Information Management & Communications Technology Strategy

Draft April 2007
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Introduction
This Information Management and Communications Technology Strategy for Conwy & Denbighshire NHS Trust constitutes the second revision of the existing Information Communication Technology Strategy which was approved by the Trust Board in December 2002. This Strategy has been prepared against a backdrop of developing major national and local initiatives which are driving the modernisation of healthcare across Wales. Informing Healthcare, published in October 2002 sets out a vision for future healthcare in Wales and focuses on key themes which will demand major organisational and technological changes across the health service. This document represents the Trust’s strategic vision for meeting these national and local objectives.

Throughout this document the term IM&T is used to cover the areas of Information, Information Management, Health Records, Telecommunications and Information Technology.

The Information Vision
Information is the lifeblood of any organisation and is found in abundance throughout the NHS. Traditionally this plentiful information has been difficult to capture, has been of poor and inconsistent quality and has been difficult to access and analyse. The capture and use of information has often been seen as an overhead on the clinical workflow and has tended to be viewed as an administrative role far removed from health care process itself. This IM&T Strategy sets out to redress the balance and capture and deliver patient based information for health care workers as and when they need it.

In order to meet this requirement the Strategy concentrates on the use and development of clinical and corporate information and its communications by working with healthcare workers to identify their information requirements and to focus on the delivery of the electronic patient record.

During the past three years the Trust’s involvement in the Safer Patient Initiative has been important in determining strategic direction of the use of information. The project confirmed a number of themes:

- The main source of clinical information remains on paper in the form of case notes – most of the key information could only be gathered via case note review i.e. relevant patient information is not stored electronically.
- Before attempting to improve a clinical process you must first ensure that you have a measurement strategy in place which has clear goals, fully defined and unambiguous measures.
- Quality improvement and process change cannot be measured through the use of summary statistics and can only be evidenced via simple analytical tools such as Run Charts and Statistical Process Control.

Organisation can no longer claim to be improving services without being able to define the indicators and proving the improvement through data. In essence our vision should be:

“In God We Trust, Everyone Else bring data”

National initiatives such the Corporate Health Informatics Programme and Informing Healthcare are driving the provisions of information down a more centralised route. The Trust need to be mindful of this shift to more corporate based clinical and reporting systems. It is essential that the Trust focuses on improving data quality throughout the organisation and all other organisations which hold information about the Trust’s clinical and corporate activity.
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Scope
This Strategy is aimed at supporting patient care throughout the Trust and in doing so must identify and work with all health care agencies involved in the day to day business of the Trust.

Working with stakeholders
The Trust recognises the national vision for an Electronic Health Record or EHR, a patient record which extends beyond the traditional Trust organisational and professional boundaries.

Whilst the North Wales Secondary Care review has provided a vision for services in North Wales it did not recommend a single organisation in the North – the major focus will be on providing information across the local health economies. However the Trust needs to ensure that, where possible, information systems should not be "bounded" within organisations. This can be achieved through the development of Information sharing protocols together with pragmatic IM&T solutions. The Trust strategic outline case as part of the North Wales development is reviewing its services and estates strategy and looking at new models of care which will enable the Trust to provide a continuum of care across all health care agencies. Collaborating with other health agencies is vital for the continued improvement of health care and fundamental to this Strategy is the establishment of clear information sharing and communication protocols with agencies whose services impact the Trust. Unified Assessment and demand management projects such as intermediate care projects cannot be delivered without integrated technology cross health and local authority information infrastructures.

Current position
The past few years has seen a shift in the delivery of IM&T within the Trust. We have moved from an eclectic mix of paper based and technology to a more structure approach to deliver information. The IM&T strategy group provides strategic guidance and approval for all Information and IT related investment. This is has been a valuable shift in the way investment is made within the Trust; every investment must be justified by complying with the IM&T procurement policy – which requires any bids to have developed requirements specifications, process maps and clear benefits realisation plans. The IM&T strategy has a fixed allocation of capital to be utilised and allows for planned strategic developments. This capital allocation has allowed for forward planning across financial years which is essential in the deliver of major technology investment.

PC capitalisation also has influenced the way in which technology is requested, justified and deployed. This has lead to a more efficient process with better use of resources and better value for money.

