1. Approval and Authorisation

Completion of the following signature blocks signifies the review and approval of this Process (signed copy held in safe)

Name	Job Title	Signature	Date
Authored by:- Alan Freedman	BS 7799 Manager	*Alan Freedman*	28th January 2008
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Authorised by:- Patrick Brady	Director of ICT		

2. Change History

Version	Date	Author	Reason
Drafts	7th & 18th August 2003	Peter L. Badger & Alan Freedman	Drafts
Versions 1.0 – 1.2	18th August 2003 - 24th May 2005	Alan Freedman	Versions & reviews
Version 2.0	29th March 2006	Alan Freedman	Updated sections 5 & 6 to show new ICT Pathfinder Vision & Services Plan.
Version 2.1	23rd January 2007	Alan Freedman	Minor change to Sect 7.
Version 2.2	11th June 2007	Alan Freedman	Added new Sections 7 & 8, and renumbered original to Sect 9.
Version 2.3	28th January 2008	Alan Freedman	Added new Sections 5 & 6, and renumbered following.
	Review Date	**January 2010**	

3. Contents

4. Introduction

The ICT Business Objectives manual contains various published ICT vision and strategy papers in force at any one time. It also contains ISMS specific objectives that are derived from the ICT Vision and Services Plan.

The ICT Technical Strategy document (Section 5) ***is a working draft*** as it needs more work to reflect CRS/new hospital structure etc.

5. ICT TECHNICAL STRATEGY

Working Draft, Version 0.9 dated 19th October 2007

2. Management Summary

Dependence on reliable efficient and stable Information Technology in any business is paramount. As part of the New Hospitals build the core communications network infrastructure has been designed to provide resilience and contingency to allow for a high availability of service.

A 21st century Hospital with the ambition of being the best, needs to have innovative and leading edge technology that empowers healthcare professionals and provides the underpinning support for the delivery of patient care.

Technology is a powerful enabler for driving efficiencies and new ways of working if it is deployed and used effectively.

This document sets out technical examples that could be used in the New Hospital and what and how technology is being used within the Health sector. The examples used are ones that have been deployed and so are examples of what can be achieved now.

How much of the new technology identified in this paper will be deployed will depend on:

- Strategic priorities of the Trust
- Level of investment that can be made (affordability)
- Rate of change that can be adopted during transition to the new Hospital
- Organisational Transformation that can be achieved through use of new technologies

It is intended that this document along with demonstrations, clinical engagement and understanding the organizations priorities and needs will identify which technologies will be adopted and in what timeframe they should be implemented. This will in turn inform and dictate what the technical strategy will be for the trust going forward.

ICT can not and should not set the strategy in isolation and without input from and by Trust staff. In addition, external stakeholders such as Tower Hamlets PCT, East London Mental Health and the Medical School are key stakeholders and should also participate in the defining of the strategy.

3. Introduction

This document sets out the current thinking of the technical strategy covering the short term (1 year), medium term (2-4 years) and the long term (4 years +). This strategy builds upon the 2004 strategy and its achievements.

The context focuses on the business requirements of Barts and The London NHS Trust to assist in the delivery of patient care as set out in its Clinical Pathfinder strategy, the New Hospital Build programme, best value and aligned to technical developments that are available from the IT market place.

In addition to the Trusts business needs, there are also external drivers such as the National Care Record Service (NCRS), Health Care for London, Our NHS, Our Future, the Outer North East London Service Configuration Review and the National Local Operational Plans (NLOP) which have been agreed with our local commissioning authority (Tower Hamlets) to be delivered.
The strategy will also address the requirements of ICT in terms of the need to embrace change, develop new ways of working, whilst investing in its staff to ensure that the workforce are

empowered through the application of the right skills, knowledge and experience to drive forward the business agenda.

This strategy will evolve over time and will need to be reviewed on a regular basis to ensure that it remains in line with what Barts and The London require.

There are three areas that provide the over all strategy for the ICT department:

1. ICT structure and culture
2. ICT Services
3. ICT Technical Strategy

The delivery of any technical solution will depend on investment by the Trust, resources (staff) to be available for deployment and the capacity of the organisation to take on the new technologies with its demanding workload.

Whatever is implemented must be :

- Appropriate and aligned to the Trusts business needs
- Fit for purpose
- Provide value to the organisation
- Be energy efficient and cognisant of carbon foot print impact

The following best practice standards have been adopted and will be applied where it is appropriate:

- Information Technology Infrastructure Library (ITIL) – Service Management – method of ensuring the correct processes and procedures are in place to provide an effective and efficient support function
- PRINCE2 – Project Management methodology – to provide the required governance and control of projects.
- ISO27000 Information Security Management System (ISMS) model

4. Structure of Strategy

The ICT Technical strategy is structured into the following specific areas:

- Context/Business/achievements
- Technical Baseline
- Clinical functions
- Patient / Client functions
- Organisational functions
- Departmental structure and resources
- Future Opportunities

Underneath all the specific functions there is the technical infrastructure which is required to underpin the IT services that are provided.

In addition to this there is a separate paper which identifies the IT staffing, skills and structure required to support the services.

5. Business Context

Strategic Context

In November 2002 the trust agreed to a revised ICT strategy which sought to procure rather than build a modern integrated hospital information system. In preparation for this the trust agreed to de-invest in its aging PAS/HISS system, to gather its resources by ceasing investment in departmental systems, and to start a programme of improving the ICT technical infrastructure. This strategic approach remains valid. The ICT Strategy is being refined further to incorporate the New Hospital Programme, Foundation Trust and Academic Health Science Centre requirements.

National Context

Delivering the NHS Plan (April 2002) developed the vision already set out in *The NHS Plan (July 2001)* which described a service designed around the patient. These services are now being delivered. The Choose and Book Programme is offering patient's choice of where and when they can get treatment. The Care Records Service is now delivering clinical management systems to a number of health communities in the south of England.

In October 2006 NHS Chief Executive David Nicholson initiated a review of the National Programme to ensure its aims and objectives remained focused on deriving maximum benefit for patients and the NHS from the introduction of new IT systems and services. This review has been titled the National Programme for IT (NPfIT) Local Ownership Programme (NLOP).

The findings of the NLOP work have now been reported to the NHS Management Board and its proposals have been accepted. Overall, it showed there is strong support for the National Programme across the NHS, but that there needs to be a firmer, more visible leadership from within the NHS. NLOP aims to ensure the National Programme for IT is part of mainstream NHS business and the proposals will realise a shift in ownership to make strategic health authorities more accountable for delivery. NHS Connecting for Health (CFH) will continue to have the responsibilities for which it was originally set up, such as the national programmes, the commercial strategy of the Programme and contractual negotiations with suppliers. In London the NLOP process remains in development but it is likely to adopt the following structure and associated responsibilities:

- National Connecting for Health (CFH) – CFH policy and programme oversight, major procurement and architecture design and requirements coordination across programmes
- Local CFH – commercial/supplier relationship management, stakeholder engagement, Design Build Test (DBT)and links to the Southern NPfIT Programme regarding Cerner DBT, enabling SHA deployment, maintaining and managing detailed implementation plan
- SHA – strategic development- designing an SHA blueprint, deployment support and coordination, benefits planning and review, financial management, performance management (planning and monitoring), standardisation of business and clinical processes as appropriate
- PCT – accountability for delivery of NPfIT in geographical area, direct deployment responsibility for electronic prescription service, Choose and Book , GP systems plus responsibility to assure CRS implementation in hospital trusts, delivery of benefits – EPS, Choose and Book and GP systems Hospital and mental health trusts – deployment responsibility for CRS and PACS, change management delivery of benefits – CRS and PACS

In July 2007 the Department of Health released the 'Framework for London'. This postulates that as London is a world class city its inhabitants should not have to settle for anything less than world class healthcare. However, excellence in healthcare in London is not uniform. There are stark

inequalities in health outcomes and the quality and safety of patient care is not as good as it could, and should, be. The need for improvement is recognised by NHS London. The Framework for London outlines eight reasons why the time is right for a co-ordinated programme of change across London.

- The need to improve Londoners' health
- The NHS is not meeting Londoners' expectations
- One city, but big inequalities in health and healthcare
- The hospital is not always the answer
- The need for more specialised care
- London should be at the cutting edge of medicine
- Not using our workforce and buildings effectively
- Making the best use of taxpayers' money

In order to meet the challenges posed by these eight reasons for change the Framework sets out new models for how healthcare should be provided for Londoners. These are highlighted below:

- Home
- Polyclinic (the future base for most GP services,
- Community care, diagnostic services and outpatient activity)
- Local hospital
- Elective centre
- Major acute hospital
- Specialist hospital
- Academic Health Science Centre

The strategy needs to aware of these important initiatives with its scope, design, development and implementation remaining flexible and adaptable so that the over all architecture is scalable, compliant and able to take advantage of emerging technologies.

The strategy will integrate these national initiatives with essential local programmes of work to ensure that ICT delivery is coterminous and the Trust is able to sustain its aims for improving healthcare provision to the people of North East London.

More recently the outer north east London service configuration review: reviewof clinical case for change has been published. This review stems from work commenced by Barking, Havering and Redbridge NHS Trust in 2006 as part of the development of a turnaround plan. It was extended to include the whole of an area described as Outer North East London (ONEL) later in 2006. This involves four PCTs (Barking and Dagenham, Havering, Redbridge and Waltham Forest), Barking, Havering and Redbridge Acute NHS Trust (BHRT),Whipps Cross University Hospital Trust and North East London Mental Health NHS Trust. The recommendation are currently under discussion but ICT need to remain aware of developments in order to ensure infrastructure design flexible to take account of any service reconfiguration.

