services for care professionals in community settings and some similar services in hospitals.

Specific initiatives to be taken forward, together with their impact, are:

- ? Person-centred community information services.  
Professionals involved with community care would have ICT support for referrals and to assist with assessment, planning and management of care. This would have direct benefits to service users from increased efficiency of processes, more informed care planning, and because care professionals would no longer have to commit time to unproductive form-filling.
- ? Electronic requesting and reporting in hospitals.  
Clinicians requesting services from other departments would be able to do so electronically and would be able to review all previous and outstanding

requests and results. Benefits include more rapid return of results, improved quality of patient care, reduced duplicate and unnecessary investigations, and reduced telephone time to get results.

### **Block C – Supporting care delivery across organisational boundaries.**

This block would introduce ICT services to facilitate care planning and delivery where several organisations are involved, in effect using ICT to enable seamless care.

Some specific initiatives to be taken forward, together with their impact, are:

- ? Introduction of a “care data viewer” across the HPSS.

This would allow care professionals (subject to appropriate controls) to access electronic data about service users from any HPSS source at the point of care, sharing information so that what is known to one part of the service is, in effect, known to any part of the service.

- ? Electronic discharge planning.

To provide ICT services to support and co-ordinate discharge from hospital to community and primary care. Improved communications and planning surrounding discharge should reduce unnecessary delays and assure provision of services required by discharged patients.

- ? ICT support for managed care networks.

Managed care networks are, by definition, multi-organisational and multi-professional. ICT services are essential to facilitate and enable this change in care delivery. They would provide specialist ICT services to support cross-organisational care for particular conditions or disease groups such as cancer, diabetes, mental health, coronary heart disease, asthma.

### **Block D – Increasing the pace of strategy implementation to match the Strategy Programme and meet e-public service targets.**

This block increases the pace of introduction of the person-centred community services outlined in Block B and provides support for that increase by funding a further step change in availability of basic ICT for care professionals. The block also includes funding for a regular replacement programme for ICT that, at this level of investment, will have become essential. The replacement programme is at the level of refreshing “desktop” technology on a five-year cycle compared with the 3-year cycle used in the NICS.

Specific initiatives to be taken forward, together with their impact, include:

- ? Person-centred Community Information Services.

Acceleration of the PCIS programme to enable implementation across the HPSS to take place within three years rather than five.

- ? Essential ICT refresh programme.

Recognising that ICT has become an essential element of quality care in the HPSS, and that equality of care relies on professionals having ready access to information resources, this programme will ensure on an ongoing basis that care professionals are equipped with the basic ICT tools that they need.

## 1.12 How to respond

This is a draft document for consultation. There is considerable scope for differences in opinion and views and it is anticipated that there will be changes to priorities and approaches in reaching a final programme.

Consultation questions are included in sections 3-8.

Responses to the consultation questions and any comments on the Strategy may be sent by e-mail to

[strategy@dis.n-i.nhs.uk](mailto:strategy@dis.n-i.nhs.uk)

or in writing to

HPSS ICT Strategy Project  
Directorate of Information Systems  
DHSSPS  
Centre House  
79 Chichester Street  
BELFAST  
BT1 4JR

Responses should be received by 31<sup>st</sup> October 2002.

## **2. INTRODUCTION**

### **2.1 Background**

The Information and Communications Technology (ICT) Vision Statement<sup>2</sup>, issued for consultation in July 2001, describes a long-term vision for the use of ICT in the Health and Personal Social Services (HPSS). Responses to the consultation strongly supported the Strategy Vision.

The ICT Strategy for the HPSS is aimed at delivering the Vision. It is based on analysis of the current use of ICT in the service and consultation with service users, those directly involved in health and social care, and the Department for Health, Personal Social Services and Public Safety (DHSSPS / the Department).

Developments under way and planned elsewhere, particularly in England, Scotland, Wales and the Republic of Ireland, have been reviewed. Suppliers of ICT products and services were invited to present their perspectives on the future of ICT in health and social care.

This report is a further step in the consultation process. It sets out a strategy for ICT in the HPSS in terms of:

- ? the work to be undertaken to deliver the Strategy Vision;
- ? proposed priorities;
- ? how the work will be managed;
- ? possible timescales, and the scale of resources required.

The pace of implementation will depend on the availability of funding, the availability of people with the required skills and experience, and the capacity of the HPSS to undertake and absorb change.

The strategy will be further amended to take account of responses from this consultation.

### **2.2 Strategy Principles**

Historically, ICT has been used by HPSS functions that involve substantial recording and processing of data. The scope for exploitation of ICT in the HPSS is now very much broader and the emphasis of this Strategy is on areas where ICT can make a direct contribution to health and social care – the core business of the HPSS.

The ICT Strategy Vision describes a future HPSS where ICT and associated services have become an integral part of the equipment of care professionals. The vision is based on a high-level set of strategic principles that were agreed early on in the strategy development process to establish the direction for ICT in support of health and social care.

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<sup>2</sup> HPSS ICT Strategy - Vision Statement – Consultation Paper, June 2001  
<http://www.dhsspsni.gov.uk/publications/archived/2001/vision.pdf>

**ICT will:**

- 1. Improve the care experience for service users.**
- 2. Support and empower care professionals and support staff in undertaking their work.**
- 3. Improve the efficiency of current service delivery (better outcomes for equivalent or reduced resources).**
- 4. Facilitate service innovation and development, in terms of custom, practice, process and location.**
- 5. Facilitate cross sector co-operation and working.**
- 6. Support the research activities of the HPSS and the wider academic communities.**
- 7. Support the development of clinical and social care governance and risk management within the HPSS.**

**In achieving the above it will be crucial that ICT:**

- 8. Is adopted as an integral part of the business processes of the HPSS.**
- 9. Enables the creation, access and exchange of high quality information between all partners.**
- 10. Is able to evolve, in terms of service change, technology advances, social expectations and legal/ ethical requirements.**
- 11. Is organised and delivered efficiently and effectively, taking account of scarce resources and focusing on HPSS requirements.**
- 12. Exploits existing ICT investment where appropriate.**

### 2.3 The Strategy Vision

The Strategy Vision used perspectives from the public, the HPSS, care professionals and the Department to develop a statement of how ICT should, in future, make a vital contribution to health and social care.



The Strategy Vision used this map of HPSS interests to look at the service from a number of different viewpoints. Some of these match to particular functions. For example, Finance and Human Resources functions are part of **Business Administration**. Others relate to most, if not all, of the HPSS. For example **HPSS for the Citizen** or **Support for Staff**.

Although the vision is described in relation to health and social care, each element extends beyond the HPSS:

- ? **HPSS for the Citizen** is only one aspect of “Public Services for the Citizen” as part of wider e-Government initiatives;
- ? **Delivering Direct Care** involves services provided by the voluntary and private sectors, and working with other parts of the public sector;
- ? **Planning and Commissioning** needs data from a wide range of sources.

There is also considerable interaction between the elements.

Current organisational boundaries – acute care, primary care, community care – are not referred to in the description of the Strategy Vision. This is deliberate because:

- ? care often involves more than one HPSS organisation, often involves organisations outside the HPSS and should not be constrained in any way by these boundaries – the focus must be on the needs of the service user;

- ? organisational boundaries change over time; and
- ? ICT solutions are capable of operating across organisations and are often particularly beneficial in such circumstances.

A wider range of organisations will be impacted by this Strategy than previous strategies, including independent contractors and other stakeholders. The Strategy also impacts on all health and social care professionals and should be read with a broad perspective.

So, reference to appointment booking applies as much to social workers and the professions allied to medicine as to doctors and nurses. A referral may be to a community or hospital-based service but could also be to the Housing Executive or to a voluntary or community organisation.

The Strategy Vision describes health and social care supported by information about services, about each individual's care, about best practice, about performance – all securely stored and communicated using ICT and accessible to authorised users wherever and whenever it is needed.

The Vision is summarised below and is available in full on the Department's website at:

<http://www.dhsspsni.gov.uk/publications/archived/2001/vision.pdf>

### 2.3.1 HPSS for the citizen

#### **Citizens should be able to:**

- ? access reliable information on health and social care issues;
- ? access information on the health effects of different lifestyle choices;
- ? be identified through screening programmes to receive assessment/treatment where applicable;
- ? access information on their condition and any proposed care and treatment when receiving health and social care;
- ? find out what services are available to them and how to access those services;
- ? access information on the performance of their local health and social care services, including outcomes;
- ? agree appointments during, or immediately following, a consultation;
- ? have a role in determining the security and confidentiality of their own information and how it is used;
- ? have electronic access to their own care records;
- ? have confidence that care professionals have access to the information and information services necessary to provide the best possible care;
- ? make use of standard automated electronic services for routine interactions, such as repeat prescriptions;
- ? electronically consult with care professionals on specific issues;
- ? have a unique personal identifier used in all interactions with the HPSS.

#### **Current situation**

Screening for Cervical and Breast Cancer is in place and the Child Health System is a key component of vaccination and immunisation programmes and developmental screening.

It is difficult to access information on services and service availability. The HPSS website is not part of a wider public information service and contains only basic information from some organisations.

### 2.3.2 Delivering Direct Care

#### Care professionals directly involved in care for individual service users should be able to:

- ? find out what services are available (across the HPSS and from organisations and agencies external to the HPSS) and how to access those services;
- ? access, at the care location, data about service users, including relevant data held within the HPSS and in other agencies or organisations. Although easiest to deliver within care facilities such as practices, community and hospital premises, data should be accessible from other locations such as ambulance services and the homes of service users;
- ? value electronic care records and depend on them to be accurate, complete and available;
- ? access accredited information and advice on specific problems, diseases and conditions with associated options for care and treatment;
- ? routinely use electronic care protocols/ care pathways to inform planning, to monitor and audit delivery of care – spanning community, hospital and primary care services – and to develop multi-disciplinary care packages;
- ? routinely use electronic transactions within and between organisations to support:
  - ? requesting services or investigations;
  - ? receiving results/ responses;
  - ? making referrals;
  - ? booking appointments;
  - ? sending and receiving care communications such as referral and discharge information;
  - ? prescribing medicines;
- ? deliver care in the community, away from hospital outpatient, investigative and day care departments, in locations that are more convenient to service users through:
  - ? telemedicine;
  - ? telecare;
  - ? digital imaging;
  - ? remote monitoring.

#### Current Situation

With a few exceptions, there is no ICT support for care professionals at the point of care. It may be possible to access previously recorded electronic data, but only from within the same organisation.

### 2.3.3 Support for Direct Care

Examples include pathology services, radiology services, blood transfusion services, the ambulance service, cancer screening services, communicable disease control, pharmacy and catering.

#### **Those involved in such areas should be able to:**

- ? access personal data relevant to the service they provide;
- ? routinely use electronic transactions and associated support software to:
  - ? conduct services, tests or investigations;
  - ? provide results;
  - ? send and receive clinical/ professional communications;
  - ? order and process orders for aids and appliances;
  - ? request adaptations to homes etc. from other agencies;
  - ? dispense medicines;
- ? develop and electronically publish standards, protocols and guidance;
- ? deliver services that are effective in supporting service users and other care professionals through:
  - ? telemedicine;
  - ? teleconsultation;
  - ? digital imaging;
- ? optimise the integration of medical equipment, clinical decision support tools and operational systems to automate, where practical, and to generally improve the clinical workflow.

#### **Current Situation**

Most direct care support departments have ICT systems. These support the running of the department and hold data about services provided to individual service users. Common systems are used across the HPSS.

Most systems are connected with one or more others, for example to share basic demographic data or to forward results.

#### 2.3.4 Support for Staff

##### HPSS staff should be able to:

- ? have confidence in ICT and regard it as an essential, useful and effective tool in their work;
- ? rely on ICT to support them in their work and to improve workflow processes within and between organisations;
- ? access information and support systems required by their role, wherever they are;
- ? have a staff identifier and associated electronic key used for all interactions with HPSS ICT;
- ? routinely, electronically, receive information and support in:
  - ? access to personal diaries, electronic mail and standard office support services (word-processing, spreadsheets, etc);
  - ? internet access (including for personal purposes within the terms of local policy);
  - ? access to validated professional knowledge bases and tools to support decision-making;
  - ? receiving professional notices and updates;
  - ? notification of up-to-date HPSS events and news;
  - ? booking training and receiving computer-based and/ or on-line training;
  - ? booking leave;
  - ? staff rostering/ scheduling;
  - ? preparation and submission of timesheets and expenses claims;
  - ? access to job vacancy information and job applications.

##### Current Situation

Most staff working in non-care areas, for example administration or finance, have access to basic ICT services including e-mail. Access to Internet or Intranet is more restricted.

Otherwise, staff are not actively supported by ICT services.

### 2.3.5 Business Administration

This incorporates areas of the HPSS that are not directly concerned with care delivery but are required to enable the organisation to exist and function (for example finance, supplies, personnel, payroll). Business administration functions in the HPSS are similar to those on other large organisations.

#### **Staff involved in business support functions should be able to:**

- ? conduct routine electronic (e-business) transactions with high levels of system automation where practical for:
  - ? procurement, warehousing and distribution of all supplies including medicines;
  - ? debtor invoicing and creditor payments;
  - ? staff payments, including salaries and expenses;
  - ? home help payments, foster care payments etc;
  - ? all FPS claims and payments;
- ? hold full details of staffing records accessible, subject to appropriate confidentiality, across the entire HPSS;
- ? plan and deliver HPSS estate maintenance/ modernisation work;
- ? have common terminology and coding across the HPSS for all business functions, including:
  - ? finance;
  - ? supplies;
  - ? personnel/ payroll;
  - ? estates.

#### **Current Situation**

These are functions where traditional data processing has always been seen to give direct benefit and where ICT has been well established for many years. Common systems used across the HPSS are now rather elderly.

### 2.3.6 Planning and Commissioning

**Those involved in planning and commissioning should be able to:**

- ? use common currencies for comparison of services including:
  - ? health and social care conditions and elements of the individual's total service experience;
  - ? resource inputs;
  - ? outcome measures (service and user perceptions);
  - ? mortality and morbidity;
- ? assimilate and compare data within and across organisational boundaries;
- ? routinely draw upon and use data from a range of sources in population planning, epidemiology and health and social care-related research;
- ? access electronic knowledge bases containing validated, evidence-based information to inform local service planning;
- ? use geographic information systems (GIS) to support decisions on planning and commissioning.

#### **Current Situation**

These functions are supported by systems that bring together data from diverse sources to be manipulated and analysed as appropriate. The information base is by no means complete and there are major areas that remain under-exploited, for example primary care data.

### 2.3.7 Performance Management

Performance Management addresses the need for the HPSS to operate within regulatory frameworks, to assess and evaluate performance and to meet mandated targets. These topics impact across the HPSS from front line care through to Trust Management, Boards and Department.

#### **Those responsible for regulation and performance review of HPSS services should be able to:**

- ? use a wide range of standardised performance indicators for cross-sector and cross-organisational analysis and comparison;
- ? access, where relevant, real time status reporting information, for example to balance emergency intake against hospital capacity;
- ? routinely receive, and where necessary directly access, data available as a by-product of normal HPSS processes;
- ? obtain comparable and accurate data on clinical and social care governance, including:
  - ? health and social care outcomes;
  - ? audit results;
  - ? data protection and wider confidentiality compliance – Information Governance;
  - ? adverse incidents and near misses;
  - ? complaints;
  - ? infection control;
- ? obtain comparable and accurate data on corporate governance, including:
  - ? compliance with Programmes of Care;
  - ? financial probity;
  - ? avoidance of fraud;
  - ? risk management/ controls assurance;
  - ? equality.

#### **Current Situation**

Trusts, Boards and Department receive detail or aggregate data on a regular basis. Although in principle the data to be reported should be a subset of what is required operationally, in practice there is, throughout the HPSS, a minor industry in creating and validating performance management and other returns.

## 2.4 Purpose of this Report

The purpose of this report is to set out the ICT Strategy in terms of:

- ? the work to be undertaken to deliver the ICT Strategy Vision;
- ? proposed priorities;
- ? how the work will be managed;
- ? possible timescales, and the scale of resources that will be required.

Delivering all of the Strategy Vision will require a 7–10 year programme of research, development and implementation. For such a long period it is not reasonable to try to plan everything in detail – or to expect that resources can be definitively quantified and committed. The pace of implementation will depend on the availability of funding, the availability of people with the required skills and experience, and the capacity of the HPSS to undertake and absorb change.

The Strategy sets out the overall scale of resources that will be required. Some projects will support the release of some resources for re-investment, but this is not expected to be a primary source of funding. The Department must seek additional funds for ICT in competition with other HPSS and wider public sector priorities. Bids must recognise revenue costs, which will be significant, as well as capital. A clear, well-supported Strategy will be the context for seeking the high level of resources that will be required.

## 2.5 Changing Context

The HPSS has continued to change since publication of the Business Context and Strategy Vision.

The Acute Hospitals Review<sup>3</sup> proposes major change in the acute sector. Taking forward the Review of Primary Care<sup>4</sup> will involve change in the organisation of primary and community services including the new Local Health and Social Care Groups.

Ongoing change further emphasises the need for HPSS ICT to be independent of organisational structures and processes and to focus on service users, who will remain at the centre of HPSS organisation and activity.

Both reviews noted the important role ICT must play to enable new forms of service delivery, in particular to improve access to care information and to support communication between care professionals. The model set out in the ICT Strategy Vision is based on HPSS services and functions that will continue, regardless of changes in organisational structure. So, although recent reviews will have ICT implications that must be taken into account in implementing the Strategy, they do not fundamentally change the basis on which it is developed.

The HPSS continues to slip further behind equivalent services in England, Scotland, Wales and the Republic of Ireland, where significant new ICT developments can be observed. Historically, they have made much greater investment in ICT. Now, they have all set targets for major developments in health and social care ICT and are committing very substantial financial resources. The HPSS has a very long way to go to catch up and maintain an adequate rate of progress.

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<sup>3</sup> Acute Hospitals Review, DHSSPS, 2001

<sup>4</sup> Building the Way Forward in Primary Care, A Consultation Paper, DHSSPS, Dec 2000.

Within the HPSS, investment in ICT has not been even. Some parts of the service have made more progress than others in ICT applications, the extent of deployed infrastructure and the use of “desktop” services. The Strategy proposes significant investment in infrastructure, part of which will need to be targeted at making up existing shortfalls. This will be essential if the population as a whole is to benefit equitably from new ICT developments.

## **2.6 Format of this Document**

The Strategy is set out in the following sections:

- ? Section 3 reviews current ICT services, identifying areas on which the Strategy can build, and describes current strategic projects;
- ? Section 4 gives a high-level overview of the Strategy, outlines the overall scope of work required for implementation and proposes how this may be structured to represent a manageable programme of work;
- ? Section 5 describes the Strategy Programmes;
- ? Section 6 proposes organisational arrangements to oversee implementation of the ICT Strategy;
- ? Section 7 discusses timescales and resource requirements;
- ? Section 8 addresses equality consideration.

## **2.7 How to respond**

This is a draft document for consultation. There is considerable scope for differences in opinion and views and it is anticipated that there will be changes to priorities and approaches in reaching a final programme.

Consultation questions are included with each section.

Responses to the consultation questions and any comments on the Strategy may be sent by e-mail to

[strategy@dis.n-i.nhs.uk](mailto:strategy@dis.n-i.nhs.uk)

or in writing to

HPSS ICT Strategy Project  
Directorate of Information Systems  
DHSSPS  
Centre House  
79 Chichester Street  
BELFAST  
BT1 4JR

Responses should be received by 31<sup>st</sup> October 2002.

### 3. CURRENT ICT SERVICES AND PROJECTS

Comparing the current situation with the Vision it is clear that there are very many gaps to be filled.

ICT is now a common business tool, but in many areas of the HPSS care professionals do not have access to any ICT services, and the core business of health and social care is still paper-based.

Where ICT has been deployed, many users consider the systems to be near the end of their useful life and limited in capability when compared with ICT services now available and used elsewhere. Provision of information services for the public, especially electronic information, is very limited.

Nevertheless, ICT in the HPSS is providing vital operational support and is used to analyse data for management at all levels.

There are some characteristics of HPSS ICT that have enabled efficient and cost-effective deployment and offer particular opportunities for the future:

- ? the HPSS has always worked together in ICT matters. The strength of the commitment to collective action is stronger now than ever before. This has many benefits:
  - ? the overheads of undertaking new developments are shared across the service rather than falling entirely on individual organisations;
  - ? co-operation promotes Value for Money in procurement;
- ? with very few exceptions, the HPSS has common application systems across all organisations:
  - ? this results in the same data structures being used across the HPSS and in effect creates data standardisation;
  - ? users who become familiar with a system do not have to learn another when they move location or if they work in more than one organisation.

Recent commitments to increased investment in HPSS ICT mean that work is already under way in some areas that directly support the strategy programme:

- ? a new Health & Care Number is to be introduced, compatible with the New NHS Number in GB;
  - ? this will support reliable identification of data relating to service users wherever the source of that data may be within the HPSS;
  - ? it will promote secure and reliable electronic communication of data;
- ? ICT systems across the HPSS are being brought together, making it possible to consolidate data that is currently locked in systems within individual organisations:
  - ? this is the foundation for an HPSS-wide Electronic Care Record;
  - ? ICT consolidation will facilitate potential service re-structuring;
  - ? when the time comes to replace existing ICT services, the consolidation will facilitate value-for-money proposals and simplify the replacement process;

- ? new ICT services being introduced for GPs and HPSS care professionals will provide electronic mail and Internet access, electronic transmission of pathology and radiology results and remote booking of outpatient appointments.