This strategy is being updated in the context of the Service Change and Efficiency Project (SCEP) which is focused on significantly reducing costs within the local health economy whilst continuing to deliver safe services. The levels of cost reduction required mean that all initiatives and service will be influenced and will need to demonstrate efficiencies and cost savings. Clearly IM&T will have a significant role to play, not only in supporting service initiatives but in also leading technology projects which can benefit the Trust

Initiatives
The approach to the use of clinical information has changed in the last three years. The key drivers to this change have been:

- the Trust’s involvement in the Safer Patient Initiative (SPI)
- the development of consultant and clinical benchmarking and
- the need to monitor the whole patient pathway – driven by Integrated Care Pathways and the National Target set out in Access 2009 Programme.

It is clear that the true source of clinical information remains the traditional paper based casenote. Only through paper audits are we truly able to see a patient journey or assess quality
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of care. This has become unsustainable and the main focus of this Trust’s strategy is the achievement of a safe, easy to use and Electronic Patient Record.

Experience has shown us that there is no one “magic solution” to the Trust’s requirements and that we will only succeed in creating a safe record through combination of key projects which involves joint working and integration with National services, commercial systems and locally developed solutions. They key will be how we manage the associated process changes to make the most of technology.

The Trust is committed to ensuring it is a key stakeholder within the IHC National Programme and will continue to be involved and influence strategic direction.

See Appendix A for Informing Healthcare National Programme Plan.

Lessons Learnt:

It is clear that where the Trust takes full ownership of a system and commits to its deliver that it is able to develop pioneering systems such as Therapy Manager. Strategically the Trust needs to make sure that where national projects are not able to deliver the benefits in an adequate time that we always develop contingency plans which allow locally developed systems to flourish, but also endeavour to dovetail in with the overall IHC Care Management Strategy.

Assumptions made in this document:

- A new PAS will be in place within 18 months – either commercial, an in house developed systems supported by IHC or a in house developed system by this Trust
- A North Wales IM&T Planning forum will be set up to ensure that IM&T investment in North Wales in consistent across all organisations

It is recognised that complicated IT system have no intrinsic value and that the key to the success of the Strategy will be a developing information culture where well trained staff will be responsible and have the necessary skills in using information and technology. The Strategy is less about the technology than the people and resources that use the technology. The biggest challenge for the Trust will be the management of organisational developments required to fulfil the strategic goals of this document.

Delivering the Strategy will be a measured process; it being all about delivering change. Underpinning the delivery of the strategy will be a robust technical and communications infrastructure which will need to be continually monitored and upgraded to keep apace with developing models of care.

Time scales

This strategy is focused on the next five years and is influenced by two main drivers which are Informing healthcare’s National Case timescales which are shown in Figure 1 and Commercial timescales for existing Patient Administration System Contract which will terminate during 2009.

At the time of writing the Trust will be considering merger with other organisation – however the impact on timescales are as yet unclear.

Organisational change

This Strategy, along with the business case for any clinical or corporate system majors on the 80/20 rule - where success of the project relies on 80% organisational and cultural change and 20% technology change. The organisation must take ownership of the Strategy and view it as its own rather than an “IT” or “Informatics” issue. By procuring PAS, Order Comms etc the Trust has already recognised and made a major commitment to the fact that education, training and support are the key to benefits realisation. Historically in the justification for such a major and ambitious
EXECUTIVE SUMMARY

project as IPCS it was recognised that health care workers, closely supported by IM&T, are responsible for the system, and that doctors, nurses, managers and the majority of Trust employees will "own" the system.

Although the next PAS will be viewed as a major driver and enabler of change in the organisation it is also recognised that it is one of many projects and developments that will need implementing in the interim to consolidate and improve existing information and technology within the Trust.

Priorities

Spending on major IM&T projects has tended to be from discretionary capital. This is likely to remain the case in the interim and it is essential that the Trust ensure that any spend on IM&T is focused on delivering the strategic objectives defined in this document. All capital bids for projects which impact information, communications and information technology must be channelled through the Trusts IM&T Strategy Group for approval. This group will ensure that any new investment will focus on:

♦ The decisions to invest in clinical and administration systems should be made against the backdrop of clinical benefit, corporate efficiency and cost savings
♦ Ensuring that investment will support new ways of working.
♦ A programme of essential upgrade, replacement and investment in technical infrastructure.
♦ Any investment made that is in conflict with this Strategy is only made to mitigate operational and clinical risk.