Local context

In common with most trusts BLT has developed a comprehensive and diverse portfolio of information systems over the past few years. Many of these have added significant clinical and administrative value. The trust has reached the conclusion that the present portfolio of systems is unsuited to the delivery of the emerging NHS service agenda and more importantly the Trusts vision for 2010.

The Trust recognises the advantages of adopting system solutions offered through the National Programme for IT (NPfIT). One of the important features of this programme is the shift to a national approach to IT standards and provision. This can be described as a move towards integrated care through the development of a national Care Records System (CRS). The CRS solution sought through the NPfIT programme is totally consistent with the revised ICT strategy.

The advantages of fully integrated solutions are their ability to maximise economies of scale and provide access to a richness of patient data. Fully integrated solutions e.g. CRS, Choose and Book (C&B), Radiology Information Systems (RIS) and Picture Archival Communication Systems (PACS) will enhance the work of clinical networks and will support the development of a positive response to meeting the objective of the Clinical Pathfinder Strategy and patient choice.

Objective	Achieve excellence in healthcare delivery with a focus on safety and innovation
Measurement of success	• Clinical outcomes and performance against core and developmental standards. • Implementation of joint strategy with academic partners. • Key performance indicators of patient safety.
Major contributing initiatives	• Development of AHSC including establishment of Clinical Academic Units. • Establishment of effective education partnership to achieve greater alignment across the training of clinical professions. Safer Patients Initiative.

Each of these objectives is either directly or indirectly impacted by the CRS Programme, therefore the successful attainment of these objectives is dependent upon the positive deployment of the CRS.
The combination of CRS and the introduction of new and innovative technologies are essential for underpinning the Trusts strategic objectives. ICT and CRS must be viewed as key enablers. Together they will provide the technical infrastructure that supports the capture and sharing of a single integrated patient record that is able to sustain the provision of real-time patient care, enable high quality medical, nursing and clinical academic research, underpin the requirements for service line reporting, support the needs of commissioning and income recovery, whilst also providing a platform from which the patient can their exercise choice and be actively involved in their own care by having access to their patient record. This philosophy is essential in ensuring that real benefits are realised from each of the Trusts major initiatives, which are:

- New Hospital Programme
- Foundation Trust
- Academic Health Science Centres
- Clinical Transformation through Rapid RE-design Programmes
- Managing Health Inequalities
- Attainment of Best Value

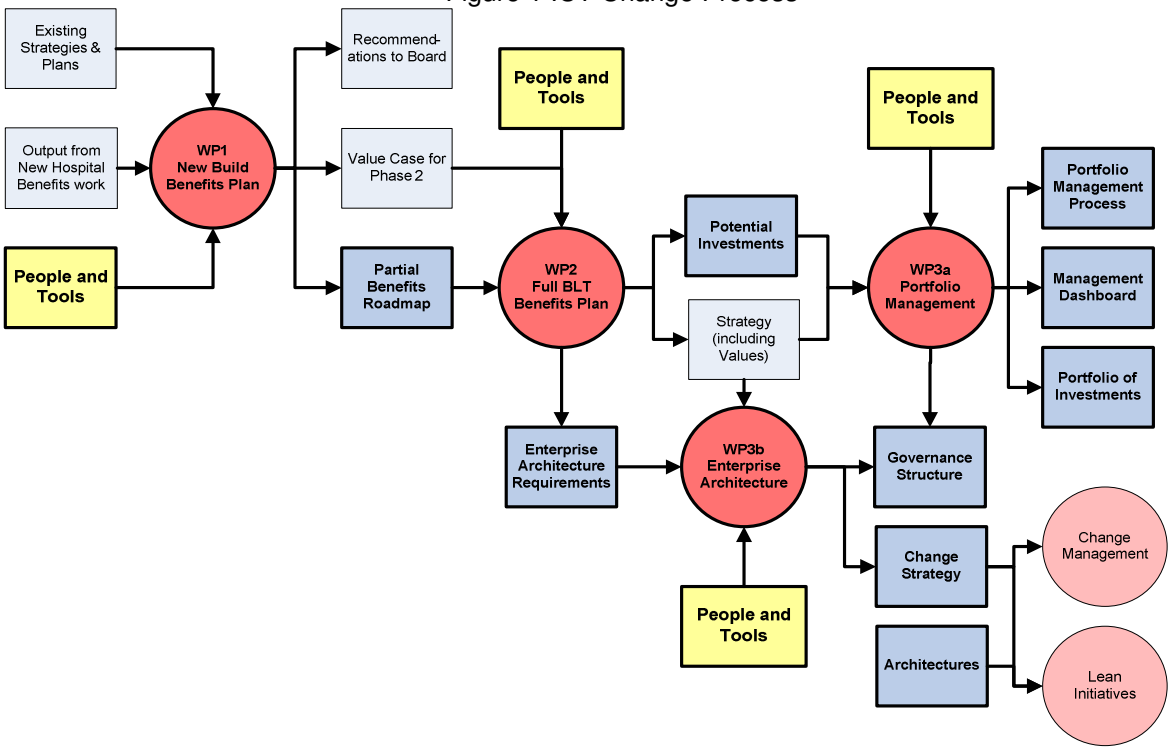
All of the above initiatives will create the need for change in the ICT and possibly as well as within the Trust. To assess the degree of change required in ICT and to manage the change process in order to maximise the benefit it will be necessary for ICT to adopt methods, tools, and

skills in effective Change Management. The most appropriate approach for ICT will be through the introduction of Lean Thinking methodology. This will provide:

- Establishment of full Portfolio Management capability
- Development of an Enterprise Architecture
- Support the integration with other initiatives
- Support Benefits Realisation, including creation of key deliverables

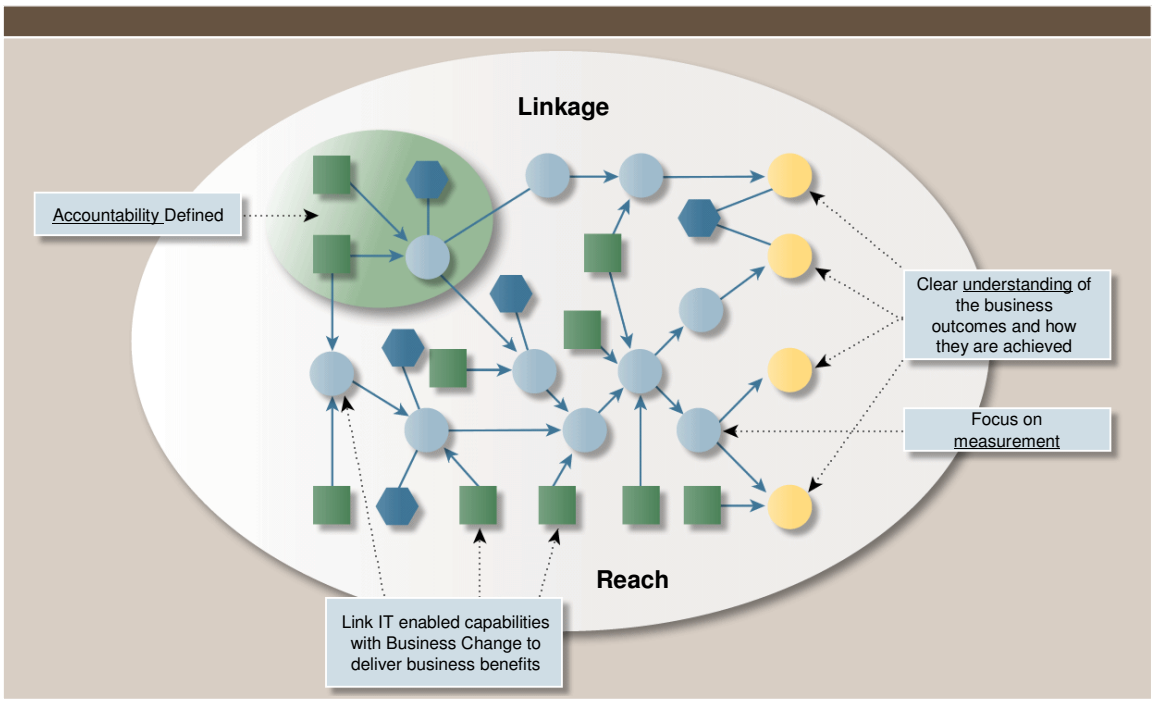
The approach will align organisational structure, strategy and investments with the business benefits that must be achieved. Decisions about which assets to invest in (such as applications, infrastructure and projects), what organisational design to adopt and how best to deliver services will be evaluated for relative value, and how these things will contribute to benefit achievement will also be assessed.
The approach is shown in Figure 1 below. The darker red, bolded circles indicate the groups of activities that will be undertaken, while the boxes show inputs to and outputs from these activities. The lighter red circles (without numbers) indicate work that could be enabled by completion of the proposed analytical approach. Blue areas indicate outputs will be delivered.

Figure 1 ICT Change Process



This approach will enable ICT to develop a benefits roadmap that identifies the technologies and or processes that will add the greatest value over the short and long term and therefore warrant investments. The full Benefits Realisation engagement to align the strategy with the Trust's business objectives will be completed after the assessment of technologies has been completed following evaluation through local demonstration coupled with specific site visits to major technology design centres. Figure 2 provides an example of a Benefits Road Map. The Road Map bridges the gaps between technology initiatives and achievement of business objectives and realizable benefits.