Altogether, this is a robust and coherent foundation for strategic development of HPSS ICT services. The challenge for this Strategy is to exploit the unique strengths of the local situation, and the opportunities they provide, and move the HPSS rapidly towards the achievement of the Strategy Vision.

The rest of this section describes existing ICT provision and current initiatives. The Strategy Vision deliberately avoided describing ICT in terms of the structure of the HPSS. However, as most HPSS ICT has in the past been managed and implemented within the organisations that make up the HPSS, some organisational groupings are used in this section.

### 3.1 Current Situation – Family Practitioner Services

Almost all **GP practices** have computer systems for practice administration. Most of these are from a small number of suppliers who also service the GB market. The use of systems varies widely from practice to practice. They are used extensively for appointments and to manage repeat prescribing, but less so to record clinical information.

Although there has been no explicit statement of standards for GP ICT here, there is a high degree of standardisation because systems from these suppliers have to meet English NHS Requirements for Accreditation (RFA).

Many practices receive electronic laboratory results.

**Community Pharmacists** use ICT for stock control, prescription labelling, and to varying degrees for patient records. More than 80% of pharmacies use one particular system.

**Dentists** are also substantial ICT users. Systems from two suppliers (based in England) account for more than 80% of the total. The systems include detailed treatment data to support the claims process. Almost 60% of Dentists submit payment claims electronically.

The use of ICT by **Opticians** is less widespread, and is not related to the payment process.

Family Practitioners' systems are not, as a rule, used to communicate care information. Almost all communication with community or acute services is by phone or paper. ICT has had little impact on direct care or on the relationships between primary care and the rest of the HPSS.

GP systems, in particular, could hold a very rich set of data. The Data Retrieval in General Practice (DRGP) project has been working for some years to demonstrate the value of practice data. The project is committed to continuing its work, extending its geographical coverage and involving systems from different suppliers.

GP practice systems currently in place are a robust foundation for strategic developments in communication (RFA standards include a range of communication capabilities). But it is possible that they may not meet broader requirements in the medium to longer term emerging from the review of primary care.

There is no doubt that electronic communication between primary care services and the HPSS will become increasingly important. This will only be possible if the systems involved comply with communications and data standards.

**Permanent links to HSSnet** from GP practices are being introduced to support exchange of basic demographic data. Over the next two years practices will also be provided with a range of other ICT services.

GPs will be able to use **e-mail** to communicate with each other, with acute and community service providers and with colleagues outside the HPSS.

**Internet and Intranet** facilities will enable access to HPSS information sources, electronic publications and medical information databases and to wider information services throughout the world.

**Pathology and radiology results** will be sent electronically to all computerised practices, potentially reducing the time patients have to wait for results.

GPs will be able to submit **electronic Items of Service claims**, improving the payment process and reducing the time for payment.

Access to hospital **Patient Administration Systems** will allow GPs to view information about their patients and to book **appointments in outpatient clinics**.

These initiatives will facilitate modernisation of other communications between General Practice and other care areas – for example electronic referrals and discharge communications.

**In addition to endorsement of current initiatives, key findings from consultation on the strategy include the following.**

1. GPs should be encouraged to increase the use of their ICT systems to record clinical data.
2. Developments in electronic communication with primary care should conform to national standards.
3. The Department should review and formally adopt Requirements for Accreditation – at least as a minimum requirement for GP functionality.
4. Legislation should be introduced here to permit paperless records in GP Practice so that those wishing to adopt electronic records do not also have to maintain records on paper.
5. The procurement of community ICT services should take account of evolving relationships with primary care.
6. Supplier developments in primary care ICT should be kept under review, especially to appraise the potential for new services embracing primary and community care and for services addressing multiple practices.
7. The overall situation in this area, and especially the evolving needs for information support for commissioning, should be reviewed as part of development of plans for ICT support to Local Health and Social Care Groups

### 3.2 Current Situation – Community Care

Trusts involved in Community Care use common systems for Child Health and Social Services (SOSCARE). There is some divergence in other areas such as Mental Health, Community Nursing and Care Planning.

The systems hold data about individual service users, but they are of limited value to those directly involved in care. They were intended for retrospective recording and analysis, not to support care professionals at the point of care.

More recently, ICT systems were deployed to support contracting and contract monitoring. These provide no support for care professionals and recording data for them (on paper) is a significant drain on their time.

Apart from limited, isolated, pilot projects, there is no support for communication with primary care or with acute hospitals.

**Table 3.1 Major community applications.**

<b>APPLICATION</b>	<b>Total Installed</b>	<b>Possible life expectancy?</b>
SOSCARE	9	2-5
Child Health	4	2-5
Protechnic Mental Health	3	2-5
Data Collection Systems – LCID, CLAN, etc	7	2-5
Total	23	

Trusts are working together to introduce an integrated Person-centred Community Information Service (PCIS) that will support professionals in their caring role and HPSS management in planning and resourcing community services.

Contracts should be agreed with the chosen supplier early in 2003. It will take several years to implement PCIS across the HPSS, with the pace of implementation determined by availability of resources.

Trusts' Business Cases indicate that when PCIS is fully implemented:

- ? professional staff time will be released to improve quality of care;
- ? Trusts will be supported in providing person-centred care;
- ? effort on data collection will be minimised;
- ? care professionals will be able to share appropriate information such as assessments and service provision details;
- ? care planning will improve due to the availability of information to enable co-ordination of service inputs;
- ? primary, acute and community care will be better coordinated.

There is a substantial body of evidence supporting this initiative. It is an important element of the Strategy.

Proposals to consolidate ICT systems indicate that PCIS will be provided on a fully-consolidated basis rather than Trust-by-Trust: in effect working towards one implementation of the new PCIS serving all of the HPSS. This would help ensure that PCIS is able to respond relatively easily to structural changes.

PCIS implementation will need to ensure that access controls are sufficient to meet the requirements of Confidentiality and Consent in this context.

PCIS will also need to take into account changes in Primary Care and in particular the requirement to exchange and share information with primary care ICT systems.

**In addition to endorsement of current initiatives, key findings from consultation on the strategy include the following.**

1. Current community applications are not seen as effective or having a long-term future. All need to be replaced as part of the PCIS programme.
2. PCIS addresses needs long-expressed by community services and focuses on providing ICT support for functions that have been least-well served by ICT.
3. PCIS must take into account server consolidation and focus on an integrated ICT service.
4. PCIS needs to ensure that contract details are fully consistent with proposals relating to organisational arrangements for community and primary care services.
5. Existing community systems will have to be sustained for their remaining life – but only at a level sufficient to ensure that they are operationally viable.

### 3.3 Current Situation – Acute Hospitals

Acute hospitals have been involved with ICT for much longer than community or primary care services, mainly because they have functions (such as pathology and radiology) with complex data processing needs and have large-scale administrative requirements (booking clinics, printing patient documentation). These were obvious early candidates for traditional computerisation.

All acute hospitals use the Torex **Patient Administration System (PAS)**, one of the NHS market leaders. It is regularly updated by Torex and is generally regarded as acceptable. A number of Trusts have relatively long-term contracts for PAS support and there is no pressure for its replacement.

Additional functionality available in association with the Torex PAS, for example requesting services, reporting results or support for Professions Allied to Medicine, is used by some Trusts, but generally there is little or no direct support for patient care.

Systems in clinical departments are linked with the PAS to share demographic and other administrative data.

There is pressure from pathology professionals for a new **Laboratory System** and replacement options are being developed collaboratively. Whatever the conclusion, implementing a replacement will take considerable time so that any strategic needs over the next two years, at least, will have to be met by the existing system.

The key issue for **Radiology Information Systems** is their relationship with **Picture Archive and Communication Systems – PACS**. Some Trusts have already begun to implement PACS. The significant ICT content of PACS suggests that they should be procured as ICT systems, not as Radiology Equipment. For example, recent guidance<sup>5</sup> from the Department of Health in England states that PACS should be considered an ICT application.

The current Radiology System has a PACS interface, but there are indications that longer-term requirements may more effectively be met by a fully integrated package. There is a widely-supported view that the introduction of PACS should include an associated, integrated Radiology Information Service and that these should be acquired and implemented on an HPSS-wide basis.

The **Pharmacy System** is built around a stock management system for the Pharmacy Department. It was enhanced on a pilot basis to test the feasibility of electronic patient-level prescribing and administration. However, effective Medicines Management needs prescribing to be integrated with other direct care functions. Nevertheless, because of the close integration required between prescribing and the pharmacy service, it is likely that introduction of Medicines Management would involve replacement of the current pharmacy system.

Common systems have also been implemented in most hospitals for **Maternity, Paediatrics** and **Accident and Emergency** and there are a number of other relatively small-scale **Clinical Information Systems** in use.

Most pathology laboratories now send results electronically to GPs, but ICT is not generally used to share information across organisational boundaries other than in some specialised areas (**Cancer Chemotherapy, Renal** and **Diabetic** systems are being introduced on an HPSS-wide basis).

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<sup>5</sup> IM&T BUSINESS CASE GUIDANCE – Consultation Draft; DoH London; October 2001 – 6.3, para 8

Within Trusts, individual systems may be accessed from care areas such as hospital wards.

**Table 3.2 Major hospital applications**

<b>APPLICATION</b>	<b>Total Installed</b>	<b>Possible life expectancy?</b>
A&E	9	2-5
Clinical Information	8	2-5
Labs – Regional	10	2-5
Belfast Link-Labs	1	5+
Maternity	7	2-5
Radiology	11	2-5
Nurse Mgt (HBO)	1	5+
PAS	9	5+
Pharmacy	9	2-5
Drugs & Poisons	6	5+
Total	75	

The Chemotherapy prescribing and electronic patient record system used in Belfast City and Belvoir Park hospitals is being extended to the other Cancer Units. This will provide prescribing support for clinical oncologists working in all Cancer Units and ensure that they have access to the full chemotherapy record when treating patients. Rollout should begin early in 2002.

Providing additional ICT services for GPs will need some changes to hospital ICT. Introducing electronic outpatient appointment booking will need changes to hospital processes to accommodate new arrangements.

**In addition to endorsement of current initiatives, key findings from consultation on the strategy include the following.**

1. There is no indication that the existing systems need to be replaced in the short term to meet broader strategic objectives. Proposals to consider replacement systems, or new systems, in these areas may nevertheless be considered on their own merits.
2. To be accepted as part of the ICT Programme, project proposals will need to demonstrate that there is regional support for implementation of a common service.
3. Some existing systems will need to be enhanced in order to support current initiatives and future strategy projects. Changes will need to be co-ordinated to minimise the impact on users.
4. The HPSS should adopt a regional approach to PACS and should begin a project to evaluate PACS, possibly leading to a regional procurement and including a review of the suitability of the existing radiology information system.
5. Proposals to improve quality of care by introducing managed clinical networks or new specialty-specific information services should include the ICT support and resources required.

### 3.4 Current Situation – Business Administration

HPSS organisations use common systems for personnel, finance, payroll, general ledger, budgetary management and supplies. Some of the systems are rather old, having been originally developed more than 10 years ago.

There have been concerns for some time about their effectiveness. They are struggling to meet increasing management information requirements in a timely way, if at all. A number of important functions are not adequately supported and there are concerns about the sustainability of the systems. For example, the HPSS is one of the few remaining users of the Sanderson General Ledger and no further development of this product is likely.

Elsewhere, the NHS organisations has recently committed significant investment to modernise ICT in this area (England, Wales, RoI). Although this would not, in itself, justify the HPSS doing the same, it demonstrates that others have found such justification for themselves.

**Table 3.3 Major business administration applications.**

APPLICATION	Total Installed	Possible life expectancy?
Budget Profiling & Reporting	19	2-5
Central Payroll	1	2-5
Dental Payments	1	5+
BACS for FPS	1	2-5
GP payments	1	5+
HRMS	19	2-5
LAPS	19	2-5
Ophthalmic payments	1	5+
Pharmaceutical Payments	1	5+
SIS Stock/non Stock	19	2-5
SIS Warehouse	1	2-5
Travelling Expenses	19	2-5
Debtors Billing	19	2-5
General Ledger	19	2-5
WIMS (Est. Management)	16	5+
WIMS (Capital charging)	7	2-5
Total	161	

Options for future provision of ICT services to support these functions are being evaluated.

The Department has been allocated funds from the Treasury's Invest to Save Budget to support an **Electronic Prescribing and Eligibility System** (EPES). The objective is to reduce fraud by automatically (electronically) checking exemption claims against Social Security Agency computer records.

**In addition to endorsement of current initiatives, key findings from consultation on the strategy include the following.**

1. There is no indication that existing systems need to be replaced to meet broader strategic objectives. Proposals for replacement will be considered on their merits, but are likely to present a strong case given the age of the systems and lack of development prospects.
2. The current options analysis should continue and its recommendations will be considered alongside other competing priorities.
3. The EPES project will, inevitably, introduce electronic communications. This needs to be co-ordinated with other developments that may involve Community Pharmacists.

### 3.5 Current Situation – Regional Services and Management Information

Some applications are deployed at regional level on behalf of all of the HPSS.

**Table 3.4 "Regional" applications.**

<b>APPLICATION</b>	<b>Total Installed</b>	<b>Possible life expectancy?</b>
Cervical Screening	1	1-2
Cell Pathology	1	1-2
Breast Screening	1	5+
Central Health Index	1	1-2

There are some specialist organisations operating within the HPSS or closely related to it that provide specialist functions. These include the Northern Ireland Ambulance Service, Regional Medical Physics Agency, Northern Ireland Blood Transfusion Service, the Guardian ad Litem Agency, Northern Ireland Practice and Education Council, Health Promotion Agency, Cancer Registry.

They have developed and implemented ICT strategies appropriate to their specialist interests. They are also users of HPSS Business Administration applications and are linked to HSSnet.

The Central Health Index will be replaced as part of the UPCI implementation.

Options for Cervical Screening and Cell Pathology are being evaluated with a report expected early in 2002. The recommendations will be referred to the ICT Strategy Board.

#### **Management Information**

Most Trusts have implemented some form of management information service. In hospitals, this includes a "decision support" system that stores and analyses activity data extracted from operational systems.

Systems that provide data extracts for the decision support environment include: PAS (Inpatients, Outpatients, Ward attenders, Planned Activity, Waiting List), Laboratory (including Blood Bank and Cytology), Radiology, Maternity, Accident & Emergency, Paediatrics, Personnel and Supplies.

A very similar service is used by HSS Boards where essentially the same extracts provide data covering activity relating to all of the Board's residents for analysis to support commissioning. Boards bring into their analyses other data from the HPSS and relevant data from a variety of other sources.

A short pilot project to test the feasibility of extending the decision support system to an HPSS-wide service has demonstrated that this is readily achievable for PAS activity data at least. A "data warehouse" project within DHSSPS is exploring the concept further.

**In addition to endorsement of current initiatives, key findings from consultation on the strategy include the following.**

1. Specialist organisations should continue to develop and take forward local ICT strategies to address their own specific requirements.
2. Their strategies need to be expressed within the context of the wider HPSS and to take account of and exploit ICT developments, especially the UPCI project but also others relating to Electronic Records and Care Communications.
3. They also need to be able to communicate electronically with the rest of the HPSS and to be involved with HPSS-wide initiatives on E-information and Education, Training and Development.
4. The concept of a "data warehouse" for the HPSS should be explored as a potential service to support commissioning and performance management information requirements, including emerging needs of Local Health and Social Care Groups. HPSS and Departmental needs in this area are similar and could well be addressed by a common solution.

### 3.6 Current Situation – Infrastructure

HPSS organisations have local data networks that are linked by the private HPSS data network, HSSnet. In effect the whole of the HPSS is one large single network. HSSnet has secure connections with the Civil Service network, NHSnet, and the Internet.

A recent HPSS survey reported some 15,000 PCs of various ages and characteristics connected to HSSnet. Although this may seem to be a large number it is far short of what is needed to provide reasonable access to ICT services for care professionals.

#### **Mail Directory Service and PKI**

A mail directory service with an associated Public Key Infrastructure (PKI) is being implemented for the HPSS. This service will simplify e-mail across organisational boundaries. The PKI service is essential for encryption and to ensure authentication of users. This will be especially important as the HPSS makes increasing use of electronic care messages.

Successful implementation of the directory and PKI service depends on the identification of a clear focus of responsibility at local level for the maintenance of the directory data.

Infrastructure products and services are purchased using regional contracts. A number of these have recently been re-procured and now include options to call off a wide range of additional services. These are important for provision of ongoing and future ICT services and are outlined below.

#### **Unique Patient and Client Identifier – the new Health & Care Number**

A single, unique identifier within the HPSS is essential to allow secure and reliable identification of electronic data relating to individual service users, to support electronic exchange of data, and to enable shared access to data.

The Unique Patient and Client Identifier (UPCI) project was established to implement such a scheme across the HPSS. The new identifier is to be known as the **Health and Care Number**.

The Health & Care Number is compatible with new NHS Numbers that have been recently allocated in England and Wales and with identifiers used in Scotland and the Republic of Ireland.

The process of introducing the new number will include:

- ? creating a central database of demographic data for use in the HPSS. This will allocate new H&C Numbers;
- ? connecting the primary care sector to HSSnet so that all parts of the service can access the H&C Number database;
- ? inserting the new H&C Number into existing systems alongside existing identifiers;
- ? providing an electronic enquiry and update service so that up-to-date demographic details can be acquired from the H&C Number database or sent to it and forwarded to other relevant systems.

HSSnet enhancements required for the project will support the new services for general practitioners described earlier.

The contract should be agreed in 2002, with services starting to be delivered more or less immediately.

Consultation on the ICT Strategy has consistently reinforced the need for a secure, unique identifier. This project is a key enabler for many strategically desirable initiatives. Introducing the H&C Number is a key part of the strategy programme.

### **Network Services Procurement**

A new contract for the provision of HPSS data communications services is being established. The contract will allow for a managed service capable of meeting the overall wide area network communications requirements of the HPSS and Family Practitioners. Individual HPSS organisations will also be able to use the contract for internal network services.

### **HPSS Server Procurement**

The HPSS has framework contracts for the purchase of ICT equipment. These provide excellent value for money and have also made purchasing straightforward and rapid.

Framework contracts need to be renewed from time to time through formal procurement. The most recent procurement project finalised contracts for UNIX and Intel servers and a wide range of associated services in March 2002. The contracts are flexible and include the capability to purchase hardware and basic support services or to purchase a fully managed service with a specified capacity.

A large amount of ICT equipment in the HPSS is due to be replaced in the next year. Initial consultation on replacement options showed agreement in principle that for operational, strategic and value for money reasons the replacement programme should introduce a consolidated service.

This would bring together databases from all Trusts for functions such as Pathology, Radiology, Accident and Emergency, Child Health, Social Services, Maternity, Finance.... Because the new Health and Care Number will be used in the systems such consolidation would be a significant step towards an integrated electronic care record for the HPSS.

A detailed options analysis is under way.

### **Basic ICT Services for GPs**

GP practice connections to HSSnet for UPCI will be enhanced by implementing e-mail and browser services. The e-mail service will be part of the overall HPSS service and GPs will be included in the HPSS e-mail directory.

### **Basic ICT Services for HPSS Care Professionals**

The number of care professionals who have ready access to basic ICT services is being increased. Over three years 2,000 additional PCs will be installed and training will be provided for 10,000 care professionals. Allocation of resources under this heading will be related to proposals to demonstrate the exploitation of ICT in promoting and facilitating process innovation.

**In addition to endorsement of current initiatives, key findings from consultation on the strategy include the following.**

1. If the HPSS e-mail directory and PKI service is to be of real value there must be a commitment to keep it up-to-date. This will require identification of an appropriate responsible function within each organisation.
2. The new Health & Care Number is fundamental for reliable, effective and secure electronic communication and sharing of care information in the HPSS. Its widespread use will also increase the value of accumulating data for planning and epidemiology.
3. Server consolidation is also seen as a key strategic project, contributing to many future strategic initiatives and making a number of them achievable in the short term.

### **3.7 Current Situation – Confidentiality and Consent**

From a very early stage in developing this strategy it was evident that confidentiality, and consent to the use and retention of data, are of fundamental importance. This was confirmed in consultation with the HPSS and the public.

Confidentiality and Consent issues are brought to the fore by the need to address the requirements of Data Protection legislation and to ensure that the HPSS is appropriately taking into account Freedom of Information, Human Rights and Equality requirements in its management of personal data.

The Department is drafting a consultation paper on confidentiality and consent taking into account equivalent work from England and Scotland. The consultation paper will be issued in 2002.

Following consultation, and taking into account the views expressed, the Department will publish guidance on measures to be introduced.

Sharing of information to enable and support new patterns of care delivery will depend on acceptable and agreed policies and procedures in this area.

### **3.8 Current Situation – Education, Training and Development (ETD)**

There are a number of training initiatives ongoing across the HPSS, including a regular series of seminars on ICT issues, specific training for GPs, liaison with universities on ICT training in clinical courses, and development of training for major HPSS applications.

The need to promote ETD for HPSS staff has been a recurring theme in all stages of strategy consultation. The scope should include core ICT issues, organisational development and process change, and the use of the expanding ICT infrastructure to support training of all kinds.

The need for a group specifically to oversee HPSS ICT Training has been reinforced, and ETD will be a crucial element of the strategy implementation programme.

Co-ordination at regional level is needed to ensure that HPSS and professional training effectively takes into account the need for ETD covering ICT and related developmental areas. This is essential to promote and enable the organisational change that will be made possible through the ICT strategy, and to exploit the potential for more accessible ICT to support professional training and development.