In summary the Trusts vision of a safe electronic patient record will be delivered through:

1. The replacement of the existing order comms solution
2. The replacement of the existing PAS
3. The creation of an IT infrastructure and services which allows systems to communicate effectively with each other. This will be profoundly important for future systems development. The ability to share information centred on a Master Patient Index (MPI) will be vital for allowing cross departmental and cross organisational working. – in particular to allow sharing of information across primary and secondary care. However, this can only be achieved through having the appropriate technical and staffing resources.
4. The implementation of a Electronic Medical Record i.e. a solution which will scan existing paper based information and make it available to appropriate staff anywhere within the Trust and other healthcare settings
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Delivering the strategy.

The strategy will be delivered through four main routes:

1. IM&T Annual Operational Plan. This will deliver those operational services which aid the delivery of this strategy and which are already funded within operational IM&T Budgets.

2. IM&T Strategic Projects. These are projects which have been through the IM&T Strategy and funded by capital allocation.

3. Trust Strategic Projects. Those projects which are essential to the operations of the Trust which are not solely within the control of IM&T. Typically these will be projects which are approved via the capital working group.

4. National projects driven by Informing Healthcare or NHS Wales. The Trust is committed to making sure that it lever the benefits of national projects where possible. Key examples of such projects would be the implementation of the Clinical Portal, GP Our of Hours.

Clearly there will be times where national initiatives will have different priorities to local needs and these competing priorities will be managed through close linkage the Trust IM&T Strategy Group, the North Wales IM&T Planning Group and the Informing Healthcare Programme.
BACKGROUND

Services provided by the Trust
The Trust provides a full range of Acute, Community and Mental Health Services. We also manage Community Dental Services covering the whole of North Wales, the North Wales Brain Injury Service, and Clinical Psychology for the counties of Conwy, Denbighshire, Flintshire and Wrexham. The drug and alcohol services are managed on our behalf by North East Wales NHS Trust.

The wide range of services means we provide healthcare from many different types of premises, which reflect the diversity of the work of the Trust. The acute District General Hospital, Glan Clwyd, is supported by H M Stanley in St Asaph and Abergale Hospital. There is a network of seven community hospitals, two acute in-patient mental health units and three units for older people with mental illness.

All the above services are supported by a range of health centres, clinics and community team bases with day hospital facilities. These include a range of children's services comprising four teams covering:

- Illness & accident
- Public health & Social care
- Children with disabilities
- Emotional health

There are two Dental centres, in Rhyl and Wrexham with smaller clinics covering all of North Wales.

Influences & Stakeholders
The IM&T agenda is influenced by a variety of stakeholders. Increasingly, the information and information systems are becoming part of day to day health care delivery. Some of the key IM&T stakeholder and influences are summarised below.

Local Trust Services
The demand for the IM&T services at the Trust is increasing rapidly. Changing models of care and the increasing sophistication of information users and information systems will demand that the IM&T service must become “customer” focused on the needs of directorates and become part of the culture of the organisation.

Clinical Governance
<Healthcare standards and 3 yr rolling plans section here>

Security and Audit
As healthcare becomes more reliance on information system the need to strengthen the supporting information governance support is essential. The public sector is beginning to revolutionise information management..

These added rights place greater responsibility on data controllers to ensure that data is identified secured and available to any citizen who is legally entitled to ask for it.

The three pieces of legislation are:

- The Data Protection Act 1998 (DPA).
- Freedom of Information Act (FoI), which came into effect in December 2000 imposing certain duties on public bodies, such as the requirement to produce a strategy on publishing the information they hold.
BACKGROUND

♦ The Human Rights Act (HRA), which came into effect in October 2000, also increases the citizens’ rights to access information and challenge the decisions made based on that information.

The impact of this legislation, the compliance and the inevitable scrutiny of external bodies will put a great deal of pressure on the existing resources of the Trust.

Access 2009

The requirement to be able to treat a patient within 26 week of referral has brought about the need for trusts to rethink the traditional model of managing patients through the health system. Initial work to deliver the target means that “manual” or mandrolic paper and administrative processes have been put in place to capture the required information. This is not a sustainable process and technology will have to be provided that will allow the clinical outcomes to be captured at the point of care. Access 2009 is also ensuring that people are treated in terms of pathways and not component waits which is more aligned with the clinical processes.

Whilst Access 2009 is a specific project which we are currently having to adapt to there will be other initiatives which will arise in the next five years which will require adaptation and modernisation through the use of information and IT. It therefore essential that any IM&T developments are not reliant on “traditional” ways of working and should not be bounded by organisational staffing limits.