Figure 2 Benefits Road Map

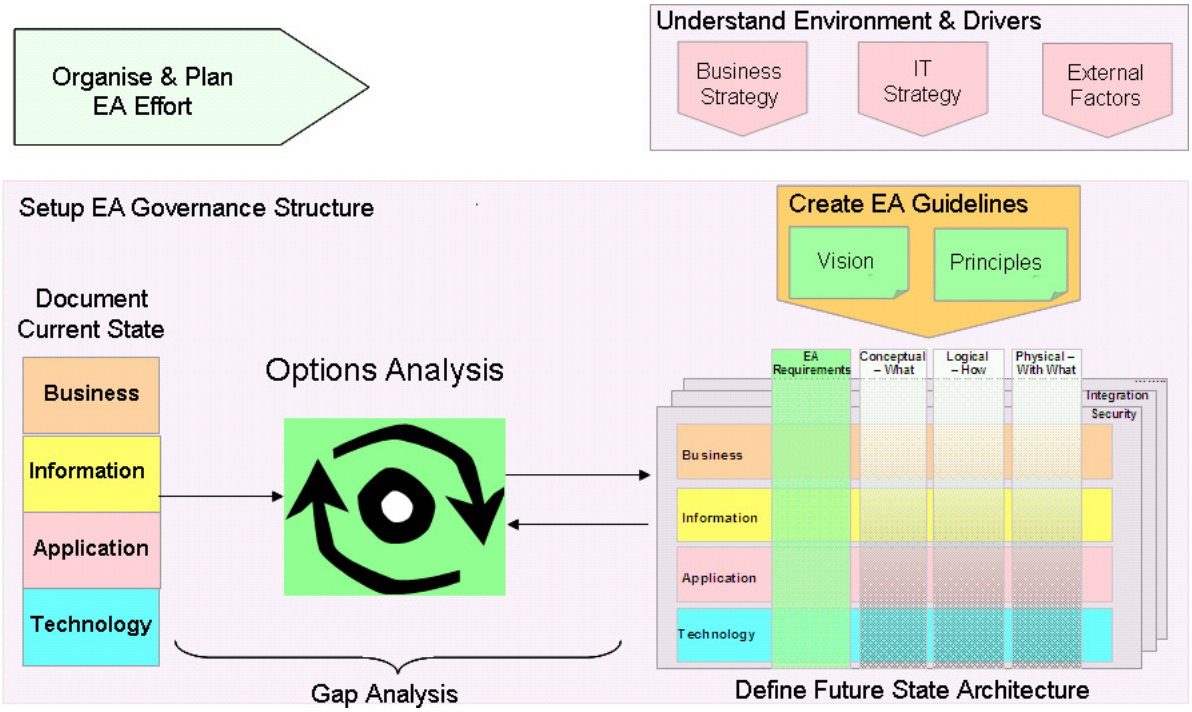


In conjunction with the Benefits Road Map ICT will also adopt and apply the discipline of Portfolio Management. This will provide ICT with the rigor to justify the value of technology investment. Increasingly they need to demonstrate that IT expenditure will have maximum impact on the delivery of business goals. To achieve this requires a new way of assessing potential investments. Firstly there is a need to understand the relative worth, alignment and risk of assets, from applications to people to IT infrastructure. Then there is the need to make the right investment decisions as to the future of these assets. Portfolio Management provides the discipline for assessing and evaluating the right decisions and ensuring they deliver.
In conjunction with Portfolio Management ICT will develop an Enterprise Architecture (EA). This will shape the department structure, processes, and business and information resources, along with its computing and communications infrastructure. Four main architecture areas will be developed:

- Business Architecture
- Information Architecture
- Information Systems Architecture
- Technology Infrastructure Architecture

Enterprise Architecture will present a holistic view of the department's key business, information, application and technology strategies and the impact of these on business functions and processes. A structured approach to the development of an Enterprise Architecture will be adopted, the model below including evolution of the architecture to suit the business environment is shown in Figure 3 below.

Figure 3 Enterprise Architecture Approach



Current Progress

As previously outlined the foundation for this strategy has been built upon the achievements of the 2005 – 2010 strategy; these are:

Technical Strategy

- Complete central storage deployment
- Provided secure remote access to Trust systems
- Operating Systems upgrade is in progress and will be completed in early 2008

Software Strategy

- Deployment of CRS – December 2007 for the foundation and May 2008 for the first upgrade
- Planning for the use MS technologies to develop bespoke and mobile solutions has started
- Development of marketable systems analysis and testing systems/services is work in progress

ICT Business Plan

- Withdrawing from non-viable service contracts

- Continue 'customer first' service development
- Planning for the growth in commercial activity to maintain critical mass is underway

Service Management

- Phased deployment of ITIL disciplines leading to ISO 20000
- Negotiate Underpinning Contracts (UCs) with all suppliers
- Develop seamless 24 x 7 service

The next few sections of the strategy describe the future. They aim to illustrate how integrating past achievements with the discipline of Portfolio Management to create and Enterprise Architecture will enable the application of new technologies into clinical, patient and business environments, modernise and further develop the infrastructure, enable diversification and support the development of staff.

6. New Technologies

In recent years there have been significant developments in technology that assist in the delivery of patient care and help the healthcare professional. These developments have been not only been in an acute care setting, but have also have had impact in the local Community.
For the Trust to achieve its ambition of being the best, it requires the right technology, at the right time and in the right place using the most appropriate device.
The challenge for ICT is to provide the options available and to deploy it in the most cost effective way that provides best value. Once deployed the appropriate level of support must also be in place.
In discussion with senior Trust managers, specific areas that were identified as potential early deployment which would help drive improvements and efficiencies.
This section provides technologies and services that have been highlighted as providing a direct benefit to the delivery of the organisations objectives. They are not set in any priority or preference.

Wireless network infrastructure

The ability to empower a mobile workforce to be able to access information at the point on need on whatever device is available is seen as a key infrastructure element.

Advantages of using a wireless network is that not only can clinicians and healthcare professionals have access to clinical information at the point of care but other suport services and communications functions can be used over the same infrastructure. Examples of this are the use of Radio Frequency Identification tags for use in locating and tracking equipment, people and goods.

Technologies such as Vocera, which is a multi purpose communications device, can be used for point to point communications with individuals or used as a routing mechanism to find resources or to direct calls to alternative devices (mobile phone – email – internal telephone).

Communications Network (General)

The current network infrastructure must be fit for purpose and provide a reliable and effective service. Aim should be to provide a Medical Grade level network which reflects the business needs 24 x 7 x 365.

A seamless network must be in place which provides an acceptable and seamless connection between NHS Clinical and Academic services. This connection should be available on a single device but have the appropriate security mechanisms in place to ensure the correct access to data is preserved, but which are easy to use and not a hindrance to the end user.

The network must provide for access for multi disciplinary teams where patient data is shared on a multitude of different media (teleconferencing – Imaging – Telemedicine etc).

eLearning

Facilities which staff can use at any time of the day using standard self pace courses – structured and measurable training linked to national Knowledge and Skills Framework (KSF) is seen as a key building block to ensure that staff have the appropriate access to learning facilities.

It is seen as critical that staff who are using technology and systems have the appropriate level of skills and understanding of the system(s) to ensure they are used in the most effective way.

Access to best practise guidelines and quality information is another key component in the tools to be made available to staff.

Unified Communications

The use of 'smart working' which uses technology solutions to remove wasted effort is seen as a real driver to improve efficiencies in the organisation.

The use of technologies such as Vocera can eliminate the event of 'telephone tag' where through a single command the person trying to be contacted can be located and communicated to on the device of choice or a statement as to their availability can be obtained immediately.

The use of Voice Over IP (VOIP) can provide benefits for peripatetic users through using a single 'follow me' number or by using multi-band phones which switch from internal phones when on a wireless network to a standard mobile phone when out of the Trusts network.

The interoperability of using email to capture voice mails and have them played through a desktop PC or emails that can be accessed on a mobile device (phone – PDA) will also deliver high return on efficiency.

Systems

This document is not intended to identify all of the specific system that the Trust will require to deliver health care services , but a common theme is that users of IT systems need to be trained in a way that allows the full functionality to be leveraged and for staff to understand that poor quality of data put into the system will cause problems.

More intelligence should be built into system which allows for intervention should an error be made. Appropriate over-rides should be in place should it be required but a full audit of action taken should be available. Active links to expert systems or knowledge databases should also be an integrated function is systems such as the Care Record System.

7. Infrastructure

This section sets out the planned changes and requirements to be in place to support the technologies set out above.

Changes will be required to the existing systems and infrastructure either as a natural refresh or where it is replaced by a new system (e.g. National Programme for IT). An example of this is over the next 12 months the trust network will be upgraded in order to improve performance and resilience. Preparation will also begin to look at the requirements for new hospital communication equipment in readiness for the first phase at Barts in 2009/10.

Discussion are taking place to look at the capacity of the N3 link which will provide the connection to the national spine and national application services (e.g. CRS – eSAP – Choose & Book etc).

It is difficult to be specific in what infrastructure changes will be adopted but the strategy will be based on it being:

- Timely – delivered when and where it is required
- Flexible – able to accommodate new technologies, services and innovative systems that the Trust wishes to adopt
- Expandable – has the capability to grow in terms of additional capacity when demand requires it and in a cost effective way.
- Reliable – High availability and performance 24 x 7 x 365 with total resilience in high dependency areas
- Innovative – providing an infrastructure for the Trust to adopt leading edge clinical and corporate systems to be able to allow it to be the best in providing patient care to its customers.

In order to provide a reliable and dependable ICT service it is critical that the infrastructure is fit for purpose. This means that the communication network architecture obtains and adheres to the highest possible standard and meets the criteria of a ‘clinical grade’ network. This presents three challenges:

1. Ensure that the current network is fit for purpose. This entails completion of the network upgrade planned for this year, address access, speed, resilience and availability issues and review of coverage and support.
2. Enter discussions with QMUL School of Medicine to start exploring how the academic and trust infrastructures can be used more effectively for research and healthcare delivery
3. Undertake detailed analysis and planning to design a medical grade network

Underpinning the above will be an appropriate level of technical support which will provide a highly responsive and technically centred service which will ensure that any problems that are experienced are dealt with quickly and effectively.