### **3.9 Consultation questions**

Q3.1 Are there other key ICT developments or projects that have not been identified in this section?

Q3.2 Do you agree with the key findings that are set out for HPSS business areas? If not, please comment.

Q3.3 The recommendations in this section mean that a number of ICT systems that are currently in use, or are in procurement, will be at the core of HPSS ICT. Do you agree with the approach of selective replacement, rather than wholesale replacement, of existing ICT?

## 4. STRATEGY OVERVIEW AND SCOPE OF REQUIRED WORK

### 4.1 Introduction

Demand for ICT in health and social care now centres on managing and sharing care data, communicating between care professionals and giving care professionals real support for effective care delivery.

This shift of focus away from organisation and departmental administration is at the heart of the ICT Strategy Vision.

It is a worldwide development, with consequences that are clear in commitments to health and social care ICT across the NHS and Local Government in England, Scotland and Wales, and in the Republic of Ireland.

A recent study for the Department of Health, "eHealth Horizons"<sup>6</sup> looked at changes in society, new technologies and their capabilities, and opportunities for modernising the health system. As a consequence of what it describes as a paradigm shift in health, the report anticipates further, major and rapid change to include delivering information to the public and supporting direct interaction between care professionals and service users.

In "The Wanless Report"<sup>7</sup> the Treasury Review Team, projecting a doubling of spending on ICT in the NHS, reinforces the importance of ICT applied directly in support of care professionals:

"Without a major advance in the effective use of ICT (and this is a clear risk given the scale of such an undertaking), the health service will find it increasingly difficult to deliver the efficient, high quality service which the public will demand. This is a major priority which will have a crucial impact on the health service over future years." (Para 6.22)

Despite the immense potential, and considerable enthusiasm, achievements have been relatively limited. Health and social care organisations cite a range of reasons; notably, resource levels, skills availability and resistance to change.

It has also been difficult to establish ICT as a core requirement with demonstrated, significant, positive effects on the quantity and quality of care delivered and on the working life of care professionals.

ICT has yet to pervade health and social care as an accepted and indispensable tool. In many cases the challenge of implementing this change has been significantly underestimated.

This Strategy recognises the possibilities and the challenges. The Strategy Programme is challenging, but achievable. Expectations are ambitious but realistic. Provided that these activities are undertaken with real support and real commitment they can deliver real, tangible and demonstrable benefits.

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<sup>6</sup> eHealth Horizons, Sowerby Centre for Health Informatics at Newcastle, July 2000  
<http://www.doh.gov.uk/ipu/whatnew/ehealthhorizons.pdf>

<sup>7</sup> Securing our Future Health: Taking a Long-Term View, HM Treasury, April 2002  
[http://www.hm-treasury.gov.uk/Consultations\\_and\\_Legislation/wanless/consult\\_wanless\\_index.cfm](http://www.hm-treasury.gov.uk/Consultations_and_Legislation/wanless/consult_wanless_index.cfm)

## 4.2 Strategy Overview

The Strategy can be regarded as having two major, interlocking themes – **Electronic Care Records** and **Electronic Care Communications**. The emphasis of the Strategy is on these themes, but the need to sustain and modernise ICT in other areas is also recognised.

### 4.2.1 Electronic Care Records

HPSS organisations and care professionals aspire to having electronic care records for service users that provide historic and current information as a basis for managing and delivering ongoing care. Many healthcare systems think of this as:

- ? **episodic records** concerned with a current and immediate episode of care (for example, the Electronic Patient Record in NHS terms). Effective implementation of episodic records is limited at present;
- ? **“Lifelong” care records** concerned with the longitudinal record of health and social care events at a more summarised level (the Electronic Health Record in the NHS). Lifelong records to cover entire populations are concepts with long development timescales, rather than practical initiatives.

Any electronic care record must of course be managed within a secure environment and accessed only under a strict “need-to-know” regime that complies with agreed confidentiality and consent protocols.

An **electronic care record** would contain structured data, text and images generated from a variety of sources. For example, sources of data in hospitals include:

- ? medical records, in relation to the administration of patient events;
- ? clinical staff, following patient consultation in an outpatient clinic or on a ward;
- ? diagnostic departments such as pathology and radiology;
- ? treatment departments such as paramedical areas, theatres, radiotherapy and other specialist functions;
- ? treatment records, such as the drug kardex or nursing care plan and notes;
- ? clinical offices for operation notes or discharge summaries.

Sources are less clearly defined and more complex, data more long-term, and involvement with the service user more frequent in primary and community care settings. For example:

- ? referral management and assessment of need;
- ? care plans and treatment outcomes;
- ? “alert” data to support staff in reducing risk to service users (or staff) – for example allergies or mental health indicators;
- ? family and key carer relationships;
- ? child protection;
- ? records for mental health outpatient and inpatient care;
- ? records held in General Practice ICT systems.

If electronic care records are to be achieved and to be of value there are some basics that the HPSS will need to have in place:

- ? reliable and secure service user identification;
- ? access to ICT services, where required, using reliable electronic networks with desktop or portable devices;
- ? robust and effective data standards and coding structures that are universally applied.

Current initiatives are already addressing these areas. Standards issues may be taken forward either through adherence to published standards or accreditation requirements, where these exist, or by default through use of common systems.

To provide effective electronic care records two further key areas must be addressed:

- ? data must be created in electronic form. Usually this means a specialised ICT service for each functional area (for example registration, clinic administration, social services, radiology, physiotherapy, pathology) which meets their data processing needs and captures data that is also valuable to others. The HPSS has such systems in many areas, but there are gaps and pressures to replace some systems;
- ? data must be available to care professionals outside the functional area. This may involve allowing them to access the source system, or re-presenting data from the source system elsewhere, possibly associated with other data relating to the same individual. In the HPSS there is access to source systems within an organisation but not usually across functions or across organisations.

ICT implementation must take into account the wider value of locally acquired data. The source of data is irrelevant to the user, but it must be reliable, current, easy to access and well presented. If these requirements are met, a virtual electronic care record, with data actually stored in several different places, can be entirely satisfactory.

The need for electronic care records is most obvious where care is to be provided through managed care networks involving a range of professionals, different locations and different organisations.

It is in this scenario that electronic records are likely to offer the greatest benefits, as an essential tool for communication, to manage data about individuals and their care, and as a way to enable new patterns of care delivery.

The scale of the HPSS and the use of common systems offer opportunities for an innovative approach. In effect, the combination of developing care records within all organisations, increasing use of HPSS-wide specialist systems, consolidation of ICT, the Health & Care Number and the use of common systems, creates a virtual electronic care record.

Developments across the NHS should be reviewed when the conceptual models of Electronic Patient Records and Electronic Health Records become more substantive (in 2005).

#### 4.2.2 Electronic Care Communications

There is a vast amount of communication of data about individual service users within and between sectors and organisations within the HPSS, with other organisations, and of course with service users. That is the nature of health and social care. Common examples include:

- ? appointments;
- ? referrals between care professionals;
- ? requests for services and communication of the outcome;
- ? discharge letters and other follow-up communications;
- ? prescribing.

Existing or proposed systems manage aspects of these transactions within individual organisations, but at present they do not encompass the full range of the transaction. For example:

- ? Patient Administration Systems are used to manage outpatient clinics, but only for administrative aspects of the process and not to fully support referral and remote booking;
- ? word processing is used to prepare discharge letters but data from other care systems is not included automatically and the letters are not transmitted electronically;
- ? there is no effective support for community activity (although this is a key objective of the PCIS project);
- ? there is no electronic support for prescribing.

Core functionality exists in many areas, but there is a need to widen access, provide additional relevant functionality, and present this in a way that is both simple to use and seamless for the user. Added benefit should be sought from:

- ? providing care professionals with current information on waiting times for referrals and options on where to refer;
- ? automating data input wherever possible to simplify administrative tasks and improve data accuracy and completeness;
- ? providing intelligent support, for example to the prescribing process or the selection of investigations.

Conducting these transactions using ICT will, of course, capture key data to contribute to electronic care records.

System suppliers are enhancing their systems to broaden their use and better support transactions between organisations and sectors. Development will be required to build on the core systems to support these key data flows and provide added functionality of benefit to professionals and service users.

Care professionals across the service claim that access to electronic mail in their work, as many of them have at home, would have a very significant impact on speeding communication and would reduce wasted time spent trying to make contact by telephone.

ICT has the capability to support fast, accurate and structured communication of care data. Current processes were set up to accommodate the constraints of paper communication and paper records. For ICT to be truly effective, it will be important to think imaginatively about care processes so that use of ICT

introduces real improvements to care, beyond what is possible by simply replacing paper with electronic communication.

### 4.2.3 Key Conclusions

#### **This leads to a number of important conclusions for the Strategy Programme and priorities:**

- ? effective source systems are a key underlying foundation for electronic care records;
- ? to be effective, source systems must support care processes and allow direct electronic communication with care professionals;
- ? giving users the ability to view data in source systems, may be an effective route towards achieving elements of electronic care records. This is particularly applicable for the core, most common, data;
- ? specialised data can clearly arise for any specialty or function and will usually require a specialised solution. The greatest benefit is likely to arise when such initiatives support and facilitate cross-organisational managed care networks for priority conditions and diseases;
- ? ICT systems within a health and social care community of the scale of Northern Ireland must seek to avoid data duplication and the consequent complexities of maintaining data integrity;
- ? standards for data, messages and data sets (and for ICT) must be applied across the HPSS.

#### **The Strategy should therefore be based on the following:**

- ? keeping an HPSS-wide focus for electronic care records as being most likely to support future methods of care delivery and deliver the greatest benefit; while recognising that records will exist within individual organisations and sectors and that processes are required to manage data duplication and secure consistency;
- ? exploiting scale, and the commonality of systems across the HPSS, for an innovative approach to cross-organisational electronic care records and care communications;
- ? improvement of source systems where this is needed to support the HPSS-wide focus, to improve access, and to allow them to communicate care data to other systems;
- ? encouraging care professionals to exploit basic ICT services now to improve care processes and as preparation for introduction of new services;
- ? addressing the core, common data and ensuring this is available electronically across all specialties and care functions;
- ? introducing specialised systems with specialised datasets across the HPSS, especially where they support development of managed care networks.

On a slightly more technical level, the NHS and the HPSS, in common with the public sector in general, will be increasingly adopting browser technology and other tools such as XML. This is a consequence of the e-Government Interoperability Framework (e-GIF) which in effect aligns public sector ICT with the global Internet revolution. As suppliers work through the implications of this development, the HPSS should expect that more widespread access to ICT

systems and exchange of data between systems would become more readily achievable.

### 4.3 Strategy Implementation Projects

The Strategy Programme has to balance a range of factors and needs to recognise that:

- ? basic ICT services (access to networked PCs) must continue to be put into place and extended;
- ? staff need to be developed in terms of their readiness, knowledge and skills for wider application of ICT;
- ? further policies and standards must be developed and mandated;
- ? the Health & Care Number must be introduced as an underlying support;
- ? some robust applications are in place that can evolve and be built upon;
- ? for some areas new proven solutions are in place elsewhere that could be implemented in the HPSS;
- ? other areas require much further development to ensure robust, practical solutions that reflect HPSS needs and can work in the day-to-day operating environment.

Working from the Strategy Vision, and taking a regional strategic focus, some 95 potential ICT projects have been identified. Many of these are interdependent and they could not possibly be taken forward as separate, individual initiatives. A practical, coherent work programme is essential, and logically-related areas of development need to be grouped so that they can be effectively managed.

The Vision focused on stakeholder perspectives. While valuable as a way of presenting and describing the Vision, there is so much overlap of ICT projects across the perspectives they could not realistically be used as groupings for implementation. For example, all of the projects have at least some element of "Support for Staff".

Projects have therefore been divided into four related groups. Projects with interdependencies are grouped together, but there remain dependencies between the groups that will have to be addressed as part of overall programme management.

The proposed Strategy Programme Groups are summarised as follows –fuller descriptions are given in Section 5.

#### ? **Information Governance**

**Issues associated with obtaining and using information, including ensuring an information-oriented and information-valuing culture.**

- ? **Confidentiality and Consent** is the foundation of trust between the HPSS and the public on which all other ICT developments must rest.
- ? **Education, Training and Organisational Development** are all-encompassing requirements across all aspects of ICT. The requirements will become more complex as the HPSS becomes more sophisticated in its use of ICT and more reliant on ICT services.

? **e-Information** includes information for the public, for care professionals and in support of planning, commissioning and performance management. Useful information for management and planning is available from current systems and will become more sophisticated as more applications are implemented.

? **Health and Social Care**

**ICT applications that make a contribution to care, contribute to the service user's overall care experience, and directly or indirectly support care professionals at the point of care planning and delivery.**

? **Direct Care Support** is concerned with ICT supporting key diagnostic and care support functions such as pathology, radiology and pharmacy. ICT systems in these areas are now relatively standard products.

? **Care Communications** is a more complex and innovative area concerned with messaging and the flow of information around the HPSS. It is concerned with replacing current paper-based communications and will, in part, also depend on data from systems in the Direct Care Support area.

? **Electronic Care Records** are a longer term objective. Electronic records will build from data originating in systems in the area of Direct Care Support and services supported through Care Communications.

? **Business Administration**

**Applications associated with operating the HPSS as an organisation (for example finance, supplies, personnel, payroll).** This is regarded as a relatively straightforward area for ICT applications as they can be mainly, though not fully, supported by well-developed package software.

? **Infrastructure:**

**Includes basic ICT and related services that are essential to underpin a fully ICT-enabled HPSS, for example the technical components associated with ICT, shared components such as networks, and standards for technology and data.**

In total, this is an enormous amount of work, investment and change, none of which can be discarded or indefinitely deferred if the HPSS is to develop a coherent structure of systems, processes and people fully exploiting ICT services.

The resources required, the need for skills and the scale of change also mean that the Strategy could not possibly be fully implemented in a short timescale (less than 5 years). Achieving a fully ICT-enabled service will require the HPSS to make concerted progress across the whole Strategy Programme over a protracted period in a co-ordinated manner and with commitment to shared goals.

The Programme Groups are proposed as an appropriate division of the required work to allow coherent management and progress. New initiatives will be absorbed into this structure and overall control will also be required, especially to manage dependencies and allocate resources to programmes.

The Programme Groups and associated projects are set out in more detail in Section 5.

#### 4.4 Investment Priorities and Principles

Management of dependencies and appreciation of relative priorities within and between Programme Groups will be vital to ensure appropriate sequencing and to sustain commitment.

In some cases dependencies may be justification for projects that seem to provide little direct benefit in themselves. This is especially true in areas such as policy, standards and infrastructure developments, which are essential to underpin more high-profile projects that have more direct impact on service users and HPSS staff.

In evaluating possible development priorities it is clear that most areas are regarded as having a high priority by many of the people that have been consulted. In trying to establish relative priorities a number of factors have been considered for each project level. These include:

- ? direct relevance to important policy and business drivers such as care networks, health and social care governance, quality and equality of care, and key service developments;
- ? the main areas of impact across the Strategy Vision, with developments directly impacting on care being regarded as high priority;
- ? organisational complexity – from individual department through to multiple HPSS and FPS organisations – recognising that multi-organisational projects are more complex and have higher levels of risk. This includes organisational change, change for individual members of staff and changes to processes;
- ? ICT technical complexity – from proven solutions through to leading edge, undefined solutions – proven solutions will carry lower levels of risk;
- ? projects already in progress with resources allocated are regarded as high priority;
- ? the likely benefits, ranging from cash-releasing through time savings to qualitative effects, keeping in mind that the focus should be on benefits to service users.
- ? the likely scale of cost, recognising that resource constraints may work against higher-cost initiatives even if they have commensurate benefits. Capital and revenue costs were considered.

The priorities used to establish the draft programme have been influenced by responses to the Strategy Vision, direct consultations with the HPSS on various occasions, meetings with professional groups and workshop sessions with ICT directors.

The programme will be revised to take into account responses to this consultation and, of course, will have to take account of actual resources available.

The programme will have to be reviewed periodically to take account of additional pressures and the success (or otherwise) of resource bids and business cases.

#### 4.5 Consultation Questions

Q4.1 Do you agree with the strategic emphasis on care records and care communications?

Q4.2 In relation to electronic care records, this section outlines a regional focus with local specialised datasets. Is this a sound approach for the HPSS?

Q4.3 Is the proposed structure of Strategy Programme Groups a recognisable and coherent basis for strategy implementation – or how could it be improved?

Q4.4 Is the list of factors influencing relative priority of projects appropriate? Are there other factors that should be taken into account?

## 5. IMPLEMENTING THE STRATEGY

This section discusses each of the Strategy Programme Groups, setting out:

- ? an overview of the programme;
- ? strategic projects;
- ? anticipated benefits and key targets.

Timing of achievement of the targets is addressed more fully in section 7 which considers resources for the Strategy. The targets and dates given in this section assume the availability of additional resources and reflect a challenging but achievable programme.

### 5.1 Confidentiality and Consent Strategy

The HPSS depends on service users sharing data with care professionals and allowing the HPSS to record that data for use in their care and for indirect uses such as epidemiology, planning and performance management. Service users and the public in general must have confidence that personal data is confidential and will be held securely.

Public concern about these matters is increasing. The Caldicott Committee's Review on Patient-Identifiable Information (1997) has recommended changes in practice. Professional bodies such as the General Medical Council and the United Kingdom Central Council for Nurses, Midwives and Health Visitors have changed their guidance. The legal framework has changed as a result of the Data Protection Act 1998 and the Human Rights Act 2000. Altogether, the result is a need for much greater openness regarding the use of personal data together with appropriate precautions and safeguards.

Many proposed ICT developments are about increasing the use of personal records and sending personal information electronically within and between HPSS organisations. Public acceptance of the Strategy will require issues of confidentiality and consent in health and social care to be openly discussed and a strategy agreed for their management.

Current DHSSPS guidance<sup>8</sup> covers confidentiality and protection of data and how to demonstrate that service users have been informed about what will happen to their information, but makes little reference to gaining informed consent.

An agreed strategy for confidentiality and consent is essential for the ICT Strategy to be implemented in an environment of public confidence and support. New ICT developments, and ICT already in use, will be subject to the new requirements. There will be a combination of cultural, procedural and technical developments that will affect all HPSS activity and all HPSS staff.

#### 5.1.1 Confidentiality and Consent – Strategic Projects

##### **Prepare Consultation Paper and Confidentiality and Consent Strategy**

Agreement on confidentiality and consent issues is needed to ensure public confidence and to meet ethical, legal and professional requirements. A consultation paper is being prepared to raise awareness and gain local inputs to the Strategy.

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<sup>8</sup> The Protection and Use of Patient and Client Information, DHSS, issued 1996, revised 1999

Work in this area is being taken forward by the Department's Policy and Resources Group. It is expected that the consultation paper will be published in 2002. The Strategy must take account of the various requirements and the responses to the consultation. Key areas will be:

- ? clearly defining the categories and uses of personal information, what use is appropriate (and what is not) in legal and ethical terms and how this can be applied to the practical situation;
- ? defining the need for education and awareness initiatives for both the public and HPSS staff and how and when this may be undertaken;
- ? organisational arrangements to oversee the management of confidentiality and security;
- ? procedural changes in relation to gaining consent from service users and managing the use of personal information;
- ? technological developments to ensure confidentiality and security of personal information that may include changes to existing systems and increased anonymisation of information.

It is expected that much that has been developed in England and Scotland can be adopted, however the process of developing a Strategy locally is also important to raise awareness of the issues and to respond to local circumstances. The Confidentiality and Consent Strategy should seek to build on procedures and roles that are already in place.

### **Implementation of the Confidentiality and Consent Strategy**

Implementing the Confidentiality and Consent Strategy will require a substantial programme of work affecting ICT systems and wider processes within the HPSS. There will also be substantial cultural, awareness and training issues to be tackled.

Important changes will need to be introduced quickly, for example to adjust information leaflets for service users, to advise staff on informing service users and seeking consent to the use of their information, and to provide guidance on the acceptable indirect uses of personal information.

Some possible changes to ICT systems, in particular existing systems, to anonymise data, could demand massive amounts of resource depending on the approach that is advocated. This could be to the detriment of wider ICT Strategy initiatives. It will be important to adopt a pragmatic approach. While there must be a clear strategy and progress over time, the extent to which confidentiality and consent issues absorb investment should be consistent with the views of the public and the significance accorded to this area relative to other ICT developments.

### **Personal Access to Electronic Care Records**

Service users' access to personal data held and used by the HPSS in the course of planning and delivering care is covered by UK and European legislation, most notably the Data Protection Act 1998. There are also ethical, clinical and policy arguments surrounding the rights of any person to have access to (or possibly even control over) personal data held by the HPSS. This area of work will explore the options for providing different levels of access and control for personal data and electronic care records held by the HPSS. Three projects are currently proposed:

- ? GP records;

- ? current HPSS organisation records;
- ? new electronic care records.

Options are likely to consider legislative, clinical and technological dimensions and this work will draw heavily on the confidentiality and consent strategy programme.

### 5.1.2 Confidentiality and Consent – Key Outcomes and Targets

This Programme focuses on the need to ensure that the HPSS complies with the law and that care professionals are able to follow the guidance of their professional associations in relation to confidentiality and consent. The Programme will deliver:

- ? a clear understanding of the ethical and legal requirements for confidentiality and consent in relation to personal data and an agreed plan of action to ensure compliance. Full implementation is likely to take a number of years, covering existing procedures and systems. The plan will provide guidance for all new developments to ensure they comply with confidentiality and consent requirements;
- ? education of the public and HPSS staff on requirements for confidentiality and consent including issues of anonymisation and the indirect use of personal data by the HPSS for planning and performance management. There needs to be a shared view of expectations, requirements and responsibilities in this area;
- ? organisational, procedural and technical developments to ensure the confidentiality of personal data. This will include agreed standard approaches across the HPSS that are capable of regular inspection and audit;
- ? confidence for the public and service users about the use of personal data by the HPSS, including continued use for management, research and other indirect purposes. This is a key outcome from this programme, providing an environment of trust which will allow the HPSS to exploit the development of electronic records and communications proposed in the ICT Strategy.

#### **Confidentiality and Consent Targets**

Develop and issue a consultation paper on Confidentiality and Consent in 2002.

Complete strategy for Confidentiality and Consent by end 2002, setting out a development programme that is acceptable to the public, the Information Commissioner, the HPSS, and professional bodies such as the General Medical Council.

Ongoing – delivery of targets to be determined as part of the development process.

## 5.2 Education, Training, Development and Organisational Development

ICT investment will only deliver major benefits and financial savings where it is fully integrated with the wider work environment and the HPSS processes it supports. Overlaying ICT on current processes without any consideration of the change management implications has been shown to result in minimal benefits. This cannot be allowed to happen if the ICT Strategy is to succeed. ICT offers opportunities to introduce new ways of planning and delivering care.

There is a group in place that oversees ICT training issues, but its remit does not span the range of work required under this programme. The group has overseen a number of training initiatives including seminars on ICT issues, specific training for GPs, liaison with universities on ICT training in clinical courses and development of training for two major HPSS applications (PAS and SOSICARE). Other HPSS and Government groups also cover some aspects of this work, such as clinical education for example.

This Programme incorporates all aspects of ICT education and learning (including learning supported by ICT as well as development of skills in use of ICT) and transforming the work environment through change management and organisational development to improve processes, outcomes and the use of resources.

This Programme has the responsibility for:

- ? *preparing the ground* – supporting HPSS staff and other stakeholders in understanding how ICT can support them and what wider change is required to benefit from that support;
- ? *evolving the organisation* – enabling change within HPSS organisations (culture, structure and process change) to optimise the work environment supported by ICT;
- ? *increasing ICT knowledge and acceptance* – putting in place education and training regimes recognising that ICT will become essential for HPSS staff in their work as it plays an increasing role at the core of HPSS operations; and
- ? *realising the benefits* – ensuring that benefits identified to support ICT investment are feasible and are realised as part of wider change management within the HPSS.

This Programme differs from others within the ICT Strategy in that its scope of activity is inherently linked to wider issues of education, learning and organisational development, of which ICT is only a part. This Programme has an important role as a 'bridge' between the ICT Strategy and other strategies and service development initiatives within the HPSS and wider Public Service.

### 5.2.1 Education, Training, Development and Organisational Development – Strategic Projects

This Programme is complex and has interdependencies with most of the other Programme Groups as well as crucial links with wider HPSS and Government Strategies in this area.

ICT initiatives cannot realise their full potential unless they fully embrace organisational and process change issues. These issues must be managed as an integral part of their planning and implementation. Generic training and development themes emerging from their experience will be picked up as part of this Programme.

## **Regional Development and Support Team**

One of the major issues in relation to this Programme is the possible role of a regional development and support team. This appears necessary to ensure that individual project and overall Strategy benefits are appropriately planned and realised while avoiding 'double counting' and allowing for project inter-dependencies. This approach would also allow for wider linkage of benefits with non-ICT activities, such as process improvements and general service changes. This team will be established to liaise with local staff, provide expert advice and guidance, and co-ordinate work across the region. Areas the team will support are:

- ✍ **Use of ICT.** Education, training and development initiatives will be required to support greater use of ICT in the HPSS. This will involve providing staff with the skills and knowledge to make effective use of the technology and the information services that they will increasingly be able to access. This project will consider options for increasing the general capability and awareness of staff in terms of their appreciation of ICT and their familiarity with basic ICT services. The project will seek out existing work in these and other areas and review ICT training resources in place within the HPSS (both public and private sector) before developing wider implementation plans.
- ✍ **Analysis and use of Information.** The need to promote an information-valuing culture in the service has been a consistent message. The ICT Strategy cannot succeed unless people impacted by ICT initiatives fully understand their role with regard to personal data and fully appreciate the importance of that role in the overall quality of care. Continuing education, training and development initiatives will be important to improve informatics knowledge and skills, not only amongst information specialists but much more widely to emphasise the value of data and to encourage its use. Some work in this area will be initiated to support specific initiatives, as opposed to approaching this as a single project. This project will also need to seek out and review existing work before any undertaking further developments.
- ✍ **Systems and Process Improvement Training and Support.** There are two distinct strands to this project; systems training and process improvement training. All ICT initiatives must incorporate adequate cost and time estimates for initial and ongoing training in relation to ICT systems. With regard to process improvement training and support, investment in ICT must be associated with organisational development and process improvement initiatives. Overall HPSS benefits will only be realised if ICT, the work environment and HPSS work processes are fully integrated. There will be opportunities to improve work processes in all areas of the HPSS as a consequence of ICT investment. Over the first few years of strategy implementation, the focus and ownership must lie within the individual initiatives, but lessons deriving from that experience may well lead to demand for more generic training and support in this area.
- ✍ **Delivery of Professional Training Through CBT.** More extensive availability of ICT brings opportunity for innovation in general training and professional development services. Other elements of the Strategy will provide opportunities for self-development through access to electronic knowledge bases, both within and external to the HPSS. This project aims to provide the potential for staff to benefit from computer-based

training and education media, either free format (as with access to knowledge bases) or structured (through formal training software).

### **Facilitating Process Innovation**

To support innovation, demonstrator projects will be encouraged to develop and test new approaches and processes within the HPSS. Time-limited support may be provided to facilitate process redesign and organisational change projects involving application of ICT. Projects that address activity and processes crossing organisational boundaries and involving HPSS and FPS participants will be particularly useful.

### **Trust Organisational Development and Project Support**

HPSS organisations, generally, do not have the capacity to initiate and manage organisational change and process improvement utilising ICT. This project will support additional staff resources at Trust level to take forward such work. Trust staff will be expected to take forward initiatives from the regional team and proven developments emanating from demonstrator projects.

#### **5.2.2 Education, Training, Development and Organisational Development - Key Outcomes and Targets**

As well as specific education and training initiatives, this Programme addresses wider cultural change within the HPSS. Information management, supported by modern, effective electronic systems, has an increasingly critical role in the delivery of modern health and social care of. These areas will in future be core competencies for the HPSS, especially for care professionals. This Programme will deliver:

- ? recognition and acceptance by HPSS staff, particularly care professionals, of the value of ICT in supporting their work;
- ? more HPSS staff with the skills and knowledge to use computer-based training and electronic knowledge bases and the skills to pursue other electronic resources for self development – the key outcome being a better-trained and more effective workforce;
- ? changes in HPSS working practices resulting in efficiency and/ or effectiveness gains, with staff comfortable using electronic data and information flows instead of paper;
- ? ongoing and effective use of ICT, as a matter of routine, by HPSS staff in the course of their work;
- ? improvements in the overall quality and efficacy of HPSS data, based on increased access and use by staff with the skills and knowledge to recognise errors, discrepancies and inaccuracies and the source of such problems.

#### **Education, Training and Development Targets**

ICT training will become a core component of all formal training programmes (both student and in-service) by end 2006.

All care professionals to have access to electronic knowledge bases by end 2005.

Computer-based training applications to be generally available by end 2005.

### 5.3 e-Information

The e-Information Programme is concerned with the delivery of data and information to the public, to care professionals and to managers within the HPSS and the DHSSPS. It takes advantage of:

- ? the wider range of data that will become available in electronic form as new systems are implemented across the HPSS;
- ? the technologies available to deliver data and information to the public and professionals.

For the public, there is much that would be relevant and useful:

- ? information in relation to health and social well-being. This ranges from general lifestyle advice through to self care, including information and support for specific conditions and problems. The Internet already contains much material in this area, although there are significant issues in relation to its status and quality. The HPSS should focus on where it can add value through accreditation, providing useful links, meeting gaps in provision, and particular local requirements;
- ? information about structures and contact details for the HPSS, the services that are provided and how they can be accessed. There will be an increasing requirement to publish electronically details of HPSS performance including use of resources, key indicators such as waiting times and, in due course, outcomes and comparative performance analyses.

There has been some progress in these areas already, however they will evolve significantly as public expectations rise and the HPSS has increasing amounts of information to share. Planning and delivery of public information services must ensure a consistent HPSS image and format, co-ordinated regional and local developments, and regular update so that information is contemporary, relevant and useful. In particular, the HPSS must recognise, promote and take seriously its role as an organisation that the local population can trust as a source of key advice and guidance in relation to health and social care.

For care professionals and managers, there are many opportunities for information to be provided to aid the planning, delivery and evaluation of the full range of HPSS services, both care and support functions. The two main areas are:

- ? information about the incidence and prevalence of disease and other indicators of need to support research and the allocation of resources;
- ? information on activity within the HPSS and the use of resources covering a wide range of data and analysis – essential for the running of the HPSS and performance management.

There is already much data collection and analysis in relation to these areas. However, as the ICT Strategy is implemented more individual data could become available through electronic care records. Effective use of this data will be vital to support clinical and social care governance, performance management, development of care networks and evaluation of new models of care. It is likely that mechanisms will be required to anonymise personal data to meet the requirements of the Confidentiality and Consent Strategy.

### 5.3.1 e-Information – Strategic Projects

Although technological developments must be a key part of developing this area, they are only worthwhile in an environment that promotes and encourages the use of information. This relates both to the public and to HPSS staff and represents a significant development towards a learning and information-valuing culture.

#### **E-information for Citizens, Service Users and Care Professionals**

An Internet/ Intranet portal should be established containing health and social care information relevant to the public and to care professionals. It would include basic information about health and social care services (public, voluntary and private sector) alongside advice, guidance and evidence-based best practice information for the public and for care professionals. Funding will be required to secure membership of the National electronic Library for Health (resources for care professionals and the public), to purchase licences for other reference sources, for professional design services, and to provide and support the Internet service. The public will benefit through the provision of reliable and current information about health and social care and associated services directly to them, to their representatives and carers, and to care professionals.

Effective development of the web site requires research together with agreement of baseline design issues, an organisational structure to take forward design and ongoing management, and agreed processes to accredit links to external data sources. Initial work will assess these areas, propose management structures and processes and build on existing sites and design work for a corporate approach. Priorities will be developed in relation to the areas to be addressed, the required resources and the best approaches. Subsequent work will be based on this planning process, however it is anticipated that the HPSS will have a substantially developed infrastructure of advisory web sites by end 2003 with a rich network of supported links.

#### **HPSS Planning and Performance Management Information**

Work is under way in the Department to evaluate information requirements including the use of HPSS epidemiological, planning, operational and performance assessment information.<sup>9</sup> The results of this study will inform the programme of work to be undertaken in this area of the e-Information programme.

Decisions relating to high priority projects will be informed by the outcomes of the RoBIN study and discussions with the HPSS, especially in relation to emerging needs of Local Health and Social Care Groups, but also taking into account opportunities that will emerge from other initiatives.

Many ICT Strategy projects will implicitly improve the availability of Performance Management information. For example, applications envisaged to support delivery of direct care will include a management information component and will in any case capture additional, detailed data that may be useful for wider planning and performance management purposes. Further developments will also be required to continue to improve the integration of data from multiple sources and its presentation to managers.

Common financial and activity coding systems and standards will improve the ability to integrate operational data and relate activity, outcome and finance and support assessment of comparative performance.

### 5.3.2 e-Information – Key Outcomes and Targets

This Programme addresses initiatives to publish key information electronically and improvements in the availability and flow of information within the HPSS and with care partners resulting from increased use of ICT to routine care activities. The Programme will deliver:

- ? a well-established structure of valued and used HPSS web sites, with links to accredited external sites. This will provide up-to-date information about HPSS services and how to access them and will also facilitate those experiencing specific problems, and their carers, wishing to access information and support services external to the HPSS;
- ? improved information for the public about use of resources, services that are available and the results that are achieved. Publication on HPSS websites is one effective way to provide up to date information on how the HPSS operates, and how it is performing in relation to targets and in terms of trends;
- ? improvements in the range, quality and timeliness of data available to support HPSS planning, evaluation and performance management;
- ? information to support introduction and evaluation of developing models of care such as managed care networks.

#### **E-Information Targets**

Programme for development of an integrated HPSS web-site structure and corporate design by end-2002 with a substantial infrastructure by end 2003.

Programme for further development of HPSS epidemiological and performance management information established by end 2002.

Improved organisational structure to manage the development of e-Information, support information analysis and service the needs of the public and HPSS professionals.

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<sup>9</sup> Review of Business Information Needs– RoBIN – due to report mid-2002

## 5.4 Direct Care Support

Direct Care Support focuses on areas of the HPSS that provide immediate support to the direct delivery of care. Although primarily support departments, they may also on occasion be responsible for direct delivery of care.

They need to communicate with direct care planning and delivery to receive requests for service and to respond to those requests. Their requirements in this respect are reasonably consistent. Many also have their own distinctive, and often complex, requirements.

Direct Care Support areas were early adopters of ICT and most now have some ICT support. Laboratories, for example, have been using computer systems and computerised analysers since the 1970s. Many systems used in the HPSS are relatively old, based on old technology, and are considered to be a poor fit for current and evolving demands.

At a strategic level, the key requirement will be integration of these systems to support electronic communication of care information with those providing direct care and to support shared access to care data.

For the departments themselves, the main thrust of the programme will be to modernise their systems and to identify areas where additional or new systems are required.

### 5.4.1 Direct Care Support – Strategic Projects

The overall approach to systems for direct care support recognises that the main focus of the ICT Strategy is to support front-line staff and directly impact on care processes. Business cases for systems for direct care support should show the link to direct care benefits, such as earlier provision of information that is key to taking care decisions, reduction in unnecessary investigations, or providing a basis on which to develop electronic prescribing with the associated benefits of information support to the prescribing process, avoidance of errors and monitoring of administration of drugs.

In all cases, fundamental change in current processes to take advantage of opportunities offered by new ICT services should be considered in the business case and should be a core part of the implementation.

#### **Pathology ICT Services**

Electronic communication of laboratory results is widely considered to be a high priority area. A project to consider the future provision of ICT services in laboratories will be initiated as a high priority (other than for the Belfast Link Laboratories where a new system was implemented recently).

All these laboratories currently use a common ICT system. Two key areas of development are required:

- ? integration to enable the electronic communication of results to care professionals in hospitals and primary care;
- ? replacement of the existing system which is becoming functionally and technically dated. It is proving increasingly difficult to support the system and continued in-house development is considered inappropriate since this is now a relatively mature package market.

A common solution across the HPSS will be pursued. A common results reporting mechanism, and in due course requesting mechanism, will ensure

consistency for care professionals. In addition, a common laboratory system will make configuration, integration, support and ongoing development more efficient and cost effective.

### **Radiology Information Systems & PACS**

Most radiology departments use the NIRADS radiology information system. This can interface with Picture Archiving and Communication Systems (PACS). At present the system provides reasonable functionality and its replacement is not regarded as a high priority. However, the need to assure an acceptable level of support and future development is an important consideration as radiology information systems and PACS become the way in which images are communicated and reported across the HPSS.

Most radiology departments are considering implementation of PACS. There is an opportunity, now, for collaborative work across the region in this area. This is essential if multi-organisational care services, using imaging, are to be supported. A strategy for PACS will be developed to identify the best approach to co-ordinated implementation. This will take account of the impact on the current radiology information system and any developments that may be required.

### **Medicines Management and Electronic Prescribing**

Integrated electronic management of medicines procurement, stock control and administration covers a major area of HPSS expenditure and a critical process for patient care.

In particular, electronic support for prescribing and drug administration offers great potential to provide intelligent support to care professionals. Benefits relate directly to patient care and to possible financial savings in a key area of expenditure.

Despite the potential, it has proved to be very difficult, so far, to implement electronic prescribing systems in the NHS. In part this is due to the complexity of the required systems and in part it reflects the core nature of this process as part of care delivery. Because it is such a routine part of care, satisfactory implementation requires that all those involved in the process have a high level of competence in ICT, and fully accept using ICT as a fundamental way of working.

Learning from experience elsewhere, work in this area will focus on developing processes and systems, allowing care professionals to become familiar with less challenging and critical electronic care systems before introducing electronic prescribing. The initial focus will be on developing understanding of the area, monitoring progress elsewhere and identifying approaches appropriate for the HPSS. Implementation will be carefully judged as to the components of the overall medicines management system, the appropriate time for their introduction and requirements in terms of changes in process and training.

#### 5.4.2 Direct Care Support – Key Outcomes and Targets

This Programme will deliver:

- ? secure provision of ICT services for areas where current services are regarded as being at risk because relatively old systems are proving difficult to support and modernise;
- ? improvements in internal support for departments through identification and addressing of gaps in current functionality;
- ? better integration with other areas to make service user data more consistent across systems, to reduce duplication and data entry, and to support electronic communication of requests and results between care professionals and support departments.

##### **Direct Care Support Targets**

Establish a regional programme to evaluate options for pathology ICT services, including replacement of the existing system, by end 2002.

Agree an HPSS strategy for Picture Archiving and Communications Systems, including a strategy for radio logy information systems, by end 2002.

Implement new medicines management and stock control systems to provide a basis for subsequent implementation of electronic prescribing.

## 5.5 Care Communications

Care Communications implementation is focused on transforming current administrative and care processes from paper-based communication to electronic communication. This has many potential advantages, but in particular:

- ? improved speed of communication;
- ? improved quality of communication by structuring communications to ensure all relevant information is provided;
- ? incorporation of relevant data from electronic care records into electronic care communications;
- ? flexibility for care professionals to access their messages from any location, provided they can have access to HSSnet;
- ? incorporation of the data from electronic communications into electronic care records.

This Programme is relevant within individual organisations and between organisations, including HPSS, FPS and others involved with care. It is key to the management and delivery of care, in particular where multiple professions, departments or organisations are involved.

Development of ICT support for care communications is closely tied to a range of existing service development processes within the HPSS and FPS. There are opportunities for innovation in care delivery if electronic communication is introduced alongside willingness to examine how current processes work and how they may be improved, possibly radically, through use of ICT. The key processes are:

- ? requesting services and receiving information associated with the organisation and reporting of investigations, assessments and care from a range of support departments. This occurs both within individual HPSS organisations and between organisations, including the FPS;
- ? referral, in which one care professional communicates information about a service user and requests a consultation or other service from another care professional. The example most often quoted is referral for an outpatient consultation from primary care to secondary care, but referrals are common in many other situations, especially in community care;
- ? discharge, in which a patient is transferred from hospital care to care by community and primary care services and staff through a co-operatively-developed discharge plan;
- ? managed care networks where care professionals from a number of disciplines, working in different locations, as part of different organisations are involved in the care of patients with conditions such as diabetes, asthma or cancer. Effective communication across the network is a pre-requisite for effective functioning of the network, ensuring continuity of care;
- ? *ad hoc* communications between professional staff seeking advice or information related to patient care or other administrative matters.

### 5.5.1 Care Communications – Strategic Projects

The extent of process and organisational change will be a challenge as great, if not greater, than the challenge of introducing the required ICT. While implementation of ICT solutions will produce some benefits, the significant benefits will come from using new services to introduce changes to processes and care relationships.

#### **Requesting and Reporting Systems**

The flow of information around the HPSS related to organising investigations and tests and returning the results is a core, critical part of care activity. It demands accurate and complete information, and rapid information flow, to facilitate further decisions related to diagnosis, therapeutic interventions and care, and discharge from care.

Results information is also a key component of future electronic care records. ICT support should provide relevant and up to date guidance for those requesting investigations, including access to the results of previous investigations, and ensuring that the request includes data required to enable the investigation to be effectively completed.

These information flows occur within individual organisations and between organisations or with FPS. ICT services must not be constrained by organisational boundaries.

There are several approaches to meeting this requirement, including:

- ? direct access to departmental systems to view results;
- ? implementation of dedicated order communication and results reporting software;
- ? electronic transfer of results to care records systems where they can be viewed as part of the wider record.

Work in this area will focus on defining, procuring and implementing an effective approach to requesting and reporting that can be adopted across the HPSS.

Electronic results communication to all GP practices is already being introduced. This will allow GPs to receive electronic pathology and radiology results, reducing the time for reports to reach general practice and hence, potentially, the time that patients have to wait for results. Work in this area will extend the scope to include other parts of the HPSS.

#### **Electronic Booking, Discharge and Associated Communications**

Referring service users between professionals and communicating relevant demographic and care information is a core process. Referral demands accurate and complete information, and rapid information flow, to speed care processes and to reduce service users' uncertainty with regard to their further care. Information contained in referrals and subsequent correspondence will form a key component of future electronic care records.

Work in this area will focus on definition, procurement and implementation of ICT systems to support these communications, together with the associated change in processes and relationships. The key elements are:

- ? community services referral, booking and associated communications;
- ? outpatient appointment booking and associated communications such as referral information and subsequent clinic letters;

- ? inpatient admission booking;
- ? inpatient discharge planning and communications;
- ? various *ad hoc* professional correspondence between care professionals.