Other infrastructure type considerations which will be part of the complete picture will be the provision of appropriate levels of data storage. This may be clinical data such as the Care Record or corporate data such as email. Data may be held on-site in Trusts data centre or hosted through the national programme. This will be transparent to the end user.
With a high focus on energy saving opportunities, IT is an obvious area to look at how efficiencies can be made. Making use of power-saving and stand-by modes will make a substantial difference to any energy bill.

With increasing data storage requirements, data centres are another item in a business' IT infrastructure that can consume a considerable amount of energy. Cooling plays a crucial role in ensuring individual parts and elements do not overheat so that the data centre remains fully functional throughout its operation. This is where the greatest consumption of electricity takes place, so investment into systems which use less energy will be a must. ICT will look at ways of ensuring that any energy savings that can be made will be implemented.
An appropriate interface device will be available which will suite the specific area of work e.g. Desktop PC, mobile tablet PC, PDA.

Connection of vital sign monitoring equipment which is directly connected to the Trusts communication network and the data captured as part of the Care Records is another example of what is expected to be achieved in time.

Over the next five years CRS will be deployed to become the core clinical and administrative system for patient care. A number of in-house and third party systems will be replaced use. New requirements may be met by CRS where possible, otherwise by solutions based on new procured systems or in-house developments. If solutions are developed in-house the industry standard tools will be adopted e.g. Microsoft including Visual Basic.NET, ASP.NET and SQL Server 2000. In addition integration will be managed through the Ensemble integration engine and Contensis will be used as the web content management system.

Software Development staff skills will be developed through the core training programme and will include an increased emphasis on analysis and consulting. There will also be an increased role in deployment of third party systems in addition to in-house applications. A commercial consultancy team will as be developed.

ICT has adopted the Information Technology Infrastructure Library (ITIL) framework as its method of delivering Service Management and successfully achieve certification for the British Standard 20000 in 2008. Service Management and the use of ITIL is a recognised internationally as an effective way of delivering IT services. The national CRS programme has mandated that suppliers be ITIL compliant and that accreditation to BS20000 is desirable.

Having achieved this level of certification ICT is well placed to build on this and provide greater and more efficient services internally as well as offering such services to trusts in London.

8. Diversification and Staff Development

8.1 Service Commercialisation

Context

Over the next few years there will be pressure on ICT to introduce change in both the way it provides systems and services and how these are supported. The main drivers of change are:

- CRS: As a hosted solution from BT the requirement for in-house software development will reduce and the onerous overhead associated with legacy HIS systems hardware support and maintenance will largely be eliminated;
- Reducing NHS customer base as other NHS Trusts deploy Connecting for Health solutions;
- Best Value: The need for all directorates to introduce quality savings;
- Foundation Trust and Academic Health Science Centres (AHSC): The move towards achieving Foundation Trusts status coupled with the objective of establishing the first and best AHSC will necessitate the integration of health and academic data. This will drive the requirement for closer collaboration or even merger between the ICT departments in health and academia;
- New Hospital: The new hospital and associated more efficient ways of working will drive the introduction of new technologies. These are likely to increase the potential for technology to manual intervention;
- Health Care Strategy for London: This introduces new models of care which will require underpinning by the single patient record through CRS and the introduction of modern flexible systems and technologies.

Scale of Change

Downsizing ICT may result as a consequence of change. The supporting factors for ICT restructuring are:

- CRS hosted solution requiring less software and systems support;
- Reducing customer base;
- Increased demand for greater efficiency through best value;
- Introduction of modern technologies requiring less technical support;

However, restructuring too quickly may introduce increased risk and cost; a smaller less skilled technical workforce requiring greater external third party support will be less efficient and push up cost. An element of restructuring is inevitable but the introduction of a programme of diversification through commercialisation could deliver a level of savings, at the same time generating income whilst also retaining skills and resources.

Couple this with the fact that initiatives such as the Health Care Strategy for London, CRS, new hospital and AHSC have the potential to increase demand for ICT services and support, thus it may well be a false economy to down scale services prematurely.

Scope for Diversification

Opportunities to market BLT skills and services have been discussed before but little direct action has occurred. Previous attempts have proved successful but have been small scale and of limited in duration. ICT now finds itself at the cross roads. On the one hand it needs to restructure and release resource or it can modernise by making its skills, systems and services

available to other organisations on a commercial basis thereby enabling it to retain resource whilst at the same time undertaking a programme of re-skilling and supporting career progression and succession planning.

Opportunities exist now and it is imperative that all avenues are explored. At a high level the following areas of opportunity are real:

- London Programme for IT support to other trusts not yet engaged in CRS
- Support to southern trusts in reporting and data management
- Clinical software applications
- Server hosting
- CFH Service management

Before taking forward the scope there is a need to pose the following questions:

1. Does ICT have services that it can market
2. Is there a market to aim for
3. How much can we or do we want to achieve
4. What is the expected period to achieve / measure success
5. What is / would be the BLT ICT Unique Selling Point (USP)
6. Where do we start
7. When do we start
8. Do we start

These questions are currently being addressed with a view to formal proposals being presented in the next month.

Best Value Initiative

All departments are required to review the what, how and to whom their services are currently being provided; the aim being to inject change, improve efficiency or stop services if they do not provide benefit or are not cost effective. ICT will aim to contribute to best value saving through the creation of additional income streams by marketing ICT services and skills. This may be through the use of a commercial partner of via in-house resources. A commercial partner could add value as they will actively source new opportunities with in the NHS market and beyond.

In addition to exploring a marketing option, operational tools now exist which allow for the automation of specific tasks which previously required human intervention e.g. alerts based on functional criteria. ICT will look to invest in ways that will remove the need to use 'operational staff' wherever possible thus removing as much inefficiency as possible.

Customer Choice

With increased options now available through the National programme on systems support, NHS customers have choices previously unavailable to then on how, what and who provides the support they require. Service catalogues are now openly available through the Local Service Provider (LSP) for NHS organisations. These include provision of standard service desk function through to a fully supported service that includes network and PC desktop support. ICT will need to ensure that it's service catalogue is flexible and adaptable to customer demands in order that it can retain existing customers and more importantly attract new ones. ICT's approach will be through:

- Reduction of Services – consolidation of systems and server with increased use of virtual servers; this will reduce the physical number of platforms and individual servers that require support
- Service Demand – the level of staff resources and skills in ICT does not reflect directly correlate to the operational demand for resources. ICT therefore requires a flexible workforce model; one that increases as demand escalates but then reduces as demand falls. Within this flexible model consideration must be given to how a 24x7x365 service is delivered and what options are available
- Flexibility – ICT needs to be able to react quickly and effectively to changes in demand or direction of the organisation in order that business objectives and clinical imperatives can be delivered. This applies not only to staffing levels but also to skills, architecture design and systems support.

Business Objectives and Process Alignment

ICT will continue to develop the lean service redesign methodology piloted this year with Fujitsu. This will result in the adoption of a value governance model that will ensure that any ICT investment proposed can be demonstrated to meet organisational objectives and deliver tangible benefit. To achieve this ICT will work in tandem with Lean and Benefits Realisation Groups to ensure that due consideration is taken as to the use of technology in relation to any process review or re-engineering undertaken within departments.

Staff Development

The greatest asset in ICT is its staff. To ensure the department is capable of delivering a modern efficient service to the Trusts and potential commercial customers requires a well motivated, skilled and dedicated workforce. As highlighted above there are a number of factors that could justify downsizing but to do so without thought to the longer term consequences will put at risk ICT's ability to support the growth in technology requirements, emerging technologies, increased demand for clinical data as part of the single care record and increased system integration.

In order to support service delivery and diversification ICT will embark upon a structure programme of leadership development and staff training.

All senior managers will complete a Belbin Leadership skill profile so that key attributes can be identified and evaluated as strengths and weaknesses. This will enable the ICT leadership to build up a management profile that is aligned to departmental objectives thereby ensuring that team strengths are maximised and weakness minimised through structure skill modelling.
In tandem with this staff skills will be assess and mapped to departmental objectives and where deficiencies are identified formal training will be provided that bridges the gap. This will enable skills development to be aligned with personal development and career aspirations. This will foster a strong philosophy for knowledge acquisition and transfer, team working, and career progression. This approach will lead to a multi-skilled workforce capable of providing an efficient and effective ICT service for the Trust as well as being able to support commercial diversification.

Workforce for the Future

ICT will need to have a structure that reflects the needs of all its customers. This means providing a service that is cost effective, quality driven, standards based and reflects business expectations. It is envisaged that there will be three key components of the structure:

- Core Team – structure to reflect core business requirements, e.g. technical support, development and business management
- Consultancy and contracted services – developed as part of specific projects or through business requirement. This function will be managed by a senior member of the core ICT team to ensure the Trusts interests are prioritised.
- External services and support – the focus will be on staff resources being brought in or contracted as demand dictates. Where additional resources are required these will be paid for by the organisation commissioning the service as part of the service charge. When the contracted service is no longer required the staff resources will be released.

As part of the core team ICT plan to develop a 'Design Requirements Team'. This team will have two functions:

- Directorate focus – to build closer relationships with trust clinical directorates and corporate departments to ensure that ICT is aware of and can provide support and guidance on directorate and departmental business IT needs.
- National Programme focus – the team will lead on the design and development of future release requirements of the Care Records Service. This will entail working with clinical teams to ensure that best practice clinical needs are incorporated in future CRS design.

The Design Requirement Team will be responsible for evaluating Directorate, corporate & departmental needs and to assess how best these can be delivered and to provide feedback on potential solutions. The Team will undertake there evaluation by either utilising the skills of internal ICT teams, this will include assessment of capacity and knowledge or though external routes.

Appendix 4 - Technical implementation Plan

	2007/08	2008/09	2009/10	20010/11	20011/12
INFRASTRUCTURE	Network upgrade of existing core and edge hubs Prepare bid for New Hospitals Network Decision on strategic partner for communication network Full wireless audit and early pilot areas covered by wireless network	Business case and costs for network equipment at Bart's Extension of Wireless network in retained estate based on business needs	50% coverage of site covered by wireless connectivity Voice and Data convergence for voice and email Business case and costs for network equipment at RLH Implementation of network infrastructure for NHB at Bart's	SAN Upgrade / Replacement Implementation of network infrastructure for NHB at RLH	
Systems	CRS Foundation deployment Home Directory data store consolidation email Archive deployment	CRS LC1 Deployment	CRS LC2 Automatic patch management deployment for servers		
Desktop	Refresh programme replacing 1000 units	Refresh programme replacing 1000 units	Refresh programme replacing 1000 units Self set-up of client configuration	Refresh programme replacing 1000 units	Refresh programme replacing 1000 units

6. ICT Level 1 Business Plan

Purpose

The purpose of the ICT Business Plan is to:

- formulate top management's vision of the future of the organization so that it can be understood and shared both internally and externally
- define measurable strategic objectives for the target strategy
- describe underlying assumptions, logic and rationale in support of these performance objectives
- provide guidance and meaning for formulation of the business model and target organization contents

Description

The vision outlines ICT's intended future stance in the environment, based on the consistent assembly or synthesis of vision, target business definition, performance objectives, target product/market scope, target business network, target core competencies, and the business drivers these elements may uncover.

Vision

To achieve best value from the investment in ICT that enables excellence in healthcare delivery through out London and the South East of England ensuring that patients are treated on time and in the most appropriate setting.

Stated Values

- Achieve excellence in healthcare delivery with a focus on safety and innovation
- Treat our patients on time, every time and in the most appropriate setting
- Be the healthcare provider of choice for our catchment population
- Develop an efficient, skilled and adaptable workforce
- Achieve the best value from investments and resources

Goals

- Improved ICT and business efficiency
- Alignment with CAU and Divisional organisational goals
- Successful ICT restructuring that enables and supports ICT diversification
- Launch ICT marketing programme that delivers scope for annual increases in market share
- Development of a motivated, dedicated and skilled ICT work force

Strategic Plan

A 21st century Hospital with the ambition of being the best, needs to have innovative and leading edge technology that empowers healthcare professionals and provides the underpinning support for the delivery of patient care.

Technology is a powerful enabler for driving efficiencies and new ways of working if it is deployed and used effectively.

The ICT Business Plan sets out the approach as to what and how technology can be used within the Trust. The technology developments highlighted in the Business Plan are ones that have

been deployed in other organisations and so represent examples of what can be achieved now. How much of the new technology identified can be deployed will depend on:

- Strategic priorities of the Trust
- Level of investment that can be made (affordability)
- Rate of change that can be adopted during transition to the new Hospital
- Organisational Transformation that can be achieved through use of new technologies

ICT can not and should not establish the approach towards the future development or use of technology in isolation and without input from and by clinical directorates and Trust staff. In addition, external stakeholders such as Tower Hamlets PCT, East London Mental Health and the Medical School are key stakeholders and should also participate in the defining of the strategy.

In November 2002 the trust agreed to a revised ICT strategy which sought to procure rather than build a modern integrated hospital information system. In preparation for this the trust agreed to de-invest in its aging PAS/HISS system, to gather its resources by ceasing investment in departmental systems, and to start a programme of improving the ICT technical infrastructure. This strategic approach remains valid. The ICT Technical Strategy is also being defined which will supplement the Business Plan and will ensure that the following Trust Strategic Objectives are incorporated; the New Hospital Programme, Foundation Trust, Clinical Academic Units, Lean Service Transformation.

Strategic Context

Delivering the NHS Plan (April 2002) developed the vision already set out in The NHS Plan (July 2001) which described a service designed around the patient. These services are now being delivered. The Choose and Book Programme is offering patient's choice of where and when they can get treatment. The Care Records Service is now delivering clinical management systems to a number of health communities in the south of England.

In October 2006 NHS Chief Executive David Nicholson initiated a review of the National Programme to ensure its aims and objectives remained focused on deriving maximum benefit for patients and the NHS from the introduction of new IT systems and services. This review has been titled the National Programme for IT (NPfIT) Local Ownership Programme (NLOP).

The findings of the NLOP work have now been reported to the NHS Management Board and its proposals have been accepted. Overall, it showed there is strong support for the National Programme across the NHS, but that there needs to be a firmer, more visible leadership from within the NHS. NLOP aims to ensure the National Programme for IT is part of mainstream NHS business and the proposals will realise a shift in ownership to make strategic health authorities more accountable for delivery. NHS Connecting for Health (CFH) will continue to have the responsibilities for which it was originally set up, such as the national programmes, the commercial strategy of the Programme and contractual negotiations with suppliers. In London the NLOP process remains in development but it is likely to adopt the following structure and associated responsibilities:

- National Connecting for Health (CFH) – CFH policy and programme oversight, major procurement and architecture design and requirements coordination across programmes
- Local CFH – commercial/supplier relationship management, stakeholder engagement, Design Build Test (DBT)and links to the Southern NPfIT Programme regarding Cerner DBT, enabling SHA deployment, maintaining and managing detailed implementation plan
- SHA – strategic development- designing an SHA blueprint, deployment support and coordination, benefits planning and review, financial management, performance

management (planning and monitoring), standardisation of business and clinical processes as appropriate

- PCT – accountability for delivery of NPfIT in geographical area, direct deployment responsibility for electronic prescription service, Choose and Book , GP systems plus responsibility to assure CRS implementation in hospital trusts, delivery of benefits – EPS, Choose and Book and GP systems Hospital and mental health trusts – deployment responsibility for CRS and PACS, change management delivery of benefits – CRS and PACS

In July 2007 the Department of Health released the 'Framework for London'. This postulates that as London is a world class city its inhabitants should not have to settle for anything less than world class healthcare. However, excellence in healthcare in London is not uniform. There are stark inequalities in health outcomes and the quality and safety of patient care is not as good as it could, and should, be. The need for improvement is recognised by NHS London. The Framework for London outlines eight reasons why the time is right for a co-ordinated programme of change across London.

- The need to improve Londoners' health
- The NHS is not meeting Londoners' expectations
- One city, but big inequalities in health and healthcare
- The hospital is not always the answer
- The need for more specialised care
- London should be at the cutting edge of medicine
- Not using our workforce and buildings effectively
- Making the best use of taxpayers' money

In order to meet the challenges posed by these eight reasons for change the Framework sets out new models for how healthcare should be provided for Londoners. These are highlighted below:

- Home

- Polyclinic (the future base for most GP services,
- Community care, diagnostic services and outpatient activity)
- Local hospital
- Elective centre
- Major acute hospital
- Specialist hospital
- Academic Health Science Centre

The strategy needs to aware of these important initiatives with its scope, design, development and implementation remaining flexible and adaptable so that the over all architecture is scalable, compliant and able to take advantage of emerging technologies.

The strategy will integrate these national initiatives with essential local programmes of work to ensure that ICT delivery is coterminous and the Trust is able to sustain its aims for improving healthcare provision to the people of North East London.

Local Plan

Over the next few years there will be pressure on ICT to introduce change in both the way it provides systems and services and how these are supported. The supporting factors for ICT restructuring are:

- CRS hosted solution requiring less software and systems support;
- Reducing customer base;
- Increased demand for greater efficiency through best value;
- Introduction of modern technologies requiring less technical support;

However, restructuring too quickly may introduce increased risk and cost; a smaller less skilled technical workforce requiring greater external third party support will be less efficient, flexible and responsive all of which will lead to increased cost. An element of restructuring is inevitable but the introduction of a programme of diversification through commercialisation could deliver a level of savings, through income generation whilst enabling retention of vital skills and resources.

Opportunities to market BLT ICT skills and services are in train. Previous attempts have proved successful but have been small scale and of limited in duration. ICT will in 2008 proactively develop a trial programme of commercialisation.

In recent years there have been significant developments in technology that assist in the delivery of patient care and help the healthcare professional. These developments have been not only been in an acute care setting, but have also have had impact in the local Community. For the Trust to achieve its ambition of being the best, it requires the right technology, at the right time and in the right place using the most appropriate device.

The challenge for ICT is to provide the options available and to deploy it in the most cost effective way that provides best value. Once deployed the appropriate level of support must also be in place. The following technologies and services have been highlighted as providing a direct benefit to the delivery of the organisations objectives.