Introducing ICT to support these processes will be complex, especially for community services, because the processes are complex and there is a great deal of variation in process and in data requirements. Implementation will involve use of ICT to replace paper and introduction of significant process and organisational change. Developing successful and acceptable solutions in this area will require a strong component of professional leadership. This is a key aspect of work within the PCIS project.

### **Telecare**

There are already many telecare initiatives operational or in pilot form in the HPSS. The focus of work in this area will be to provide a point of co-ordination for telecare, to enable sharing of experience in successful projects and to facilitate participation of the wide range of individuals and organisations with an interest in this area.

### 5.5.2 Care Communications - Key Outcomes and Targets

This Programme will deliver:

- ? much faster flows of key information (such as referrals, results of investigations, appointments), facilitating quicker decisions about care and earlier certainty for service users in relation to their condition and further care to be provided;
- ? increased structuring of information exchanges between care professionals (with guidance on completion), improving the quality of communication and decision taking;
- ? reduced duplication of data recording for care professionals (in combination with electronic care records);
- ? greater capability to provide intelligent, relevant advice to care professionals requesting investigations, seeking referrals or prescribing drugs – for example providing intelligent support for drug and dosage selection;
- ? greater capability to structure processes, adopt workflow methods and identify exceptions and problems in processes where anticipated variances are exceeded. This particularly applies to referral, booking and discharge activities;
- ? facilitation of new methods of working within and across professions and organisations to allow care processes to be re-designed to best meet the needs of service users – for example, managed care networks and proposed Community Care and Treatment Centres;
- ? creation of new methods of communication between care professionals that are effective and quick, suited to requirements and support better and quicker taking of decisions.

#### **Care Communications Targets**

Implement comprehensive electronic results reporting systems covering pathology and radiology by end 2003.

Introduce electronic requesting systems by end 2005.

Implement Person-centred Community Information Services across the HPSS beginning in 2003 (also under Care Records).

Widespread use of electronic systems for referrals and bookings to community and hospital services by end 2005.

Develop structured ICT support for the discharge process and wider professional communications by end 2005.

## 5.6 Electronic Care Records

Electronic care records are a core objective of the ICT Strategy. Without structured electronic care records the HPSS will have difficulty effectively supporting:

- ? managed care networks;
- ? new ways of working, particularly across organisational boundaries;
- ? health and social care governance;
- ? HPSS sharing of information to manage care; and
- ? personal access to care records.

Sharing of data, for example in multi-professional teams or managed care networks, is essential for effective and safe care. Care professionals must have access to comprehensive data about those for whom they are providing care. The goal has to be for agreed access to relevant personal data whenever and wherever it is legitimately required. Whilst this is easiest to deliver within HPSS premises such as hospitals and community and primary care facilities it should extend to other locations such as ambulance services and service users' homes.

### 5.6.1 Electronic Care Records – Strategic Projects

Work is already under way in several areas:

- ? procurement and implementation of a Cancer Chemotherapy system;
- ? the PCIS project (Person-centred Community Information Services) which is currently in the procurement stage.

The Electronic Care Records Programme has major inter-dependencies with virtually every other aspect of the ICT Strategy. This reflects the criticality of personal care data to all HPSS systems and processes. Full implementation can only be achieved over the full timescale of the Strategy as the Programme contains some of the most complex projects to be delivered and HPSS processes and attitudes need to evolve to properly exploit the potential of electronic care records.

Most current ICT systems were designed as organisationally bounded with a focus on the service, or function, not on the service user. The requirements of care pathways, managed care networks, management of confidentiality and consent within systems and remote access and manipulation of service user data will be very demanding for suppliers of health and social care ICT solutions. Developments in this Programme must be focused on benefits for the HPSS but also grounded in what the commercial market is able to respond to over the term of the Strategy.

#### **Consolidating Core Health and Social Care Data**

Electronic care records are a core element of the ICT Strategy. These projects relate to the definition of data items, records and system architectures through which electronic care information will be stored and used by the HPSS. Various levels of care record data are envisaged:

- ? demographic data: a relatively small set of basic data relating to each service user together with a unique identifier, the H&C number, to enable linkage of data.

- ? detailed current care data: likely to involve a large amount of data, much of which may only be relevant to the specific care event taking place, for example:
  - ? in hospital: patient administration data, radiology and pathology results, medication record, theatre record, discharge summary;
  - ? in the community: assessments, notes of contacts, referrals, medication, correspondence.

Demographic data will be delivered as part of the UPCI project. Consolidation of ICT services will enable widespread access to existing care records that are currently held in a large number of dispersed departmental systems. In the community, requirements will be met more fully through the PCIS project. In hospital, further systems such as discharge and professional communications and electronic prescribing will eventually add to the breadth of the available data in the electronic care record.

### **Electronic Care Data Viewer**

Whilst consolidation will improve the situation regarding sharing patient data, it will be important that care professionals can view data in a seamless and easy to use manner. The introduction of an electronic care data viewer will allow care professionals to access different types of data for the same service user from multiple sources in a consistent manner.

### **Electronic Care Records for Managed Care Networks**

Managed care networks are increasingly becoming the preferred approach for care professionals in planning and delivering complex care spanning different organisations. There are a number of managed care networks currently in development that focus on key groups where policy targets have been set. Areas relevant to managed care networks that have potential to benefit from electronic records include:

- ? cancer;
- ? diabetes;
- ? mental health;
- ? coronary heart disease;
- ? asthma;
- ? maternity;
- ? paediatrics/ child health.

Managed care networks represent a more holistic approach to care planning and delivery, but from an ICT perspective they present many challenges for systems, functionality and data currently in use within the HPSS.

A core electronic care record is still relevant, but further specialised data sets, relevant primarily to the specialty or condition, need to be shared effectively across the care network. Early work is anticipated to develop a better understanding of the ICT requirements for managed care networks and relating core data with more specialised data.

Proposals for service developments involving managed care networks will in future be required to assess and include the requirement, and funding, for supporting ICT.

Development of protocols and care pathways are fundamental components to improve quality of care, to inform planning, to monitor and audit delivery of care (especially across managed care networks) and to develop multi-disciplinary care packages.

Protocols and care pathways should guide the care that is delivered, improve the standard of care and promote equality of care, albeit subject to local clinical judgement, and support the identification of variances and opportunities to improve practice.

These will play an invaluable role in enabling care improvements, underpinning health and social care governance across the HPSS and supporting more effective education, training and research.

However, protocol and care pathway development is highly complex and can be very time consuming, particularly when different organisations are involved. Further work is needed to explore options and determine what approach is best suited for the HPSS for incorporation into electronic care records. Work on this topic will be taken forward in conjunction with work on specialist care records because of the specificity of protocols and pathways to specialties and their direct relevance to managed care networks.

### **Longitudinal Lifelong Electronic Care Records**

Longitudinal care records are concerned with presenting a profile of individual service users' health and social care history. At present, the closest record to this is the general practitioner's case record which normally holds some data relating to all health and social care events. However, access to this record is generally not available outside the GP practice.

Longitudinal electronic care records will be concerned with:

- ? core data and alerts: a set of information that spans a long period of time (lifetime) and may be important in the planning of delivery of care across a number of care events, for example details of disabilities, blood group, allergies, long term medications;
- ? a summarised history of health and social care: information comprising the key elements of previous care events, probably ordered chronologically. The key elements are likely to comprise summary details of care need, process and outcomes for each care event and details of where further electronic information can be found.

It is likely that longitudinal care records will:

- ? require careful management, involving service users and professional staff, given the critical nature of some of the data they will hold. They will be accessible to individual service users who may well add to them and will need to take a degree of ownership;
- ? be managed and accessible at regional level given that they will be of value to ambulance services, accident and emergency departments, out-of-hours services and all types of health and social care professionals across sectors and organisations;
- ? will have very complex integration requirements for source systems.

Many developments need to precede the final definition and development of longitudinal care records. Specific activity in this area is not planned at present.

Developments elsewhere will be monitored, and a detailed review undertaken in 2005 to determine the most effective approach.

### **Screening/ Care-Focused Population Registers**

Managed care networks and existing service delivery arrangements will support the direct delivery of care to service users, but there is a significant element of managing care around disease or care assessment screening. These projects are distinct from larger population registers, such as PAS indexes and the planned H&C Number register, in that they pertain to specific population groups and have a high clinical focus. Work is anticipated in the following areas over the period of the ICT Strategy:

- ? breast screening;
- ? cervical screening;
- ? child health;
- ? communicable disease management;
- ? cancer registry.

Work is already underway to replacing the Breast and Cervical Cancer screening systems. This will inform other areas of screening/ registers, as will further work on electronic care records.

## 5.6.2 Electronic Care Records – Key Outcomes and Targets

This Programme will deliver:

- ? controlled access for care professionals to relevant electronic care data where and when they need it. This will reduce uncertainty about service users' history, previous investigations, and past care, providing a much better basis for care decisions and reducing uncertainty, waiting time and repeat appointments;
- ? accurate and timely electronic data relating to care planning and delivery that care professionals will value and rely on;
- ? ICT support to introduce new ways of working that enhance the efficiency and effectiveness of care for service users – for example making it possible to deliver care in regional, local and community settings with the complete, current care record being electronically available in each location;
- ? access for individual service users to their own electronic care records, in line with legislation; allowing them to check the accuracy of their records, be better informed about their condition and care, and take greater ownership of their records.

### **Electronic Care Records Targets**

Provide HPSS-wide access to core hospital electronic care records by end 2006 – enabled through the consolidation of ICT services and introduction of a care data viewer (local access will be available earlier than this).

Implement Person-centred Community Information Services across the HPSS beginning in 2003 (also under Care Communications).

Develop specialised electronic care records, focussed on supporting managed care networks – over the period of the Strategy.

Finalise a strategic approach to life-long electronic care records in 2005 with a view to implementation around 2009/10.

## 5.7 Business Administration

The HPSS is a large and complex organisation, engaged in a complex range of activities across different organisational structures and a large number of widely dispersed sites. It has an annual budget in excess of £2.5 billion and employs more than 50,000 staff across a very wide range of disciplines.

Other Programmes focus on aspects of the HPSS that are concerned with its most fundamental functions, the direct planning and delivery of care in close association with care professionals.

However, it would be impossible to operate and manage the HPSS without effective ICT support for all of the key business functions that are characteristic of an organisation of this scale and complexity.

Functions addressed under this heading encompass:

- ? finance at all levels, from transaction processing to strategic management and financial stewardship;
- ? procurement services, covering contracting, purchasing, logistics, requisitioning and payment;
- ? human resources and payroll functions;
- ? family practitioner services payment functions, including transaction processing, planning and management information, and counter-fraud activity.

Apart from the FPS services, which are unique to the NHS/HPSS, these functions are common to all large organisations.

These are functions where ICT was first deployed in the HPSS. The difficulties they are experiencing now arise from a combination of that long history and the shortage of investment resources for ICT across the HPSS. The result is that although current ICT services continue to perform satisfactorily according to their design and specification, the HPSS cannot exploit opportunities offered by their more modern equivalents and has difficulty in meeting increasingly robust management and monitoring requirements.

The main thrust of this programme will be to ensure that HPSS business is supported in its operational processes and related routine, strategic and performance management information requirements by robust and effective ICT services.

### 5.7.1 Business Administration – Strategic Projects

Without pre-empting the outcome of ongoing consultation processes, there is little doubt that the HPSS will be subjected to organisational change over the next few years. The nature and extent of that change is currently unknown. Such change has an inevitable impact on business administration functions and their supporting ICT services.

Any change in ICT services must therefore be capable of accommodating, indeed facilitating, organisational change. This should not be an especially onerous requirement – existing ICT systems have in the past shown themselves capable of dealing effectively with change of this nature. There may, however, be concern about the relative timing of new ICT services and new organisational structures and consequent difficulties in resourcing change management.

In the NHS business administration functions are being considered as candidates for "shared services". This means that some aspects of the functions may be provided by one organisation on behalf of a number of them. The HPSS will be considering the potential for shared services over the next few years and ICT services would need to be able to support changes in the way the functions using them would be organised.

### **Finance and Supplies**

Work has been under way for some time to develop proposals for projects to replace the existing systems in this area. The immediate product of this work is a Strategic Context report that recommends a collaborative approach to acquiring new ICT services to replace existing systems in the following areas:

- ? finance and supplies systems;
- ? human resources and payroll systems;
- ? family practitioner payment systems.

This recommendation will be developed to undertake a full analysis of options and prepare a business case. Areas that will be addressed include:

- ? financial management;
- ? procurement, stock management and distribution, including e-procurement;
- ? estates management;
- ? controls assurance;
- ? complaints, risk management and litigation.

Approval of the business case would be followed by procurement and implementation.

### **Human Resources and Payroll**

The strategic context report referenced above also addresses these areas and recommends option analysis and business case development. Areas to be addressed include:

- ? rostering and time recording;
- ? payroll and expenses;
- ? human resource management, including staff registration and training records.

Approval of the business case would be followed by procurement and implementation. Implementation would have to be closely co-ordinated with the finance system.

### **FPS Items of Service / Payments**

The FPS payment systems differ fundamentally from other functions in this area in that they are unique to the HPSS/ NHS. There is therefore a much narrower range of options available for their replacement.

There are significant issues with the stability and functionality of the existing system. Work in this area will address the approach to resolving such issues. It is expected that system replacement will be recommended, however this is to be confirmed through the business case process.

In the particular instance of GP payments, there are immediate replacement options emerging from within the UPCI project that may well, if taken up, remove that particular function from further consideration.

### 5.7.2 Business Administration – Key Outcomes and Targets

This Programme will deliver:<sup>10</sup>

- ? support in meeting the financial and related information requirements of the Northern Ireland Administration, including the Assembly, the Minister, the HSSPS Committee and the Department. New ICT services would provide much greater reporting flexibility and more up-to-date analyses;
- ? an efficient, flexible, modern, highly functional business environment to support organisational development and change;
- ? a fully functional suite of systems to fully meet the operational requirements of managers and staff and to support financial performance management;
- ? new services that are not subject to the shortfalls in the current systems environment;
- ? elimination of risk in relation to technical obsolescence, or limitations in support from current suppliers;
- ? services that will support effective migration to e-trading, reducing transaction costs;
- ? services that will facilitate multi-currency transactions including conversion to the Euro, should UK policy so require.

#### **Business Administration Targets**

Complete options analysis for ICT service provision in this area by mid 2003 – with the expectation that this will recommend procurement(s) to replace existing systems.

Subject to that analysis, introduce new ICT services in association with re-organised HPSS processes.

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<sup>10</sup> "Finance Systems Review 2001 – Strategic Context Report" Section 4.3

## 5.8 Infrastructure

For ICT to be effective in supporting HPSS business, a range of underpinning services or functions need to be in place. These do not relate to any specific services to HPSS ICT users, but are fundamental to all of them.

Although these have always been important areas, their significance to the core business of the HPSS may, in the past, have seemed peripheral. However, as care professionals increasingly use, and depend on, ICT services the enabling infrastructure upon which those services depend will become increasingly critical.

The Infrastructure Programme incorporates a range of such elements and services:

- ? electronic data – processes and services that need to be in place to deliver secure access, for those who need it, to anonymised, detailed activity data, aggregate data, resource data, financial data... including data from sources external to the HPSS;
- ? standards and definitions – making sure that there is essential technical and data consistency across the HPSS through agreement on technology and data standards, data definitions, dataset standards;
- ? enabling infrastructure services and basic ICT provision – securing and supporting the basic technology and data services that are prerequisites for a truly ICT-enabled HPSS;
- ? general areas of ICT security in a technical sense, including physical security, contingency and ensuring the availability of those increasingly-critical ICT services.

### 5.8.1 Infrastructure – Strategic Projects

Work is already under way in a number of areas:

- ? equality measures – definition of requirements, and data, and options for delivery;
- ? e-mail directory and PKI – creation of a locally-maintained HPSS-wide e-mail directory;
- ? UPCI project – introduction of a new Health & Care Number for service users, services to maintain the central H&C Number index, populating HPSS systems with the new identifier;
- ? basic ICT services for GPs – practices, connected permanently to HSSnet by the UPCI project, will have basic mail and browser capabilities;
- ? “interface engines” – an interface engine capable of translating and transferring data between systems is to be one element of the UPCI implementation; the procurement is expected to include a regional licence for its use;
- ? standards – DHSSPS is represented on new NHS Standards Boards that have been set up by Department of Health in England and include membership from Scotland, Wales and Ireland;
- ? server consolidation – to replace existing servers with new consolidated configurations that bring together data on a functional basis from across the HPSS;

- ? basic ICT services for care professionals – to introduce a step change in the number of care professionals who have routine access to basic ICT services (e-mail and browser).

Other high priority areas where it would be desirable to begin work as soon as possible are:

- ? messaging standards – to provide a focus for identifying existing standards or agreeing pragmatic, interim standards for projects undertaking electronic messaging;
- ? staff identification – to establish a secure method of identifying and authenticating staff involved in accessing or communicating care information;
- ? electronic library – to enable access to co-ordinated electronic library resources via HPSSnet.

As the HPSS moves towards realising the Strategy Vision of a fully ICT-enabled service, the overall cost of the ICT infrastructure upon which this depends will increase significantly. Some of this cost increase is already anticipated in forward planning at regional level – for example costs associated with HSSnet itself or with the new H&C Number. However, additional infrastructure costs to individual HPSS organisations will be a large element of this increase.

As a simple example, sustaining the population of PCs across the HPSS at a conservative level with replacement every four years would require purchase of 25% of that population every year, an estimated annual cost of £5million. Part of the difficulty with such expenditure is that it is not in itself “making a difference”. It is simply keeping the basic ICT service viable.

### **Electronic Data**

Many functions in the HPSS, and the Department, need to analyse data about HPSS activity. Increasingly, the information demands can only be met effectively by authorised access to anonymised, detailed activity data. An agreed single source of such data would avoid duplication of effort and focus discussion on the results of analysis rather than disputing the source data.

The development of such a data source would need to take into account the Review of Business Information Needs in the Department, the findings of the DHSSPS warehouse pilot and the increasing availability of activity data from new ICT systems – especially in the community.

There is much additional data that is either available already or could potentially be made available from the HPSS – for example activity data in aggregate form, personnel data, finance data, facility data.

Increasingly, it is also necessary for the effective planning of care to use data from sources external to the HPSS. There is obvious scope for co-ordinated action to acquire and exploit external data for HPSS purposes.

HPSS requirements in this area are very closely related to Departmental requirements and it is important that they be co-ordinated.

### **Standards and Definitions**

The increase in electronic communication of care information will require clarity on standards across the HPSS. There is already a substantial degree of standardisation at application level, but the situation with regard to desktop

services needs to be reviewed to ensure that the move towards increased use of electronic care data and care services is not impeded by diversity at that level.

There is also a great deal of *de facto* standardisation in data, dataset and messages both at the application level and for communication between applications.

New Standards Board arrangements have been established at national level by the Department of Health. These include participation from Northern Ireland, England, Scotland, Wales and the Republic of Ireland. Although still at an early stage, the arrangements are intended to fast-track approval of required standards in general and especially those related to e-health in support of NHS strategy targets.

### **Access to Basic ICT services**

There are many areas of the HPSS where care professionals, in particular, do not currently have access to basic ICT services – PCs with the normal range of office facilities, e-mail and browser capability.

The Strategy needs to strike a careful balance between the pace of introduction of basic ICT, training, proficiency and familiarity with ICT, and the availability of additional services supported by that ICT, such as new application services.

Nevertheless, taking these factors into account, it is evident that specific action will be required to substantially extend the penetration of basic ICT amongst care professionals across the HPSS.

### **Network Services**

HSSnet at present is essentially a connection service, linking HPSS organisations and linking the HPSS with the wider world.

Growth in the number of connected users across the HPSS and in Primary Care, together with the increasing capability of HPSS ICT to support “browser” access, will increase the scope for network services being provided HPSS-wide.

Network capacity and network reliability will be increasingly critical issues for the HPSS as reliance on ICT increases.

### **Identification and Authentication of Service Users and Staff**

Increased use of electronic communication and extended access to electronic data bring new requirements to ensure that the person accessing the data or service, or the person sending the data, or request, is in fact who they claim to be – and that they have the appropriate authority.

At present, this issue can reasonably be addressed within HPSS organisations, since that is where the access occurs and where the control lies. This situation will not continue for long, as the service moves to more cross-organisational care, and it will be necessary to ensure that there is HPSS-wide agreement on user identification and authentication. Work in this area will be related to the e-mail directory and Public Key Infrastructure services that are currently being established.

On a wider front, the potential for public access to HPSS ICT services brings a similar requirement, which may be resolved as part of the introduction of more general e-Government services.

## 5.8.2 Infrastructure – Key Outcomes and Targets

This Programme will deliver:

- ? access to consistent and reliable HPSS (and other) data as a shared resource, for those who need it for planning, monitoring, commissioning, epidemiology, etc;
- ? basic ICT services, including desktop services, e-mail and Intranet/ Internet access, and electronic library services for HPSS and primary care staff;
- ? common technology, data and message standards for HPSS ICT, consistent with national and international standards; supporting initiatives to improve data sharing, communication and comparisons;
- ? reliable and sufficient network and server capacity for the HPSS (this will become an increasingly critical issue as care activities come to depend on ICT);
- ? secure, reliable and unique identification and authentication of service users and staff for HPSS ICT.

### Infrastructure Targets

Implement the new Health & Care Number throughout the HPSS and family practitioner services by December 2003.

Implement an HPSS-wide electronic mail directory able to support Public Key Infrastructure services by end 2002.

Implement consolidated ICT systems by end 2002 with transfer of relevant services completed by mid 2003.

Implement basic ICT services (PC access with mail and Internet access, fully linked to HSSnet) for all GP practices by mid 2004.

Implement basic ICT services for all HPSS care professionals by end 2005.

Establish common services for publication of HPSS information on Internet (and HPSS Intranet) by end 2002.

Implement a common, shared HPSS data source or data warehouse, incorporating key HPSS and external data, by end 2003.

## 5.9 Overall Priorities

This section has set out the work associated with the future development of ICT within the HPSS. The overall Strategy Programme is commensurate with:

- ? professional expectations within the HPSS;
- ? developments already taking place in health and social care elsewhere;
- ? the types of service developments and ICT requirements that have been suggested in recent strategic studies in Northern Ireland such as the Acute Services Review<sup>11</sup> and the Review of Primary Care<sup>12</sup>;
- ? public expectations of the type of electronic services that the HPSS will be using and providing.

Nevertheless, the scale and availability of resources required, both funding and skilled people, and the capability of the HPSS to absorb change mean that relative priorities must be determined in order to provide a manageable overall programme of work.

There are many factors that contribute to relative priorities, for example:

- ? some requirements are driven by external factors, such as legislation in the area of confidentiality, and must be urgently addressed;
- ? many requirements demand a considerable component of ICT infrastructure, such as PCs in community settings, hospital wards and other clinical areas. Applications such as electronic reporting, electronic prescribing, electronic referrals and professional communications depend on these infrastructure issues being addressed;
- ? the new H&C Number is needed to support increasing electronic care communications and creation of electronic care records across HPSS organisations;
- ? it makes sense to address core electronic care records where much data already exists in electronic form prior to more complex records, such as those for managed care networks, and longitudinal health records;
- ? people will be needed to provide technical support and to address organisational change and development that must take place alongside implementation of new ICT systems;
- ? some projects are more complex, require higher levels of resource and have more risk than others;
- ? some projects are more directly related to the key areas of the Strategy Vision – Delivering and Supporting Direct Care.

The following table considers these factors in relation to the main Strategy projects and proposes relative priorities in terms of high, medium and low. These priorities have been used in developing the overall timings for the Strategy Programme.

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<sup>11</sup> Acute Hospitals Review, DHSSPS, 2001

<sup>12</sup> Building the Way Forward in Primary Care, A Consultation Paper, DHSSPS, Dec 2000.

PROJECT	Current Project Status	Key Drivers	Key Area(s) of Strategy Vision	Organisational Impact	ICT Technical Complexity	Scale of Cost	Anticipated Benefits	Priority
<b>INFORMATION GOVERNANCE – Confidentiality and Consent</b>								
Prepare confidentiality and consent strategy.	In progress.  Consultation paper due 2002.  Strategy due for completion end 2002.	Data Protection Act 1998, requirements of professional associations and a wide range of other legislative requirements.	HPSS for the Citizen.	Affects the entire HPSS.	Not applicable.	Low – undertaken within existing resources.	Supports gaining public and professional support An effective strategy will result in appropriate measures and an appropriate level of investment.	Priority: High.  Project already in progress.
Implementation of confidentiality and consent strategy.	Awaiting completion of Strategy.	Based on strategy proposals and recommendations.	HPSS for the Citizen.  Delivering Direct Care.  Planning and Commissioning.  Performance Management.	Affects the entire HPSS although there is likely to be limited direct effect on staff.	Highly complex. Will result in changes to existing systems and new developments to support indirect use of personal information, such as to support anonymisation of data.	Depends on balance of legislative, procedural and technical solutions.  Minimum high (£1m+), but could be very high (£5m+).  Some solutions will be implemented as part of other strategy projects.	Public and professional acceptance and support for continued indirect use of personal information.  Compliance with legislation and professional requirements.	Priority: High.  Detailed priorities will be set out in the Strategy. However, the underlying requirements are driven by legislation, the requirements placed on professionals by their professional associations and the HPSS' duty of confidentiality to the public. The HPSS must respond in a timely manner to these demands. Delay will be unacceptable to many parties.

PROJECT	Current Project Status	Key Drivers	Key Area(s) of Strategy Vision	Organisational Impact	ICT Technical Complexity	Scale of Cost	Anticipated Benefits	Priority
<b>INFORMATION GOVERNANCE – Education, Training &amp; Organisational Development</b>								
Regional development and support team.	Not funded.	Supporting care professionals to improve their practice.  Supporting the modernisation of HPSS services	Education, Training & Organisational Development  Support for staff	Low in terms of development and training work.  High if developments are rolled out.	Low.	£200k p.a.	Improved support and co-ordination of training and OD activities.	Priority: High.  Effective OD is crucial to successful strategy implementation.
Facilitating process innovation.	Not funded.  Some local work taking place.	Supporting care professionals to improve their practice.  Supporting the modernisation of HPSS services	Education, Training & Organisational Development  Support for staff.  Delivering Direct Care.	Low in terms of the provision of training.  High if that training is used across the HPSS, although it is assumed this will be part of other ICT projects.	Low, although some new software tools may be required to support this project.	£500k to support demonstrator projects.  High, in terms of staff training time, once developments are being rolled out to the HPSS.	Improved efficiency and effectiveness of staff time.  More streamlined care  Better resource utilisation	Priority: Medium.  Some activity in this area is already taking place and will be incorporated into individual implementation projects. However, further programmes are desirable to aid the effective exploitation of ICT, in particular to encourage thinking on future processes to aid procurement specifications. Overall, further funding is highly desirable for this area of activity if resources can be found.
Trust OD and project support.	Not funded.	Supporting HPSS Professionals to improve their practice.  Supporting the modernisation of HPSS services	Education, Training & Organisational Development  Support for staff	Low in terms of development and training work.  High if developments are rolled out.	Low.	£1.4m p.a.	Improved support and co-ordination of training and OD activities.	Priority: High.  Effective OD is crucial to successful ICT implementation.

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<b>INFORMATION GOVERNANCE – e-Information</b>								
E-information for citizens, service users and care professionals.	<p>Not funded.</p> <p>Limited web-based information is provided at present, but is not well co-ordinated or comprehensive or up to date.</p> <p>Facilities are being set up to allow HPSS organisations to publish web information easily.</p>	<p>The need for public information to enable access to information about services and self-care.</p> <p>Reduction in health and social care 'information barriers'.</p> <p>The need for high quality information for care professionals to support the quality of services.</p>	<p>HPSS for the Citizen.</p> <p>Delivering Direct Care.</p> <p>Support for staff.</p>	<p>Low. Does not affect core processes.</p> <p>However, policies are required for content management, provision of links and information accreditation.</p> <p>Achieving routine use by the public and care professionals will also be challenging.</p>	Low. Will be based on proven technologies and products.	£500k for initial development . £200k pa for ongoing maintenance.	Better informed public and care professionals with a wide range of consequent benefits.	<p>Priority: High.</p> <p>Publishing information on services for the public in a high quality, well-structured and controlled manner is highly desirable as an important element of public service.</p> <p>It is becoming universal in relation to all services and products and the HPSS must keep pace with these developments.</p> <p>There is a critical function for the HPSS to act, and be seen to act, as the prime source or portal for health and social care information.</p> <p>Similarly, the HPSS should act as the portal for its professional staff seeking professional information and guidance.</p> <p>Not addressing this when the capability is available would not be commensurate with providing modern, high quality services and introduces greater risk for service users.</p>

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HPSS planning and performance management information.	Specification project in progress in the Department under the leadership of the Information and Analysis Unit. (Review of Business Information Needs project – RoBIN)	Continuing improvement in the range and quality of information available for management activities.	HPSS for the Citizen.  Planning and Commissioning.  Performance Management.	Low. Doesn't affect core operational processes.  There is a significant challenge to highlight the existence, and encourage the use, of available information.	Complex. Will be based on well proven tools, but will be intellectually challenging to take data from the range of new systems and deliver high quality, useful management information.	To be confirmed.  Significant development will take place within other application projects.	Improved capability to plan, manage and evaluate health and social care services.	To be determined once specification project is complete and scope, scale, cost and benefits are clear.

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<b>HEALTH AND SOCIAL CARE – Direct Care Support</b>								
Pathology ICT services.	<p>Not funded.</p> <p>All laboratories retain regional system from DIS with exception of Belfast Link Labs (Berkley) system.</p> <p>Regional group currently being established.</p>	<p>Current system based on relatively old technology in what is now a mature package market.</p> <p>Functionality provided internally for laboratories now becoming limited, though no business-critical problems identified.</p> <p>Contributes to achieving electronic care records.</p>	Support for Direct Care.	<p>Low. Implementation issues restricted to the laboratories. This is an area of longstanding use of ICT where it is well accepted and understood.</p> <p>However, regional and inter-laboratory co-operation will be required to agree the selection of a regional solution.</p>	<p>Low. This is an area of proven package solutions.</p> <p>However, the selected system must be capable of being linked effectively to the selected technologies for requesting and reporting of laboratory tests to direct care providers.</p>	<p>Very high (£5m+). May be funded as a PPP service at perhaps £1m pa.</p> <p>Typical costs for system hardware, software and implementation services are in the range of £0.5m to £1m for each major laboratory. The implementation effort is very significant.</p>	<p>Improved functionality and information for laboratory operations and management.</p> <p>Achievement of a 'virtual' single laboratory system for reporting purposes.</p> <p>Improved ease and effectiveness of linkage to requesting and reporting systems.</p>	<p>Priority: Low.</p> <p>No critical problems at present and key focus is to enable electronic communication of results to end users which can be achieved with existing systems. Improved functionality for end-users will also be delivered through the server consolidation programme.</p>
PACS strategy.	<p>Not funded.</p> <p>No hospitals have fully implemented PACS facilities.</p> <p>Some limited developments exist or are being implemented within radiology departments.</p>	<p>Improved access and speed of delivery of images for clinical decision taking.</p> <p>Efficiency and effectiveness of radiology department operations.</p>	<p>Support for Direct Care.</p> <p>Delivering Direct Care (PACS is the means to deliver images to clinical staff providing direct care).</p>	<p>Low. Technology is well accepted within radiology departments and implementation effects are initially limited to the radiology department. High – if implementation is taken outside the conventional departmental boundaries.</p>	<p>Low. Proven packaged solutions exist, although they require high capacity data networks to take advantage of PACS across organisations.</p>	<p>Low for the strategy – a PACS Strategy can be developed at relatively low cost. Implementation would be very high (£5m+). Also dependent on radiological equipment changes and upgrades.</p>	<p>Improve access to diagnostic images.</p> <p>Rationalise the storage and retrieval of diagnostic images.</p> <p>Save staff time and costs associated with storage and consumables.</p>	<p>Priority: High.</p> <p>The strategy is needed to ensure a PACS programme that is co-ordinated with equipment replacement.</p> <p>Further priorities for investment in PACS will be determined as part of the strategy.</p>

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Pharmacy Department Medicines management & E-prescribing Strategy & Implementation	Not funded.  Currently the regional pharmacy system is used. All hospital prescribing is manual at present.	Improved management of drugs/ medicines.  Development of a basis on which to support electronic prescribing.	Support for Direct Care.  Delivering Direct Care (medicines management system will also provide the functionality for electronic prescribing).  Delivering Direct Care.	Low. Computer based stock management systems are well accepted and understood within pharmacy departments.  High for electronic prescribing as it affects a core clinical care process and requires the participation of all medical and nursing staff.	Medium. Proven packaged solutions for stock control, medicines management and e-prescribing are available but integration will be required to achieve a comprehensive solution including finance and electronic care records.	About £1m for pharmacy management and £2m for electronic prescribing. Ongoing £0.5m pa.	Improved support for pharmacy department operation and management, including effective cost management.  Creation of a basis for intelligent support for the prescribing process.  Contribution to patient care, safety and clinical governance.	Priority: High.  The application is directly relevant to patient care and has the capability to improve the safety and quality of clinical care.  However, E-prescribing is a complex application which must be adopted by all staff involved in medicines prescribing and administration. Experience of implementation in NHS hospitals has demonstrated the complexity of this application. Staff should all therefore be competent and committed ICT users and access points (PCs) should be available throughout clinical areas. For this reason, despite the high priority, implementation should be phased to allow the ICT infrastructure to be established and staff to develop experience on less complex and critical applications, such as results reporting.

PROJECT	Current Project Status	Key Drivers	Key Area(s) of Strategy Vision	Organisational Impact	ICT Technical Complexity	Scale of Cost	Anticipated Benefits	Priority
<b>HEALTH AND SOCIAL CARE – Care Communications</b>								
Electronic pathology and radiology results reporting to general practitioners (comprehensive region-wide service that replaces current technology).	In progress. Due for completion in 2004.	Fits with effort to enhance the role of primary care, further develop clinical networks and improve the responsiveness and quality of service.	Delivering Direct Care.  Support for Direct Care.	Medium complexity. Affects General Practices and also processes within pathology and radiology departments.	Complex as it includes structured messaging and incorporation of message data into the patient record held in the GP system.	High (£1.5m). This also includes support for implementing electronic submission of claims for Items of Service (see Business Administration section).	Faster communication of results to enable patient care.  Some potential savings on organising and distributing manual reports.  Supports the creation of electronic care records.	Priority: High.  There is a high demand for this service which is directly relevant to patient care and can reduce the time for reporting of results and hence the time to initiate treatment as well as patients' waiting time for results.
Electronic results reporting within HPSS organisations.	Not funded.  No progress on a regional basis though some Trusts have implemented local solutions based on the Torex product set.	Quality and speed of patient care.  Modernising HPSS services.	Delivering Direct Care.  Support for Direct Care.	Medium. Electronic reporting will affect processes in reporting departments but use of the system by clinical staff can be gradually introduced.  Requesting is more complex procedurally and requires the training and participation of all staff.	Depends on solution.  Browser-based viewing of results using a 'care data viewer' will be less complex than eventual requesting and incorporation of results into electronic records.  Package solutions are available and would be less complex to implement.	Very high (£2m).  There are also considerable training implications on HPSS staff	Speed of reporting.  Ease of access to a comprehensive set of patient results.  Support for patient care across clinical networks.  Eventual reduction in effort to produce and distribute manual reports.  Longer term support for electronic care records.	Priority: High.  There is a high demand for this application reflected in the range of initiatives undertaken locally by Trusts. Not only is it directly relevant to decisions on patient care but it has the potential to free clinical staff from time consuming and wasting administrative activity chasing results.

PROJECT	Current Project Status	Key Drivers	Key Area(s) of Strategy Vision	Organisational Impact	ICT Technical Complexity	Scale of Cost	Anticipated Benefits	Priority
Hospital appointment booking (the principles and systems should also be applicable to other booking activities).	Funded.	<p>Reflects effort to improve levels of responsiveness and personal service.</p> <p>Public expectation for electronic services – which will grow as this area develops in the rest of the UK.</p> <p>Contributes to the e-Government agenda for electronic transactions with the public.</p>	<p>Delivering Direct Care.</p> <p>HPSS for the citizen.</p>	Highly Complex. Significantly affects core referral and appointment booking processes involving clinical staff in General Practice and in hospitals.	Depends on the solution. Direct access to PAS solutions through a browser would be less complex than solutions to support referral protocols or access across a number of hospitals.	High (£1.5m)	<p>Patients can influence appointments and have earlier certainty on their next stage of care.</p> <p>Potential to improve quality of referrals in terms of appropriateness and completeness.</p> <p>Possible reduction of DNAs.</p>	<p>Priority: High.</p> <p>This development represents a key way in which the HPSS can become more responsive to patients, allowing them to influence appointment times.</p> <p>It also should support improvement in communication between hospital and primary and community services.</p>
Discharge planning and communications	<p>Not funded.</p> <p>Limited local developments.</p>	<p>Efforts to speed up patient discharge and reduce bed blocking.</p> <p>Adoption of clinical networks and maintenance of seamless service for patients.</p>	Delivering Direct Care.	Medium. Introduces new processes, but initially represents the electronic completion and communication of a discharge document. More complex procedural change is likely to be needed to get the full benefit.	<p>Initially very simple but could become complex to meet detail of requirements in terms of detailed patient data and incorporation into receiving system.</p> <p>Largely based on proven technologies.</p>	Medium (£0.5m).	<p>Better quality of immediate discharge information.</p> <p>Speed of communication to community and primary care ensuring continuity of care for patient.</p>	<p>Priority: High.</p> <p>Quick and effective discharge communications is a key area to ensure continuity and effectiveness of care.</p>

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Ad hoc professional correspondence.	Not funded. Limited electronic capability at present.	Support for clinical networks and increased and easier communication between clinical care professionals.	Delivering Direct Care.  Education, Training & Organisational Development	Low but will require co-ordinated project facilitation and professional support (champions).	Low – uses proven e-mail technology.	Low – can build on infrastructure being put in place for other projects.	Easier and more frequent communication between care professionals with potential to create new relationships that have a positive impact on care.	Priority: Medium.  This project is focused on ensuring best use of basic electronic communication opportunities. These may develop in any case, but this project offers an opportunity to test and evaluate initiatives in this area.

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<b>HEALTH AND SOCIAL CARE – Electronic Care Records</b>								
Cancer chemotherapy.	Funded – work already underway	Improving the speed and efficacy of cancer care.  Supporting the Government's health and social care priorities	Delivering Direct Care	Low.	Low. No new systems will need to be introduced.	Low (£400k). Limited number of sites to apply solution.	Improved support for cancer care networks.  Improved	Priority: High.  Project in progress. Cancer care has a national priority and chemotherapy administration is a critical element of care which this project can support.
Consolidating health and social care data.	Note the server consolidation funding only covers application migration and consolidation, not database merging/ rationalisation.	Reducing risk of data loss and poor data quality.  Improving access to patient data by HPSS Professionals.	Delivering Direct Care  Planning and Commissioning	Low. Users should not be affected by these changes.	Low to medium, depending on solution. If data stores are simply collected together on fewer hardware platforms this is low complexity but if this also involves database merging/ data rationalisation then complexity will be greater.	Low.	Efficiency of application maintenance and support.  Improved access and use of data.  Improved integration and hence comprehensiveness of personal data.	Priority: High.  Achieving electronic care records for Northern Ireland requires increased consolidation of patient data. This project will achieve this, based on a common physical platform, through database consolidation so that a full and complete set of patient data can be presented to authorised clinicians to inform patient care.
Electronic care data viewer.	Not funded.	Supporting care Professionals in accessing care records for more informed care	Delivering Direct Care  Supporting Direct Care	High. Considerable process change and widened system access required to make best use of this service.	Medium – based on proven web technologies but will require considerable security work.	High. (£2m)	Improved access to personal data to support the care process.	Priority: High.  The viewer will form a common platform for authorised care professionals to view consolidated care data. This is a key development to move towards the use of electronic care records.

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Electronic Care Records for Managed Care Networks Strategy.	Not funded.	<p>Supporting the Government's health and social care priorities.</p> <p>Developing systems and processes that span professional and organisational boundaries and mirror the overall care process.</p> <p>Developing common and robust ways to plan and deliver care within and between organisations.</p>	<p>Delivering Direct Care</p> <p>Supporting Direct Care</p>	Low initially – for the research/ scoping element of the project.	Medium initially – for the research/ scoping element of this project.	<p>Medium initially.</p> <p>Very high once systems begin to be introduced across the HPSS.</p>	<p>Support for ensuring service user data is available to all professional staff involved in a care network at the point of care.</p> <p>Quality of information in care records.</p> <p>Support for decision taking.</p> <p>Improved outcomes for service users.</p>	<p>Priority: Medium.</p> <p>Many specialty - or condition-specific care services will require their own electronic records in addition to common data such as pathology and x-ray results.</p> <p>The basic data has been given a higher priority, but systems must also be developed to support care delivery in these areas, many of which have a national priority (cancer, coronary heart disease, mental health) or are areas of very high resource usage (diabetes). The systems must be based on a very clear understanding of future care processes and will therefore be complex to specify, design, build and use.</p>

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PCIS.	Not funded.  Ongoing, in procurement stage.	Total absence of ICT support for community services.  Lack of information for quality and management of services.	Delivering Direct Care.  Supporting Direct Care.  Support for Staff.  Performance Management.	Very High. Will impact all care professionals and will require active collaboration on ICT and care processes across all Community professional groups and HPSS organisations.	High. It is intended to procure a package solution but this is not commercially available as yet. Considerable local tailoring will be required.	Very High (£10m)	Improvements in care planning and delivery.  Efficiency gains.  Improved resource management.  Improved outcomes for service users.	Priority: High.  PCIS covers a very wide range of functionality in the areas of primary and community care. The project is in progress and will have a very high cost. The nature of the solution means it is also relatively high risk given the lack of full package solutions and the wide spread of users, often in remote locations.  However, it is very relevant to care and should free professional staff time from administrative tasks, and therefore has a high priority.
Longitudinal lifelong electronic care record.	Not funded.	Supporting Government's health and social care priorities.  Developing systems and processes that span professional and organisational boundaries and mirror the overall care process.  Developing common and robust ways to plan and deliver care within and between organisations.	Delivering Direct Care  Supporting Direct Care  HPSS for the citizen	Low for strategy development.  Subsequent implementation will be complex.	Highly complex.	£100k for review of strategy.  Implementation costs not known but will be high.	Support for ensuring care information is available to all professional staff involved in a care network whenever they require it.  Quality of information in care records.  Support for decision taking.  Improved outcomes for service users.	Priority: Low.  A foundation of ICT for care delivery will need to be in place before effective lifelong records can be developed.