Wireless network infrastructure	The ability to empower a mobile workforce to be able to access information at the point on need on whatever device is available is seen as a key infrastructure element. Advantages of using a wireless network is that not only can clinicians and healthcare professionals have access to clinical information at the point of care but other support services and communications functions can be used over the same infrastructure. Examples of this are the use of Radio Frequency Identification tags for use in locating and tracking equipment, people and goods. ICT will support the directorates in exploring the use of Blood Tracking systems, Mother and Baby Tracking. Technologies such as Vocera, which is a multi purpose communications device, can be used for point to point communications with individuals or used as a routing mechanism to find resources or to direct calls to alternative devices (mobile phone – email – internal telephone).
Communications Network	The current network infrastructure must be fit for purpose and provide a reliable and effective service. Aim should be to provide a Medical Grade level network

	which reflects the business needs 24 x 7 x 365. A seamless network must be in place which provides an acceptable and seamless connection between NHS Clinical and Academic services. This connection should be available on a single device but have the appropriate security mechanisms in place to ensure the correct access to data is preserved, but which are easy to use and not a hindrance to the end user.
e-Learning	Facilities which staff can use at any time of the day using standard self pace courses – structured and measurable training linked to national Knowledge and Skills Framework (KSF) is seen as a key building block to ensure that staff have the appropriate access to learning facilities. It is seen as critical that staff who are using technology and systems have the appropriate level of skills and understanding of the system(s) to ensure they are used in the most effective way. Access to best practise guidelines and quality information is another key component in the tools to be made available to staff
Unified Communications	The use of 'smart working' which uses technology solutions to remove wasted effort is seen as a real driver to improve efficiencies in the organisation. The use of technologies such as Vocera can eliminate the event of 'telephone tag' where through a single command the person trying to be contacted can be located and communicated to on the device of choice or a statement as to their availability can be obtained immediately. The use of Voice Over IP (VOIP) can provide benefits for peripatetic users through using a single 'follow me' number or by using multi-band phones which switch from internal phones when on a wireless network to a standard mobile phone when out of the Trusts network. The interoperability of using email to capture voice mails and have them played through a desktop PC or emails that can be accessed on a mobile device (phone – PDA) will also deliver high return on efficiency. The use of television based alert and warning solutions will be explored to support Control of Infection and health promotion awareness.

Performance Objectives

The Business Performance Objectives aim over the next few years will put pressure on ICT to introduce change in both the way it provides systems and services and how these are supported. It also needs to re-examine its approach towards alignment with Trust operational and business units. ICT performance will be measures in terms of:

- Re-alignment of ICT support model to support achievement of Trust business goals
- Successful ICT departmental re-structure
- Development of marketing strategy with increasing market stare
- Reducing cost base;
- Increased demand from greater efficiency through best value; Financial Impact
- Introduction of modern technologies requiring less technical support;

7. ICT Pathfinder Vision 2004 - 2009

For the trust to achieve the goals set out in the 'Pathfinder Clinical Strategy 2004-09' effective, reliable and secure information systems will need to be in place. Increasingly, information at the point of care is required for clinicians to deliver the quality of service now expected.

The information below sets out how ICT will align its service delivery with the principles contained in the Clinical Pathfinder strategy.

Although the focus of the Pathfinder strategy is on clinical services, it is important to acknowledge the strategy's dependency on effective corporate functions providing infrastructure support to complement and enhance clinical excellence. For ease of cross-reference this document maps to the headings within the Pathfinder document.

5.1 Customer Experience *(ref. Pathfinder "Patient Experience")*

- Users of ICT services will be treated courteously and in a professional manner at all times
- Information that is provided by ICT will be clear and unambiguous, timely and accurate.
- All requests made to ICT for service development will go through a process to ensure a clear understanding of the request and the practicality of delivering it. Once a request is accepted, commitments will be managed through an agreed project management methodology (PRINCE2) or a formal Request For Change (RFC) through the ITIL Service Management Framework.
- All contact with ICT staff will attempt to provide a positive and beneficial outcome to the customer; however, this may not always be possible. Where there is disagreement on an issue, approach to delivery, refusal to proceed on a request or decision to terminate a project that is not progressing, ICT will ensure that the reasons for the action are clear and understood by the customer.
- Evaluation criteria for service requests will be aligned with the Clinical Pathfinder strategy to ensure the most appropriate outcome is delivered.

5.2 Technical & Services Quality *(ref Pathfinder "Clinical Quality")*

- All equipment that is installed will be 'fit for purpose' and conform to standards that have been set by the trust.
- The level of resilience will be implemented appropriate to the criticality and business needs of the Trust
- Regular monitoring will be undertaken to ensure Service Level Agreement targets are being met and reported to ICT clients
- Regular questionnaires and surveys will be issued to measure quality of service and customer satisfaction
- Appropriate physical and or logical protection of equipment, application software and systems will be implemented (e.g. security patches, version control, physical locking / identification etc)
- Formal Change and Release Management will be implemented in accordance with the ITIL Service Management Framework guidance and adhered to
- Systems will be configured and maintained at the optimal level to provide the most effective performance possible

5.3 Efficiency

- Processes and procedures will be developed, monitored and maintained to ensure they are aligned with the business needs and make best use of resources and so provide the best achievable outcome
- The management of objectives will use SMART processes to ensure that delegated tasks are specific, measurable, achievable, realistic and time based
- Any non effective processes will be identified and changed / stopped as appropriate

5.4 Partnerships

- ICT will establish contact points for each Directorate in order to understand the specific ICT requirements and business drivers which underpin their service needs
- ICT will consult with its customers to understand and specify the services that they require
- Service Levels will be negotiated with the customer to ensure that they reflect their business needs and available funding of the organisation
- ICT will work with suppliers to ensure that any services, skills and knowledge that do not exist within ICT will be obtained / transferred / delivered as appropriate
- An agreed training programme will be introduced to support the organisation and ensure that users are able to use the IT systems competently
- External resources will be used to deliver services where it is more cost effective to do so but will be delivered to standards that are set by ICT
- In areas where there is a limited skills base, a method of pooling or using resources from other NHS organisations or external suppliers will be available. This may be for short, medium or longer term periods

5.5 Systems

- ICT will implement systems and processes that are effective, efficient and transparent that provides tangible and measurable benefit to the Trust
- ICT will use and adhere to processes and policies set out by the trust to ensure that business and clinical governance is maintained
- All systems that are implemented by ICT will be based on best practice guidance
- All systems that are implemented by ICT will undergo quality assurance testing and review process based on the ITIL Service Management Framework

5.6 Culture

The ICT department will move to a more participative partnership role with the Trust, to ensure that as the organisation develops its clinical and corporate services, the role of ICT reflects any changing requirements. This will need a flexible and matrix managed department for service delivery.

ICT will align its culture with the organisation and move from being seen as solely a provider of technology solutions for individual departments, to one of an integral service and management function of Information, Communication and Technology for the purpose of healthcare provision.

Staff culture will be less of a silo role based function and more of a cross skilled service management facility working where the business needs are.

Staff will have a 'can do' approach to work matters and will take collective ownership in the delivery of a professional ICT service.

Service standards delivered by ICT will be transparent and open to challenge through appropriate protocol and procedures.

ICT will adopt a more commercial focus on the delivery of service, management of request for change and seeking new opportunities either within the Trust or externally in other NHS organisations.

5.7 The Trust's ICT strategy is set within the context of the Trust's vision:

To excel in:

- Patient care
- The employment, education & training of staff
- Research into new cures and treatments

The Trust's strategy sets out 3 corporate priorities:

1. Performance management towards excellence
2. Transformation of services to meet National Plan objectives and models of care for the new hospitals
3. Engaging patients, staff, the public and partner organisations

8. ICT Service Plan 2005 – 2010

The trust cannot deliver its services without sufficient and reliable Information Technology. This dependence will escalate further when we move into New Hospitals which are predicated on the provision of pervasive, robust and innovative technology.

The vision of a service oriented Pathfinder ICT service is described in the ICT Strategic Vision document. This Service Plan seeks to set out the technology, services and process changes that will be put in place over the coming 5 years to meet the challenge of that vision.

6.1 Scope

6.1.1 Services

With decreasing budgets, increasing expectations from users and a customer focus changing from 'what' to 'how' we provides IT support, a streamlined portfolio of services will be provided by ICT. This will include:

- Service Management
- Contract Management
- Infrastructure Development and Management
- Service Desk
- PC & Network Support
- Database Analysts and design
- Systems Interfacing modelling
- Server Hosting / Operational management
- System Administration (including Active Directory)

By 2007 the department will be providing all its services using industry best practice, and NHS endorsed, ITIL methodology. By 2008 this standard will be externally assured via a BS 15000 certification program.

6.1.2 Customers

We will seek opportunities to attract new customers by organising our resources in ways that allow a greater degree of flexibility in service delivery.

Services will be offered on a sound commercial footing and traditional customer management processes will be used to support and educate customers to obtain maximum value from our services.

From 2006 all customers, including internal customers, taking services from ICT will be provided with:

- A service catalogue
- A Service Level Agreement which is non technical and clearly sets out a written agreement defining service targets, responsibilities and expectation for both parties
- All relevant costs
- Support tools
- Necessary Hardware

6.1.3 Suppliers

Having the right external suppliers is as important as having the right internal skills. Failure of suppliers to deliver a quality product reflects poorly on ICT and impacts on the quality of service experienced by the Trust.

ICT will work with the trust's procurement department to ensure that where the NHS identify technology standards they will be implemented and all products and services will be procured from agreed national contracts or suppliers on approved lists.

Where there are no standards identified ICT will ensure that suppliers are chosen based on a commitment to open standards and easy integration with other trust systems, including e-procurement capability and ITIL compliance.

6.1.4 Infrastructure

The ability to access information from anywhere, at any time in a secure manner is essential. Having the right technology infrastructure in place can allow this to happen.

The key components of a robust infrastructure are:

- Resilient and appropriately sized network
- Appropriate number and siting of desktop PCs
- Mixed infrastructure of cabling and wireless technologies
- Scalable Network storage facility
- Network printing
- Resilient WAN connecting sites
- Access to information sources from outside of the Trust (home – cyber café, other NHS sites)
- Data lifecycle policy
- Equipment refresh policy appropriately funded
- A robust management process covering – change, release, resource, capacity.

Increasingly patient monitoring equipment will have a network interface installed, allowing the device to be connected directly to a communications network. The data collected will, in time, be stored as part of the patients electronic record. This will have an impact on both network bandwidth capacity and also data store capacity.