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<b>BUSINESS ADMINISTRATION</b>								
Business Administration ICT review & strategic analysis.	Reported.	Age and inflexibility of current systems. Inability to meet increasing management reporting needs. Concerns over medium-term support for aging systems. Potential for efficiencies from new, integrated services.	Business administration Performance management Planning and commissioning Support for staff	Affects the entire HPSS.	Not applicable.	Low – undertaken within existing resources.	Clarity of future direction for ICT applications in this area. Benefits are being explored within this project – and see drivers.	Priority: Medium.  Project is in progress and a business case will be prepared during 2002 setting out the future organisation of the finance function and associated ICT requirements.
Finance and supplies systems replacement (including e-procurement).	Not funded.	Recommendations of the strategic analysis.	Business administration Performance management Planning and commissioning Support for staff	Affects the entire HPSS. Highly complex. Will result in changes to many existing processes and, potentially, involve changes to organisational arrangements and responsibilities.	Package products exist, many now applied in the NHS. Complexities of scale.	Very high. External references indicate costs of around £1.5m pa.	Improved quality of finance management.  Efficiencies from rationalisation of service provision.  Improvements on procurement and supply efficiencies.	Priority: Low.  This may be subject to revision as a result of the business case findings and recommendations. However, these systems do not relate directly to care and therefore will need a strong economic case based primarily on financial benefits.
HR and Payroll systems replacement.	Not funded.	Recommendations of the strategic analysis.	Business administration Performance management Planning and commissioning Support for staff	Affects the entire HPSS. Highly complex. Will result in changes to all existing processes and, potentially involve changes to organisational arrangements and responsibilities.	Although there are packages available, some of which are used in the NHS elsewhere, the range and complexity of HPSS staff makes for a highly complex ICT project.	Very high. External references indicate costs of around £1.5m pa.	Improved staff management. Efficiencies from rationalisation of function and of service provision.	Priority: Low.  This may be subject to revision as a result of the business case findings and recommendations. However, these systems do not relate directly to care and therefore will need a strong economic case based primarily on financial benefits.

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Family Practitioner Items of Service/ Payment systems replacement.	Not funded.	Recommendations of the strategic analysis.	Business administration Performance management Planning and commissioning	Low. Affects primarily the Central Services Agency at operational level.	Medium. Products are already in place and packages are deployed in other locations. However, there is a very limited market for products in this area.	£600k p.a.	Process efficiencies. Improved availability and timeliness of management information.	Priority: Medium.  The present system is struggling and technically vulnerable.

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<b>INFRASTRUCTURE</b>								
E-mail Directory and Public Key Infrastructure.	In progress. Due for completion late 2002 for E-mail directory. PKI to follow.	Demand for e-communication across organisational boundaries. Demand for security and authentication.	Delivering direct care. Support for direct care. Support for staff. Business administration.	Apparently simple, but requires commitment from some function (ideally HR) to maintain the directory and validate the PKI.	Standard package product.	£0.5-1.0m.	Enables e-communication across HPSS. Meets security and authentication requirements.	Priority: High.  E-mail should be available as a communication mechanism throughout the HPSS. It is also a key application to enable staff to develop ICT skills and introduce use of ICT into their work practices.  Effective management of directories is essential to allow this to happen and e-mail should be one of the first applications offered to staff currently without any ICT support.  PKI will be essential to the wider use of care applications and the management of security and confidentiality. This infrastructure must be in place to support the range of applications to be provided through the Strategy.

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UPCI and Interfacing.	In progress. Implementation planned to begin in 2002.	Need to share access to personal data across functional and organisational boundaries.	ALL – but especially:  Delivering direct care  Support for direct care  HPSS for the citizen	Medium complexity, but impacts the very large number of staff involved with personal data.	Highly complex. Will require new systems and changes to many existing systems.	£5m and ongoing £2.0m p.a.	Key enabler for all e-communication services. Benefits include reliable and secure identification of individuals, rapid sharing of personal data.	Priority: High.  Effective and reliable service user identification is essential to the development of care communications and electronic care records. UPCI is the key element of infrastructure that will provide this and is required to enable planned health & social care applications to function reliably and safely.
Server Modernisation.	Agreed in principle. Option analysis in progress. Implementation required by December 2002.	Imminent obsolescence of many current HPSS servers.	Immediate impact on – Support for direct care Business administration Longer term - Delivering direct care HPSS for the citizen Planning and commissioning	Low. Minimal impact outside the ICT function.	Medium. Will require consolidation of services at a level not previously undertaken in the HPSS, but not uncommon in other sectors.	£3m.	Ongoing viability of operational systems. Consolidation offers opportunities for consolidation of data towards a NI Electronic Care Record and simplifies Care Communications initiatives.	Priority: High.  The HPSS has a significant number of servers running essential clinical and business applications that are reaching the end of their useful (and recommended) lives. They cannot be allowed to fail and must be replaced for the continued functioning of the HPSS.
Basic ICT services for General Practitioners.	In progress. Due for completion by May 2003.	Prerequisite for care communications services for GPs.	Delivering direct care.  Support for direct care.	Low. Large number of practices involved, but otherwise not complex.	Low. Basic commodity services to be implemented.	£0.8m.	Enables e-communication with GPs from HPSS and DHSSPS.	Priority: High.  In progress to provide essential infrastructure for general practitioners to receive and send clinical messages.

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Basic ICT services for HPSS care professionals.	Partially in progress – funded project due for completion by March 2004.	Providing these staff with basic modern e-tools.	Delivering direct care. Support for direct care. Support for staff. Business administration.	Low complexity in itself, although there will be a lot of people involved and a lot of co-ordination.	Low. Basic commodity services to be implemented	Very high. Current project £2.4m. Overall demand estimated to exceed £10m	Enables exploitation of e-services and e-information as routine part of care delivery.	Priority: High.  There are still many HPSS professionals and care locations without desktop PCs to provide access to basic office applications, including e-mail, and in future to new care applications such as results reporting, electronic prescribing, electronic care records. These PCs must be put in place if access is to be provided and benefit gained from new care applications. In addition, they are needed now to allow staff to develop their ICT skills prior to the introduction of applications which will become essential to carrying out new care processes.
Investment in PCs.	Unfunded.	Need for increased desktop access throughout the HPSS for utilisation of basic ICT services and in due course new applications.	Delivering direct care. Support for direct care. Support for staff. Business administration.	Low, though significant training element.	Low. Proven technology.	£3m investment for new equipment.  Ongoing replacement will rise to about £5m pa.	Enables exploitation of new functionality across the HPSS, in particular by professional staff.	Priority: Medium. Increased access for basic services is desirable, but more benefits are available when care applications are implemented and investment should match provision of these applications.

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Information standards.	In progress through participation in new Information Standards Board structures at UK & Ireland level.	Essential to support shared care data and care communications.	Delivering direct care. Support for direct care. Performance management. Planning and commissioning.	Low.	Low – although implementation of standards may be high.	Low	Avoids 'blind alley' solutions.  Supports ICT integration at all levels.	Priority: High.  Progress will be determined above the Northern Ireland level. However, overall it is a very high priority to ensure adherence to a common set of information standards given the wide benefits that flow from a common understanding.

## 5.10 Consultation Questions

Q5.1 Please comment on the targets within each Strategy Programme. Are targets feasible and sufficiently challenging?

Q5.2 What would be your five highest priority developments overall? What are your reasons?

Q5.3 What would be your highest priority development within each Strategy Programme – again with reasons?

Q5.4 Are there other developments that you feel ought to be included within the core Strategy Programmes?

## 6. MANAGEMENT OF THE STRATEGY

### 6.1 Introduction

The implementation of the ICT Strategy Programme represents a major challenge to the HPSS, the Directorate of Information Systems and the DHSSPS in terms of the leadership, organisation, management and skills required for success. Without robust and effective arrangements the risk exists of at best delays and poor implementation and at worst of major failure and wasted investment. The table below identifies the range of functions and skills that will be required to implement the ICT Strategy.

	<b>Functions and Skills</b>	<b>Examples</b>
1	Policy and strategy development, implementation and monitoring	Planning ICT to support a new policy initiative, developing an ICT strategy, monitoring implementation
2	Standards development and dissemination	Developing and maintaining regional data standards, system communication protocols
3	Planning and co-ordinating region-wide infrastructure projects	Planning and implementing a unique personal identifier, or a wide area network
4	Procurement and private sector contract management	Specifying user requirements, tendering, evaluating proposals, specifying and managing service contracts and supplier relationships
5	Developing and maintaining application software	Specifying user requirements, designing and building systems, bug fixing and testing
6	Commissioning and de-commissioning software and hardware	Planning and implementing new software, installing computer hardware and communications technology, migrating data, training users
7	Enabling organisational / cultural change	Raising the awareness of the potential of ICT to improve services, redesigning user processes, managing change, benefits realisation
8	Supporting effective use of hardware and general purpose software	Training users to use workstations and general office software, responding promptly to user's problems, identifying causes and solving problems
9	Supporting effective use of specialist software	Training users to use clinical software and query languages effectively, responding promptly to user's problems, identifying causes and solving problems
10	Supporting effective use of information	Promoting awareness of the value of information, information analysis, data quality improvement
11	Manipulating and producing information (e.g. producing reports for management, clinicians)	Extracting data, turning data into useful management or clinical information

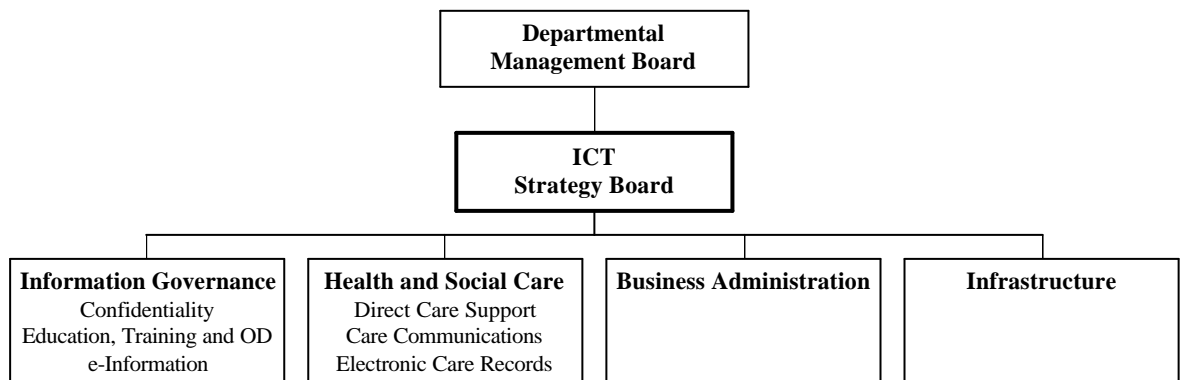
There are a range of other key critical factors that must be recognised in the organisational arrangements:

- ✍ a strong central role will be needed to direct implementation of the ICT Strategy and ensure the required region-wide co-operation;
- ✍ new HPSS structures are likely to emerge. The Acute Hospitals Review team has indicated that it does not believe the capacity presently exists to handle change in ICT on the scale that is required and a suggestion has been made to refocus the management of ICT. There may be an opportunity to build on structural changes to rationalise local ICT management and services;
- ✍ ICT has changed rapidly over the past decade in terms of its application and the underlying technologies. All aspects of the acquisition and deployment of ICT in the health and social services sector have become increasingly complex. This has increased the need for investment in training and specialisation by ICT professionals, for example in data communications, web based tools and design, data warehousing, systems integration. The technology itself is driving the need for a wider range of skills and experience. The competition for ICT staff is presently easing as a result of the global economic slowdown which will relieve, at least temporarily, some of the pressure that has been experienced recently in retaining and recruiting ICT staff;
- ✍ the ICT marketplace for the HPSS is changing. Many of the current applications were developed by DIS because there were no commercial products available. Now there is a significant market of competing products in applications and services. There will undoubtedly be an increasing private sector role in the delivery of ICT solutions and services. Critical skills in procurement and subsequent contract management will be essential skills to manage these relationships effectively. In particular, it will need to be recognised that long term commitments with suppliers will be established and effective contractual protection is required.

The remainder of this section sets out arrangements to manage implementation of the Strategy and undertake the necessary programmes and projects.

## 6.2 Strategy and Programme Management

The Regional focus and co-operation envisaged in the ICT Strategy needs to be reflected in the arrangements for direction and oversight of the implementation of the Strategy. It is proposed that there is an overall ICT Strategy Board with four Programme Boards as shown below.



These arrangements will replace the existing structures for regional ICT management. It is expected that each Programme Board will comprise of between 8 and 12 members, drawn from across the HPSS and DIS. The ICT Strategy Board will be made up primarily from members of the Programme Boards and a membership of up to 25 would be required to be representative of the healthcare professions and a range of HPSS organisations.

The role of the ICT Strategy Board will be to:

- ✍ provide the authority for the overall Strategy and represent the interests of the HPSS;
- ✍ plan and manage the implementation of the overall ICT Strategy which will be approved by the Minister;
- ✍ arrange for Strategy updates, including ensuring that new developments arising from initiatives such as the Acute Services Review and Primary Care Reorganisation are reflected;
- ✍ manage processes to support procuring resources for the Strategy, including approving bids for resources to the Department;
- ✍ determine overall priorities, agree these with the Department and allocate resources between Strategy Programmes;
- ✍ receive and endorse the work plans and detailed resource bids of the Programme Boards;
- ✍ co-ordinate the implementation of the Strategy across the four programmes and their sub-programmes, ensuring there is a common understanding of objectives, developments and responsibilities and addressing and resolving any inter-Programme problems.

It is anticipated that the ICT Strategy Board will meet quarterly. It will arrange to prepare a brief annual report on progress and plans for the forthcoming year together with any Strategy updates.

Programme Boards will have a more hands-on operational role to guide the work within individual Strategy Programmes. Membership will be drawn from across the HPSS and is expected, for Information Governance and Health and Social Care, to include some patient representatives / advocates, possibly drawn from the HSS Councils. A Programme Board's role will be to:

- ✍ ensure ongoing consultation with HPSS organisations on Strategy Programmes, priorities and strategic approaches;
- ✍ develop, approve and monitor 3 year rolling development programmes which set out programme priorities;
- ✍ endorse business cases and plans for individual projects and pursue their approval by the DHSSPS and DFP;
- ✍ act as the project board for individual projects or, where appropriate, constitute a separate project board with appropriate membership. The Programme Board will receive reports from separately constituted project boards.

### 6.3 Advisory Structures

Three advisory bodies are proposed which will act as a sounding board and provide input to the ICT Strategy Board and Programme Boards as required. These are:

- ✍ the ICT Directors' Forum. The role of this forum will be to provide pragmatic advice on priorities and approaches to implementation and ensure there is a local perspective from the end user organisations. Given that this body will have membership from all HPSS bodies it is envisaged that it can also have a representative function;
- ✍ the Care Advisory Forum. The role of this forum will be to provide input from the various clinical professions. This will be to ensure the focus of the ICT Strategy remains on the patient and support for frontline HPSS staff. It is envisaged that this group will have membership from across the professions and will meet quarterly to consider strategic issues that cannot be resolved in conjunction with the professional representation in individual projects. This group in particular will be purely advisory and has no representative function;
- ✍ the Advisory Group on Training and Education which already exists and will continue in its present role and provide advice to the Strategy. Consideration will be given to the need to expand the membership of this group.

These forums will also have a role in assisting dissemination of information on the progress of the ICT Strategy back to staff within the HPSS.

### 6.4 Strategy Support Services

There will be an overall Strategy Manager and each Programme Board will require a programme manager who may also act as project manager for some of the constituent projects. There will be a Strategy Support Office within which the Strategy Manager and the Programme Managers will be based. This will help to ensure there is effective co-ordination across the programmes.

It will be important that there are strong and effective working relationships between the Programme Managers. It is recognised that at project level there may well need to be inputs from more than one programme, for example the Information Governance and Infrastructure Programmes will be of relevance to the majority of individual projects.

The strategy programme will require substantial administrative and other support services. For example, areas such as procurement support will be required for projects across all of the Programmes.

Resourcing the strategy support services will include staffing from the HPSS as well as the Department.

### 6.5 Procurement and Contract Management

Procurement of products and services will be a core activity of implementing the ICT Strategy. A significant element of central procurement on behalf of the HPSS is envisaged.

At present, procurement follows the business case process which is designed to ensure that investment is focused on business needs and the achievement of value for money. Experience has shown that preparing business cases and

gaining approval can take a prolonged period and can involve a number of HPSS organisations repeating similar work.

The Business Case and approval process will be reviewed, taking into account recent developments in the NHS.

The ICT Strategy offers the opportunity to focus business case, procurement and contract management skills, which will be key given the complexity and scale of procurements that will be required. However, it will be crucial that arrangements allow for involvement and input by local HPSS organisations so that they have confidence that their interests are being safeguarded.

Where systems are being procured that have a wide application within the HPSS, a procurement strategy will be developed addressing the full process from business case to implementation, based on regional business cases, framework contracts and HPSS-wide implementation services. This will need to include methods for ensuring the involvement of key parties, drawing on experience developing through shared initiatives such as the PCIS procurement.

The current small central team will be strengthened to provide the necessary expert business case and procurement support to all Strategy procurements.

Finally, relationships with suppliers will be key to successful procurement arrangements. Suppliers must be seen as long term partners, albeit that they have separate commercial interests and the HPSS must ensure it achieves value for money and has effective contractual protection. Clear plans, efficient procurement arrangements and projects on a scale that is commercially attractive will help to gain and retain suppliers' interest in meeting the needs of the HPSS.

## **6.6 Benefits Realisation and Management of Change**

Benefits realisation achieved through a strong change management process has often been a poor area of implementation in ICT projects, limiting the returns achieved from investment and the perceived benefit of ICT. Providing technology to enable better communication, remote appointment booking or electronic care records will need to be associated with improved processes and working practices, as well as roles and responsibilities, which are clear, accepted and supported, and which are actually in practice adopted.

A high level of analysis and skills is needed to design the new methods of working and to facilitate their acceptance and adoption. Typically, it is difficult for small local organisations to support the scale of work that is required.

The approach that will be adopted therefore will be to provide a regional focus to development work in this area, drawing on skills and experience from across the HPSS. A small central team will be established to work with staff appointed locally at Trust level. They will assess and develop the detail of changes required to support effective system implementation and develop clear expectations and guidance that can be utilised in local projects. In essence, this will be a generic plan for local tailoring, completion and implementation based on local costs, benefits and change management requirements. This will allow a regional centre of expertise to develop whilst recognising the continuing need for local leadership to ensure commitment and ownership of proposed changes.

## **6.7 ICT Organisation, Skills and Resources**

At present, the size of many HPSS organisations presents difficulties in acquiring and retaining staff with the requisite highly developed skills and experience. In addition, DIS has experienced difficulty in retaining staff and supporting existing systems and a separate review of this is ongoing. More detailed work on support structures and ICT support services will be taken forward during the consultation period.

HPSS reorganisation is at present a key issue with the creation of larger organisations a possible outcome. In respect of management of ICT this would be welcomed as being likely to allow more effective local ICT organisation. In the absence of reorganisation, further consideration will require to be given to the consolidation of local ICT resources to support larger groupings of HPSS bodies.

Much of the Strategy will be addressed through regional plans and procurement with local leadership of implementation supported by central guidance and specialist skills. Even in the absence of HPSS reorganisation there is a real opportunity for local HPSS organisations to group together to take forward strategic developments.

Whilst some sharing of resources will be helpful, the development of ICT as envisaged in the Strategy will require the HPSS to expand its investment in staff in areas such as project management, informatics, change management and other educators and trainers. Realistic local staffing requirements to deliver projects will be regarded as a key component of the evaluation of business cases which must identify the source and include the funding for such staff, including both the implementation stage and ongoing commitments.

## **6.8 Communication**

Effective communication will be essential to disseminate information to those with an interest, to encourage comment and participation and to maintain the profile of the ICT Strategy.

The formal management bodies and the advisory structures will have key roles to play in facilitating communication. Individual projects will also be expected to have planned consultation and communication mechanisms to involve those with a particular interest in a specific project area. A key role of the programme support function will be to ensure effective communication of all aspects of the Strategy.

This will include setting up and maintaining a Strategy web site aimed at facilitating a very open form of communication. In particular, it will be the mechanism for providing widespread access to policy statements, business cases and other studies and working documents. The approach will be to encourage participation through publication of draft documents, minutes of meetings and working versions of reports and proposals. The website will also provide the opportunity to make easily available details of Strategy structures, key individuals and how to contact projects, as well as having a 'recent news' service and links to other useful sites.

## 6.9 Consultation Questions

Q6.1 Is the proposed approach – central strategic direction with co-ordinated implementation supported by centres of expertise – appropriate and acceptable?

Q6.2 Please comment on the proposed management arrangements. Can they achieve a balance between representation and effective programme management?

Q6.3 What steps should be taken, and what structures are required, to ensure that implementation of ICT is fully integrated with changes in process and management of benefits?

## 7. IMPLEMENTATION PRINCIPLES, TIMESCALES AND RESOURCES

### 7.1 Implementation Principles

A set of principles to guide implementation decisions has been developed. These are to assist in ensuring the HPSS takes a common approach, recognises resource constraints and has the maximum likelihood of success. The principles are listed below and will be used as assessment criteria in considering proposals, business cases and project plans.