Starting immediately the ICT department will undertake risk assessed 3 year projections to estimate the correct amount of network bandwidth and storage capacity required by the trust. ICT will ensure that the trust is kept informed of these calculations and the likely costs.

Working within its resource cap ICT will ensure that the IT infrastructure provides a robust and resilient fault tolerant facility that will enable customers to access information sources 24 x 7 x 365. Budgetary restraints will mean some areas will not have complete fault tolerance but where this is the case the risks will be communicated to the trust.

The previous policy of removing unnecessary variation in equipment and software standards will continue, this will cover all areas of core ICT components – network, PC Desktops, network printing, servers, network storage, Operating systems, Office application software etc.

6.1.5 Support Levels

How ICT respond when customers experience an IT problem directly influences their confidence in the quality and value of ICT service. The department is committed to the principles of customer care set-out by the trust's Smarten-Up programme.

The Service Desk will be expanded over the coming year to provide an ITIL quality-assured incident management service 24 x 7.

The service will be monitored with KPIs agreed during 2006 and a real-time customer accessible dashboard illustrating current and historic performance will be made available during 2007. The service will be benchmarked against industry standards.

Retaining stock levels to allow swap-out has improved support responsiveness over the past year so this policy will be reviewed and holding-stock levels of additional equipment will be reviewed.

The need to expand the second and third level support on-call service is recognised and by 2007 these functions will offer a 24 x 7 service covering this level of support.

6.1.6 Staff

The department is committed to getting maximum value from the NHS Agenda for Change programme. The programme will let us agree indicators for managing staff performance and to tie these to roles and service delivery targets.

The complexity of the ICT environment and the size of the ICT team demand that attention be paid to cross-skilling and pro-active succession planning within the department's staff. All the department's key skills areas will be risk-assessed by the end of 2005 and a cross-skill and succession plan will be developed and implemented by 2007.

ICT staff increasingly work in cross-specialty teams, which necessarily cut across traditional departmental boundaries. In the coming 5 years the department will embrace team working as a norm. Individuals' will continue to be accountable to and be performance managed by their line manager, but their operational work will increasingly be delivered via membership of a number of cross-discipline and project teams.

6.2 ICT Structure

To meet the challenges of the next 5 years the department will need to restructure. The current structure, predicated on the existence of a large in-house PAS/HISS system, is clearly unsuited to a service oriented ICT function focused on integration, information management and innovation. A revised structure (set out in appendix A) will be in place by 2006 and this will be kept under review.

6.3 Other Strategic Documents

Detailed documents setting out specific objectives have been produced by each ICT division lead and shared among department managers. Summaries of these are listed below. The fast moving nature of technology demand that these specific targets be kept under regular review.

- Technology Strategy

- Completion of central storage deployment; migrate routers/switches to Cisco; enterprise wireless provision; VOIP and GBit access available as required; secure remote access to trust data; Operating System upgrade in 2008.
- Software Strategy
- Deploy CRS modules and ensure satellite systems integrate with this core; use of Microsoft technologies to develop bespoke and mobile solutions; development of marketable systems analysis and testing skills; emphasis on web-development.
- Service Strategy:
- Phased deployment of all relevant ITIL disciplines leading to ISO 15000 certification; negotiate Operational Level Agreements with all suppliers including Skanska; develop full 24X7 seamless service.
- ICT Business Plan:
- Withdraw from inherited non-viable service contracts; grow commercial activity to maintain a critical-mass department size; continue existing 'customer first' service development.

6.4 Conclusion

ICT must remain in alignment with the strategic priorities of the Trust, the National Programme for IT and also with changing technologies. Delivering against promised outcomes must be a key objective if we are to continue to enjoy the confidence of our customers. We will continue to benchmark our services against commercial and NHS peers. Outsourcing will be retained as an option where service quality, confidentiality and security ca be assured and value for money demonstrated.

Improved commercial acumen, a continued commitment to the values of public service and the development of a flexible workforce are the principles which underpin the department's ambition.

July 2005

9. Improving ICT Services

Staff perception of ICT support is much like patient's perception of health care. It depends who you ask! In both cases the fact is that the service is neither "unrelentingly dreadful" nor "unimprovably efficient", though there are individual examples of both these extremes. We hope to clarify staff perception by (a) continuing to report measurable levels of service against which the ICT directorate may be judged and (b) re-directing resources and changing procedures so that the level of service offered will continue to improve over levels of support delivered in the past. Following feedback from staff the ICT department has re-balanced its resources to better match the needs of the Trust. We have reduced staff numbers on our underused 'out of hours' service and moved them to the busier day shifts. Though we have almost doubled the number of Service Desk analysts the demand on our services continues to increase. Hardly surprising since we have added 30% more PCs to the network and deployed some major new systems (Pathology, RIS/PACS, Financial Systems). The Service Desk typically handles over 3000 support calls per month from BLT staff.

The Trust is a clinical organisation that has become critically dependant upon ICT. But ICT support costs money and you must be confident that we have enough of the right support in place (we can afford neither the luxury of over resourcing nor the risk of under provision). Equally important, ICT must open itself to scrutiny to reassure the Trust that spending on ICT support is delivering good value for money.

The Wanless report of 2002 finally admitted what staff in the NHS have known for some time, that NHS computing has been under resourced for many years. (There are less than 5 full-time equivalent staff servicing the Servicedesk needs of BLT's 8000 staff). Given this level of resourcing the service level standards set out in the Department's SLA are ambitious and represent a significant challenge to both ICT staff and our current technology.

Brendan Major, Director of ICT, 20/05/06

Service Level Agreement: ICT Services

The purpose of this agreement is twofold (a) to outline the quality of service the Trust can expect from the Information and Computer Technology directorate, and (b) to make clear the limits of the directorate's responsibility. It is almost inevitable that in the fast changing world of information technology the directorate will not be able to satisfy every users aspirations. However, the Trust is entitled to demand best value for money and this agreement sets out just what may be expected. The directorate will strive to obtain increased efficiency savings but ultimately improvements in services can only be obtained by the addition of more resources or the transfer of a resource from one priority to another.

Who we are

The Information and Computer Technology (ICT) directorate is made-up of five divisions:

> **Client Services,** managed by Doug Howe, provide first line information systems support to all users across the Trust and maintain the 'backend' server computers that hold the Trust's corporate data. The Helpdesk takes all fault and change requests and either deals with them directly or refers them onto other divisions within ICT. The division also services IT procurement requests, inventory management and software license compliance.

Systems Development, managed by Michael Pedro and responsible for all initial systems hardware and software installation and configuration, and for more advanced technical support to users with faulty IT equipment (i.e. faults which the Helpline are unable to rectify immediately). They also maintain and manage the Trust e-mail, Internet and Intranet systems. Additionally they are responsible for ensuring the integrity of the Trust's Local Area Networks, its Wide Area Network and for providing advice to staff on technical IT matters. The team currently consists of 6 engineering staff.

Software Development, managed by Mike Eagles, is responsible for supporting the Trust's specialist software including the PAS and HISS applications. This support includes bespoke enhancements to existing software, the design of new software systems for the Trust and the integration of commercial software into the Trust's specialist systems. The team also provides business systems analysis throughout the Trust to help us optimise workflow.

IT Business Support Services, managed by Mark Dilloway, are responsible for the financial management of IT capital schemes and the revenue budget, IT procurement, Service Level Agreements and contract management, customer communication, IT training, and managing the department's 'customer satisfaction' services e.g. monitoring this agreement, dealing with complaints and generally ensuring that the customer's voice is properly heard within the ICT directorate. The team is also responsible for the directorate's internal administrative support.

Mark also manages **Project Management** and is responsible for the co-ordination management and review of the various IT related projects around the Trust. The division operates a flexible but rigorous 'methodology' to help the Trust ensure that large-scale projects remain viable and that the benefits claimed by each project are actually realised.

What we will do

The directorate will provide technical, business and support services on authorised equipment, processes and software for the whole Trust. Targets for the quality and timeliness of these services are set out in the following section. These standards are generic across the whole Trust. However, specific customer groups, named pieces of equipment or identified applications may be the subject of a bespoke Service Level Agreement and the standards included in these agreements will override any standards specified in this document.

Exceptionally, equipment, which it is no longer viable to support, will be retained by the Trust but be removed from support. Such equipment/software will be subject of a specific exclusion agreement which will include the requirement that it may not be connected to any Trust network and applications and data may not be ported from or too Trust systems.

What you must do

The ICT directorate is not responsible for the ordering or replacement of standard computing consumables including printer ribbons, toner or inkjet cartridges and floppy disks. You must manage the supply of these consumables yourself. However, you should use only consumables approved by the equipment manufacturer. If damage to equipment occurs where non-approved consumables have been used, ICT may cross charge for the cost of any repair work.

Regardless of the source of funding (the Trust, charity monies, grants etc.) staff may only procure IT equipment and software approved for use within the Trust and the procurement must be via ICT (The IT Business Support Team will place orders on receipt of your request and valid budget

code). This permits the Trust to obtain best value for money and ensures that all equipment is properly asset tagged and security marked.

IT equipment and software may only be installed by ICT staff. Ad Hoc installations can cause significant damage to the Trust's IT infrastructure and services and make fault diagnosis very difficult.

ICT will not support non-standard and unauthorised equipment or software. Where such equipment is discovered it will be notified to the Director of ICT and, if it is illegal or dangerous, it will be removed. Additionally, within the Trust the directorate will not support non-Trust personnel nor Trust personnel undertaking non-work related activity.

Quality and timeliness of service

For most users the ICT Helpdesk will be the primary means of accessing customer support from ICT. Fault reports, requests for information or support, equipment ordering, training requests, complaints relating to IT or general comments should all be routed via the Helpdesk. The Helpdesk is one of the primary means by which ICT will monitor and evaluate its quality of service; it is also partially responsible for communicating ICT related issues directly to users. However, in relation to the processing of fault reports the Helpdesk has a specific responsibility to callers and the details of how this service functions are set out below.

When fault or user-help calls come into the Helpdesk the call will be logged and, if possible, will be dealt with immediately by the Helpdesk. If the call cannot be cleared immediately it will be allocated a call log number (which will be used in further communications relating to the call) and given a priority rating. These calls may be allocated to other divisions within the directorate or other Helpdesk staff as required. Irrespective of which ICT team takes the call it should be processed within the timeframe set our in the Priority Rating schedule below.

RATING	DEFINITION	FIX	TARGET %
Critical	Problem which has a significant impact on operations for the Trust as a whole	2 hour	98
Urgent	A problem which has a high impact on operation for a significant number of users	8 hours	95
Important	A problem which has no direct impact on operation but causes inconvenience	32 hours	90
Call logging *	A call placed by the Helpdesk with a third party maintenance company.	As per 3rd party agreement	95
User Assistance	Not technically a fault call e.g. a training need or a system change request these will be treated as a Request for Information (see below)	Initial response 24 hours	95

A fix is defined as a resolution of a fault to a users reasonable satisfaction. If ICT staff cannot contact a user the clock will be paused on the call until contact is made.

- Callers will be informed if their call has been routed to a third party with whom we have a contract or a Service Level Agreement. Currently this includes hardware fault support for certain pieces of IT equipment and some specific applications.
-

N.B. Where any call misses its time target it will immediately be escalated to the next priority.

SERVICE STANDARDS

SERVICE	QUALITY	TIME	%
Disaster Recovery	Provision of access to HISS services in the event of a disaster.	Following implementation of disaster contingency, one day	100
Backup	Data and applications held on centrally managed systems will be backed-up to provide total protection against loss of functionality, and will restrict loss of data to no more than 24 hours work Network Servers	Recovery of system within 2 days of replacement of hardware, recovery of data within 1 day Recovery of system within 1 day, recovery of data within 1 day	100
Ordering of equipment	Orders will be accurately placed with approved suppliers. If necessary we will contact users to clarify any ambiguity in the order.	Within 2 days from receipt of accurate order.	98
Receipt of goods	When equipment is received at the ICT centre it will be logged, tested, audit tagged and, if required, security tagged. Receipt will be notified to users and an installation date agreed.	3 weeks	95
Software license compliance	Software shall not be installed onto Trust equipment unless a valid license is in place.		100
Request for Information	Calls placed at the Help Desk requesting information - both ICT specific and general operational queries	Initial response in 24 hours, thereafter by agreement with user.	90
File Server down	System recovered or back up system in place	24 hours	99
New User set-up	New user set-up on network after receipt by Helpdesk of a correctly completed New User Form	1 day Exception to this will be twice per year on Junior Dr intake	95

PROJECT MANAGEMENT STANDARDS

All significant projects will fall under the project control framework outlined by the Information Strategy Group (ISG). The ISG is a Director level group that meets every two months and has oversight of the Trust's ICT development. Within the ISG project framework the following deliverables can be expected from ICT.

PROJECT PHASE	DELIVERABLE	TIMESCALE	%
Initial Discussion Meeting	Brief summary outlining user requirements and reasons for project (Project Brief)	1 week after meeting	90
Outline business case (OBC)	User produced document summarising requirements, benefits and the costs/resources needed for success.	User dependant	
Assessment of OBC	ICT assessment of requirements, relationship to ICT strategy and resource/support considerations	1 month after meeting to discuss OBC	90

PROJECT PHASE	DELIVERABLE	TIMESCALE	%
Project Plan	Produce a plan defining the scope of what is to be achieved and the approach to the issues involved. It will include estimates of costs & resources plus a review of risks that the business benefits will be achieved. (Project initiation document)	2 weeks after ISG approval of OBC	90
Regular reports	The project will produce, at monthly intervals, a summary of progress made, resources used and any issues/risks that have arisen (Highlight Report)	Within 10 days of month-end	90
Stage report	A report summarising the progress to date with an objective assessment of what further resources and costs are needed to achieve the benefits. This is to allow management to take a “go/no-go” decision (Stage report)	Within 2 weeks of end stage checkpoint being reached.	90
End Project Report	A summary of how well the project achieved the business aims and the timeliness and resources/costs used. It will also contain any lessons learned that can be applied to future projects	Within 1 month of the project ending	90
Project Audit	Provide an external, objective review of project documentation to ensure that it follows defined standards and that progress and decisions are recorded correctly. Also that NHS directives and Trust SFI/SOs have been followed. In special cases this may be extended to a full review that reassesses the feasibility on the project.	Within 1 month of authorised request	70

Smaller scale projects (under 20 staff days development) will also aim to meet these standards but ICT will, in any case, agree timescales with users at the point of request.

Statutorily required development work will be completed in a time frame agreed with the Information department.

Evaluations and assessment

The ICT managers on a monthly basis will evaluate compliance with the above standards. This evaluation will consist of qualitative and quantitative assessment and will include user feedback. The results of these evaluations will be reported to the Director of ICT and a summary will be produced for the ISG on an annual basis. Headline compliance figures will be posted on the ICT Intranet site each month.

Review of this Agreement

The content, standards and timeliness targets contained in this agreement will be reviewed bi-annually by the ISG. Input into the agreement from users is encouraged. Comments and suggestions may be forwarded to the Director of ICT.

10. BLT Integrated Business Plan, April 2007

The Trust is applying for Foundation Trust status. Here follows the section from the Integrated Business Plan referring to ICT.

9.8 IT SYSTEMS

Care Records Service

9.8.1 The NHS Care Records Service (CRS) will change the way in which the Trust administers patients by providing a fast and modern way of storing patients records electronically. This will allow staff to call up patient information through a live, interactive service available 24 hours a day, seven days a week.

9.8.2 As part of the preparation for introduction of CRS, the Trust introduced a new Picture Archiving and Communications System (PACS) in November 2006. This involves switching from traditional film to digital images for all new x-rays and scans. The digital images are stored centrally on an electronic database and clinicians can view, analyse and share images using any of the Trust's networked PCs. Specialist PACS viewing workstations have also been installed across the Trust to enable clinicians to clearly view a diagnostic image in order to make a clinical decision or formally report an examination.

9.8.3 Underpinning PACS is a Radiology Information and Order Communications System (RIS), introduced in July 2006, that automates the requesting and reporting of scanned images. Around 35,000 radiology requests are processed each month through the system.

9.8.4 The current target date for the deployment of CRS in the Trust is December 2007. This date has been jointly agreed with BT and Connecting for Health London. This release – Cerner Millennium Release 0 – will mark the first step towards the development of an integrated electronic care record and provides replacement of the Trust's ageing Patient Administration System (including inpatients, outpatients, bed management, correspondence, and tracking). It also covers A&E, Maternity, requesting and resulting, basic theatres and management reporting.

9.8.5 Migration to Release 1 is planned for late April or early May 2008. This will introduce additional functionality in a number of areas.

ICT governance

9.8.6 The Trust has adopted the principles of Managing Successful Programmes and PRINCE2 in establishing the ICT programme management structure which is shown in Figure 9.2.

9.8.7 The Programme Board operates at a strategic level and members of the Board represent local stakeholders. The Board is chaired by the Director of Operations acting as the Senior Responsible Owner (SRO). The Programme Board has responsibility for sign-off and decisions.

9.8.8 Programme assurance is provided on a monthly basis by the Healthcare Governance Committee which is chaired by the Chief Executive and comprises all of the Trust's directors. This programme and project assurance board (PPAB) role covers all programmes and major projects running within the Trust, including the CRS programme.

9.8.9 The Programme Team consists of the Programme Director and all workstream leads including those from supplier organisations. The team members bring a range of skills and experience (technical, managerial and clinical) which ensure a complementary and balanced approach.

9.8.10 A Clinical Network/Project Assurance Team (the Trust's Clinical Information Strategy Group), comprising a majority of senior clinical users and supported by professionally serviced in-house Office of Government Commerce Gateway review capacity, is established and meets monthly.

9.8.11 The Project Boards which make up the programme portfolio meet as required to deliver the products identified in the various project plans. The Project Boards are ultimately responsible for assurance that the constituent projects remain on course to deliver the desired outcome. They receive dedicated support for the Trust's permanent Programme Support Office.

11. ISMS Specific Business Objectives

The BLT ICT Vision Strategy for 2005-2009 (updated July 2005) was published in September 2005. The main information security objectives at that point in time was:-

1. Continue to Implement an effective ISMS within ICT

2. To include Information Security as part of the Information Governance structure for the whole Trust. The scope of the ICT registration to ISO 27001 will not now be extended to the entire Trust.

3. Obtain formal registration to ISO 20000 during 2008

The BLT ICT business plan for 2009/2013 will be updated and published in mid-2009.

Business objectives and measurements of achievement in respect of Information Security for the period 2005/2009 will cover:-

1. Maintain formal registration to ISO/IEC 27001 during the period.

2. Review the ISMS Risk Assessment to ensure continued appropriateness.

3. Ensure all new and existing initiatives comply with the ICT ISMS.

4. Implement a program of continuous improvement and adopt the PDCA model.

5. Ensure personnel development matches the plans and objectives of ICT (e.g. appropriate training to ensure successful implementation of ICT objectives).

6. Conduct an internal review during the year to check the effectiveness of the BLT ISMS, and implement improvements as identified.