#### IMPLEMENTATION PRINCIPLES

1. Confidentiality and security of all personal information will be recognised as a fundamental requirement for all new ICT development. Clear statements on these issues showing adherence to the forthcoming confidentiality policy and strategy will be required in business cases and implementation plans.
2. All ICT application software related projects will be led by senior staff from the relevant business or care area with appropriate levels of project management and technical support. Proposals, business cases and specifications must focus on service need, processes, outputs and benefits. Identification and resourcing of education and training requirements will be regarded as essential.
3. The Health & Care Number (UPCI) will be universally adopted as the key identifier for service users and its use will become mandatory on all care records and communications as soon as possible.
4. Where they exist, the use of regional ICT technical and data standards will be mandatory, with new standards adopted as they are developed and published. Regional standards will be derived from UK and International standards. The Region is presently represented on the UK and ROI Information Standards Boards and Sub-Boards.
5. In view of limited resources, maximum benefit must be gained from existing applications. Replacement of existing applications must be justified on the basis of failure to meet critical business needs, which may include inability to support other key ICT developments, or significant technical or organisational risk.
6. There will be a presumption in favour of common, region-wide solutions and procurement. Any deviation from this principle for alternative local solutions will require a very high level of justification founded on unique business need and benefits.
7. There will be a presumption in favour of package software solutions sourced from reputable and stable suppliers with proven previous implementations. In-house development and bespoke solutions will only be considered where package solutions have been clearly demonstrated as being inadequate.
8. Partnership working between HPSS and FPS bodies, the wider public sector and private sector solution suppliers will be crucial to the success of the Strategy, will be expected as a matter of course, and in many cases can be expected to be based on long term working relationships. Widespread ownership and commitment will be encouraged.
9. ICT expenditure will not be regarded as a separate area of investment but as a core and integral part of service delivery expenditure when new developments are being planned.

The requirement for sharing and collaboration across the HPSS is regarded as being of paramount importance. In particular, the Strategy structures, projects and staff will be directed towards shared learning, implementation and application of best practice across the HPSS. The creation of small silos of excellence should be avoided, with the objective being to achieve the widespread and rapid take up and application of proven approaches and developments.

## 7.2 Resources

This section discusses resources in terms of finance. That is not to overlook issues of staffing, and the challenge to secure for the HPSS the skills and resources needed to meet its operational and developmental requirements. These are being addressed specifically in a separate, but related, process and are in any case inextricably linked to finance.

### 7.2.1 Sources of Funding

There are three principal sources of funding for HPSS ICT at present.

1. **Programme Funds allocated to HPSS ICT as part of the general spending review.** Includes developmental resources and ongoing support for services operating on a “regional” or HPSS-wide basis. Variation in funding is taken into account in the public expenditure cycle, so significant initiatives need to be built into the process well before their funding may be required.
2. **Executive Programme Funds.** This is a recent development. Six current projects are being implemented as a result of successful bids against EPF (£6.7million over three years). Further bids will be submitted based on the evolving work programme. The EPF process is bi-annual. Funding for successful projects can be made available more-or-less immediately.
3. **ICT programmes within individual HPSS organisations.** Includes substantial elements for ongoing support and internal ICT staff resources. Includes some limited developmental resource. Typically, the provision for “technology refresh” – replacing existing ICT that is obsolescent – falls far short of what is really required. This is especially an issue with regard to the increasing PC population. The internal budget is settled on an annual basis.

New developments are funded from all three sources. Ongoing ICT services operating on a “regional” or HPSS-wide basis are funded from Programme, other services from within Individual HPSS Organisations. The Department continues to seek additional funds for HPSS ICT under the Spending Review and from Executive Programme Funds, but it is recognised that EPF projects may create pressures in funding future revenue as EPF provision is restricted to a maximum of three years.

All ICT initiatives bring associated revenue consequences. As the HPSS comes to depend more and more on ICT services the revenue spend on ICT will inevitably increase.

Another consequence of increased use of ICT is increased need for technology replacement. Whether this is undertaken as part of a services contract or as an ongoing replacement programme, the financial consequences need to be recognised and planned for accordingly.

Increased ongoing costs will inevitably fall to HPSS organisations, especially Trusts, and must be recognised, planned for, and accounted for accordingly. ICT costs should be regarded as an essential element of the cost of service provision, not as a discretionary overhead.

The discussion so far has focussed on resourcing specifically for HPSS ICT. However, many service improvement initiatives are only possible if there is increased use of ICT. Proposals for change in the organisation of the service or in patterns of service delivery must include financial provision for essential ICT services. This is becoming an increasingly important point. In the past, proposals for new patterns of service delivery had very little impact on existing ICT and had, in themselves, relatively little demand for ICT support. The world has changed. As health and social care increasingly depends on ICT at the point of care, ICT must be accepted as an integral part of the overall cost of care delivery.

These pressures have been recognised elsewhere in the NHS, for example in the NHS plan for Wales<sup>13</sup>:

*“NHS organisations will plan to increase the revenue spend on (ICT) to 2% within 5 years and measure progress towards this target as a key performance indicator;*

*NHS organisations must ensure that where new investments are made to develop patient services, an appropriate element of development funds are set aside to cover infrastructure costs relating to (ICT), equipment, maintenance and training. New developments will not be approved unless this requirement is explicitly satisfied;”*

### **7.2.2 Funding Process**

Delivering the ICT Strategy will take substantial financial resources to buy ICT, to fund the skilled staff the HPSS will require and to meet the ongoing revenue costs, typically up to 20% per annum of the capital purchase value.

Funding requirements will be assessed within business cases, including targets to be achieved locally in relation to savings and other benefits (developed and agreed with local representatives). Project funding will be allocated to meet region-wide implementation of individual developments and systems, rather than partial implementation based on costs within individual HPSS organisations.

Additional funds for strategy implementation will be required. Accessing resources for the Strategy will be the responsibility of the Department supported by the Strategy and Programme Boards. This will have to be supported by plans and arrangements to ensure the ongoing revenue costs can be met. Success in securing additional resources will need to be underpinned by an agreed Strategy, strong business cases, which will still be required and will involve the Strategy Board in the approval process, and widespread support for individual projects / bids.

Because of the mechanisms for allocation of public sector capital and the scale of total current demands it is unrealistic to expect a commitment, now, to all of the programme to implement the ICT Strategy – a minimum of eight years. In addition, inevitably it will change over this time period as new priorities and pressures emerge together with new opportunities as a result of service change or development of technology.

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<sup>13</sup> “Improving Health in Wales”, National Assembly for Wales, January 2001 (Section 6)

A number of early projects in the Strategy Programmes are already funded through HPSS Programme or as a result of successful Executive Programme Fund bids. Continued bidding success is crucial as the HPSS capital currently available for ICT cannot fund the Strategy Programme.

### 7.2.3 Funding Requirements

The costs of each element of the Strategy have been estimated and an overall funding profile has been developed. This is based on a challenging but achievable programme of work that reflects the views expressed during consultation on the Strategy Vision, the scale of change required, dependencies between projects, and reasonable timescales allowed for options analysis, procurement and implementation. The targets quoted elsewhere in the Strategy are based on this programme.

The total funding requirement amounts to some £110 - £120 million with ongoing annual costs in the region of £15.5 million. This represents a major step change in the level ICT investment in the HPSS, but it is relatively modest in comparison with commitments and plans elsewhere.

If additional funding at this level were to be made available over an eight-year period, the total annual ICT expenditure in the HPSS would be some £30million – 1.2% of revenue.

The target for the NHS in Wales is to increase ICT spend to 2% of revenue by 2005 – for the HPSS that would represent a total of £50 million.

In England, the NHS is projecting an ICT spend of around £2billion pa. This is more than 3% of revenue – in excess of £75million in HPSS terms.

These figures make a number of assumptions and do not include a number of areas where requirements and costs cannot be fully estimated at this point. These assumptions are as follows:

- ? developments associated with funding already agreed will have ongoing revenue costs beyond 2003/04. These costs are included within the Total Spend figures;
- ? costs have been included for ongoing PC replacement. This eventually rises to the region of £4-5m per annum;
- ? the costs of implementing any PACS developments, associated radiology system enhancements and ongoing network (additional bandwidth) costs have not been included. These will need to be assessed as part of a separate project to develop a Northern Ireland wide PACS strategy;
- ? ongoing cost of supporting electronic reporting to GPs is assumed to be a GMS expense as opposed to a cost on the ICT Strategy;
- ? funds have been included for the development of specialised electronic care records to support specialist areas and managed care networks. However, these estimates are effectively a pool of funds for such projects and cannot be assumed to include all possible developments in this area. Costs for ICT support should in future be included within the overall costs of funding the service developments;

- ? costs for developing longitudinal, lifelong electronic care records are not included given the poor state of definition at present of this area. These will be evaluated in a review study to be undertaken as part of the ICT Strategy and this will draw on experience from the rest of the UK. There is likely to be a significant funding requirement but this will depend on the final definition and scope of these records;
- ? no contingency sums are included. Given the complexity of this area of ICT a 15-20% allowance would be a wise precaution.

A funding profile based on an eight-year programme has been used to develop and support bids submitted as part of the 2002 Spending Review, covering the three years 2003/04 to 2005/06. As part of the process, the total demand for those three years has been expressed in prioritised funding blocks, each of around £3million per year.

**Block A – Introducing electronic communication of basic care information.**

This would provide and maintain services for General Practitioners and HPSS care professionals so that they could access ICT systems across organisational boundaries, receive results of requests, and use a range of electronic libraries and other reference sources.

Specific initiatives to be taken forward, together with their impact, are:

- ? Booking outpatient appointments from GP practices.  
Patient involvement in the booking process; Reduction of patient uncertainty; Anticipated increase in attendance rates at clinics.
- ? Common system for Cancer Chemotherapy prescribing.  
Support for oncologists developing chemotherapy regimes; Shared access to patient data across the Cancer Centres and the Regional Centre.
- ? Electronic reporting to GPs of Pathology and Radiology results.  
More rapid and reliable reporting to GPs; Reduction in patient waiting time for results; Reduction in phone queries to hospital departments.
- ? Access to National Electronic Library for Health.  
Increase in evidence-based care; Improved quality, and equality, of care.

**Block B – Helping care professionals to assess, plan and deliver care.**

This block would fund new person-centred information services for care professionals in community settings and some similar services in hospitals.

Specific initiatives to be taken forward, together with their impact, are:

- ? Person-centred community information services.  
Professionals involved with community care would have ICT support for referrals and to assist with assessment, planning and management of care. This would have direct benefits to service users from increased efficiency of processes, more informed care planning, and because care professionals would no longer have to commit time to unproductive form-filling.
- ? Electronic requesting and reporting in hospitals.  
Clinicians requesting services from other departments would be able to do so electronically and would be able to review all previous and outstanding

requests and results. Benefits include more rapid return of results, improved quality of patient care, reduced duplicate and unnecessary investigations, and reduced telephone time to get results.

### **Block C – Supporting care delivery across organisational boundaries.**

This block would introduce ICT services to facilitate care planning and delivery where several organisations are involved, in effect using ICT to enable seamless care.

Some specific initiatives to be taken forward, together with their impact, are:

- ? Introduction of a “care data viewer” across the HPSS.

This would allow care professionals (subject to appropriate controls) to access electronic data about service users from any HPSS source at the point of care, sharing information so that what is known to one part of the service is, in effect, known to any part of the service.

- ? Electronic discharge planning.

To provide ICT services to support and co-ordinate discharge from hospital to community and primary care. Improved communications and planning surrounding discharge should reduce unnecessary delays and assure provision of services required by discharged patients.

- ? ICT support for managed care networks.

Managed care networks are, by definition, multi-organisational and multi-professional. ICT services are essential to facilitate and enable this change in care delivery. They would provide specialist ICT services to support cross-organisational care for particular conditions or disease groups such as cancer, diabetes, mental health, coronary heart disease, asthma.

### **Block D – Increasing the pace of strategy implementation to match the Strategy Programme and meet e-public service targets.**

This block increases the pace of introduction of the person-centred community services outlined in Block B and provides support for that increase by funding a further step change in availability of basic ICT for care professionals. The block also includes funding for a regular replacement programme for ICT that, at this level of investment, will have become essential. The replacement programme is at the level of refreshing “desktop” technology on a five-year cycle compared with the 3-year cycle used in the NICS.

Specific initiatives to be taken forward, together with their impact, include:

- ? Person-centred Community Information Services.

Acceleration of the PCIS programme to enable implementation across the HPSS to take place within three years rather than five.

- ? Essential ICT refresh programme.

Recognising that ICT has become an essential element of quality care in the HPSS, and that equality of care relies on professionals having ready access to information resources, this programme will ensure on an ongoing basis that care professionals are equipped with the basic ICT tools that they need.

### 7.3 Consultation Questions

Q7.1 Are the implementation principles acceptable? Are there other principles that should be included?

Q7.2 Please comment on the overall scale of financial resources required for the ICT Strategy. Is this level of expenditure on ICT acceptable?

Q7.3 How can HSS Trusts significantly increase the resources they invest in ICT?

Q7.4 Please comment on the allocation of projects to prioritised funding blocks.

## **8. EQUALITY AND HUMAN RIGHTS CONSIDERATIONS**

### **8.1 Introduction**

Section 75 of the Northern Ireland Act 1998 requires all public authorities, in carrying out their functions relating to Northern Ireland, to have due regard to the need to promote equality of opportunity:

- ? Between persons of different religious belief, political opinion, racial group, age, marital status or sexual orientation;
- ? Between men and women generally;
- ? Between persons with a disability and persons without; and
- ? Between persons with dependants and persons without.

In addition, without prejudice to the above, a public authority is also required, in carrying out its functions, to have due regard to the desirability of promoting good relations between persons of different religious belief, political opinion or racial group.

### **8.2 Human Rights**

The Human Rights Act 1998 came into force in October 2000, giving further effect to the rights enshrined in the European Convention on Human Rights. In future, courts will be expected to take into account the case law of the European Court of Human Rights in Strasbourg, as well as case law.

Although it is still early to predict how the Human Rights Act might affect a strategy such as this, it is important that human rights issues are acknowledged and adequately addressed in the implementation of the strategy.

The main articles which are likely to be relevant are Article 8 (right to respect for private and family life), Article 10 (freedom of expression which includes the right to receive and impart information), and Article 14 (prohibition of discrimination in enjoyment of Convention rights).

### **8.3 Focus of Equality Impact Assessment**

The ICT Strategy aims to improve the overall experience of health and social care for service users and for care professionals and support staff.

It proposes more extensive use of ICT to support the HPSS in general and, in particular, to support care professionals by providing them with information and services. It also proposes that ICT could be used to enhance the availability of information for the public in general and for service users, their families and carers.

Overall, the intention of this Strategy is that ICT should help and support the HPSS in improving quality of care, equality of care, and equality of access to care.

The ICT strategy would also promote, enable and support service developments and changes in the way care is delivered such as have been outlined in "Delivering Better Services" and the "Review of Community Care". However, the strategy does not, itself, propose the introduction of such service developments.

It is not therefore appropriate for equality implications of new or changed service delivery models to be addressed in this context.

As part of the consultation process on the ICT Strategy the Department wishes to consider the potential equality implications of the main themes set out in the strategy – Electronic Care Records and Electronic Care Communications – and the proposals for enhanced availability of information for the public and for care professionals.

#### **8.4 Electronic Care Records**

The approach to Electronic Care Records is set out in section 4.2.1 of the strategy. For the purposes of this assessment, the important aspect of the Electronic Care Record is that it would make it possible for relevant care data to be accessed by authorised care professionals irrespective of location and time.

##### **Overall impact**

Access to relevant care data will make it easier for care professionals to determine the most appropriate care in the current circumstances. Electronic care records are also an important support for distributed care.

Overall, the introduction of electronic care records should bring positive benefits for all service users, irrespective of their classification under the Section 75 categories. This would indicate some differential impact to the extent that there are variations in the use of health and social services by those in different Section 75 categories.

The Department recognises that some people may have particular sensitivities about access to care data. Earlier consultation on the ICT Vision indicated that greater clarity and openness about sharing of data, together with agreed policies on confidentiality and consent, would significantly reduce such concerns.

The possibility of additional impacts for each category has also been considered.

##### **Men and women generally**

No differential impact. No adverse impact.

##### **Persons of different age**

Young children and older people are more likely than others to be users of health and social care services. Overall improvements in care deriving from the availability of electronic care records would therefore have a positive impact for this group.

Distributed models of care are supported by electronic care records. Children and older people are more likely than others to benefit from care delivery nearer to home.

Electronic care records would, indirectly, have an additional positive impact for children and older people.

##### **Persons with or without a disability**

Distributed models of care are supported by electronic care records. Persons with a disability are more likely than others to benefit from care delivery nearer to home.

Electronic care records would, indirectly, have an additional positive impact for persons with a disability.

#### **Persons of different marital status**

No differential impact. No adverse impact.

#### **Persons of different religious beliefs**

No differential impact. No adverse impact.

#### **Persons with and without dependants**

Persons with dependants are more likely than others to be users of health and social care services – directly and on behalf of their dependants. Overall improvements in care deriving from the availability of electronic care records would therefore have a positive impact for this group.

Distributed models of care are supported by electronic care records. Persons with dependants are more likely than others to benefit from care delivery nearer to home.

Electronic care records would, indirectly, have an additional positive impact for persons with dependants.

#### **Persons of different political opinions**

No differential impact. No adverse impact.

#### **Persons of different racial group**

No differential impact. No adverse impact.

#### **Persons of different sexual orientation**

No differential impact. No adverse impact.

### **8.5 Electronic Care Communications**

The approach to Electronic Care Communications is set out in section 4.2.2 of the strategy (summarised in section 1.5 of the management summary). For the purposes of this assessment, important aspects of Electronic Care Communications are that care data will be communicated rapidly, securely and accurately; that ICT will support completeness of care communications; and that care communications will be consistent.

#### **Overall impact**

Overall, the introduction of electronic care communications should bring positive benefits for all service users, irrespective of their classification under the section 75 categories. This would indicate some differential impact to the extent that there are variations in the use of health and social services by those in different Section 75 categories.

The possibility of additional impacts for each category has also been considered.

#### **Men and women generally**

No differential impact. No adverse impact.

#### **Persons of different age**

No differential impact. No adverse impact.

### **Persons with or without a disability**

Aspects of electronic care communications would make it easier for persons with a disability to arrange care. For example, electronic appointments, booked taking into account transport and care requirements, would have an additional positive impact for persons with a disability.

### **Persons of different marital status**

No differential impact. No adverse impact.

### **Persons of different religious beliefs**

No differential impact. No adverse impact.

### **Persons with and without dependants**

Aspects of electronic care communications would make it easier for persons with dependants to arrange care either for themselves or their dependants. For example, electronic appointments, booked taking into account transport and care requirements, would have an additional positive impact for persons with dependants.

### **Persons of different political opinions**

No differential impact. No adverse impact.

### **Persons of different racial group**

No differential impact. No adverse impact.

### **Persons of different sexual orientation**

No differential impact. No adverse impact.

## **8.6 Information services for care professionals**

The approach to information services for care professionals is set out in section 5.3.1 of the strategy. For the purposes of this assessment, the important aspects of these services are that they provide care professionals with reliable information about services; accredited information about best practice in care; and support for in-service training.

The presumption is that these information services would be provided in electronic form. Specific plans for the introduction of the services would include arrangements to promote and support their use by those with disability or with no, or low vision.

### **Overall impact**

Overall, the introduction of additional information services for care professionals should bring benefits for the care professionals and for all service users, irrespective of their classification under the section 75 categories. Access to accredited information on care and care protocols would support improvements in standards of care and equality of care.

No differential impact or adverse impact is identified for any of the Section 75 categories.

## **8.7 Information Services for the public**

The approach to information services for the public is set out in section 5.3.1 of the strategy. For the purposes of this assessment, important aspects of information services for the public are the publication of information about available health and social care services and publication of accredited information and advice about particular care conditions and circumstances. Information services for the public could also, in time, include providing personal access to care records.

The presumption is that these information services would be provided in electronic form. Specific plans for the introduction of the services would include arrangements to promote and support equality of access. Provision of information in this form would be in addition to, not as a replacement for, conventional information provision.

### **Overall impact**

Overall, the provision of information services for the public would have potential benefits for those who are involved either directly or indirectly with health and social care.

The equality implications of the use of electronic services, in particular the Internet, for communication of information and for electronic services generally, have been addressed at a generic level through consultation on the "Corporate Strategic Framework for the Delivery of Government Services Electronically". Plans to introduce electronic information services for the public in relation to health and social care will take the outcome of that consultation into account and their equality impact will also be considered separately.

## **8.8 Conclusion**

The ICT Strategy proposals would support improvements in the planning and delivery of health and social care. Its main themes, the introduction of electronic care records and electronic care communications, will also support proposed developments in health and social care.

At an overall level, this assessment identifies no adverse impact on any of the Section 75 categories of the strategy proposals themselves.

Where differential impact is identified, it is suggested that the impact is to promote equality of care or equality of access to care.

## 8.9 Consultation questions

Q8.1 Are the proposals in the strategy clearly expressed?

Q8.2 Do you agree with the assessment that the proposals in the HPSS ICT Strategy do not have an adverse impact on any of the Section 75 categories?

Q8.3 If you disagree, please explain which proposals would have an adverse impact on people in the Section 75 groups and in what way.

Q8.4 Please comment on the statement that the ICT Strategy will promote equality of care or equality of access to care?

Q8.5 Are there additional factors not addressed in this assessment that indicate that there is a real or perceived impact on any Section 75 categories?

Q8.6 Do you think the strategy adequately addresses human rights issues? If not, can you suggest ways in which this can be improved?