Replacement Patient Administrations System PAS

The requirement for an integrated patient care system or electronic record has been developed in detail by examination of the national and local strategic drivers and external influences. Examples of how the solution might be represented at a clinical level show significant benefits that could be derived by such an implementation. The investment case has been made with the underlying principles pronounced at the National Level in order to achieve support for such investment.

Reference is made to the PAS system throughout this document. However, details of the solution and the project can be found in the PAS replacement Business Case. PAS is seen as a key enabler and the first phase of delivery of an electronic patient record with the ultimate aim of a “single record” available to all healthcare workers within

National strategies – Informing Healthcare

The latest national strategy document ‘Informing Healthcare’ was released for consultation in October 2002 and focuses upon two main outcomes:

• The delivery of better patient care through better information management and the application of information technology.

• A common and corporate approach to information and information technology investment across NHS Wales, which integrates with wider Welsh government objectives.

The NHS in Wales is undergoing a process of change that will ensure its proper integration with Welsh Assembly Government. In particular, it is being restructured to improve its democratic accountability at both national and local level. At the same time, the NHS in Wales is undergoing significant investment and renewal as described in ‘Improving Health in Wales’.

‘Informing Healthcare’ is designed to ensure that the NHS in Wales develops its capacity to exploit information and technology in a way which is consistent with its broader strategic objectives and those of the Welsh Assembly Government.
The document sets out a vision in five strategic areas and describes the first steps to achieving it. The vision is ambitious in scope, but also realistic in ensuring that the capacity to deliver is developed at an appropriate pace. In particular, the strategy focuses on the concept of ‘readiness’. This is designed to ensure that organisations and professionals have properly prepared the ground for the introduction of new technology and working practices before large-scale investment is made.

The overall objective is to introduce significant and sustainable growth in the capacity of NHS Wales to deliver high quality healthcare and support for health improvement. The changes proposed to achieve this vision will be far-reaching. Their impact will be felt by everyone who is treated by, or works in, our National Health Service.

The strategic vision within ‘Informing Healthcare’ is based upon measured progress in five development areas:

- Care Process improvement
- Workforce development
- Patient and public empowerment
- Electronic Health Records
- Better use of health information

The vision highlights clearly the importance of closing working and information sharing with General Practice and other health care agencies.

The consultation process has already highlighted that there is broad agreement throughout Wales on the vision outlined in ‘Informing Healthcare’ and it is key that this Strategy and all major IM&T developments within the Trust must be aligned with the national strategy. In particular more work is needed on improving links and closer liaison with General Practice.

Local IM&T Services

Recent surveys and internal reviews with Welsh Audit Office have revealed that the IM&T Department provides a good service and in some cases provides excellent service. However it has to be recognised that IM&T should always be on a continuous quality improvement journey and should be identifying ways of improving service and provided better value for money. Key themes from the questionnaires and review were:

- “Good service but needs more resource”
- Stakeholders need more involvement in strategic IM&T investment
- Increase demand for training – in particular clinical systems
- Better communications and defined service levels – the need for a clear Communications strategy which not only clarifies the role of IM&T but also celebrates and highlights its excellent achievements.

Overall it is considered that the Trust should adopt the IT Information Service Library (ITIL) service management standard which will provide a recognised benchmark in terms of quality and control of service and productivity. However, compliance with this standard will mean a change in the traditional means of accessing the IM&T service i.e. all requests for service be they problems, requests for work or new projects will follow an IM&T service desk life cycle.
INFORMATION MANAGEMENT & TECHNOLOGY

Introduction
In recent years the health service in Wales has seen a remarkable number of documents and initiatives which highlight the importance of Information Management & Technology (IM&T) in delivering and improving healthcare.

Common sense tells us that a sound strategy is essential to ensure that the use of information and information systems supports the aims of the health service in a cost effective manner. Many businesses, including the health service have often made the mistake of assuming that expensive and complex IM&T systems have some intrinsic value and can provide quick fixes. Experience shows us time and time again that the value and benefits of IM&T is always delivered via well trained people who understand their duties, responsibilities and how to use information and technology.

This document attempts to provide a high level strategy for this Trust which will take the organisation from its current somewhat “reactive” IM&T culture into a organisation where information and its management is pro-active, controlled, accountable and demonstrably supports better health care.

Aims of the strategy
All too often strategies are written as a “tick in the box” and while being approved or authorised by a board are seldom read again by anyone other than the author or auditors. It is hoped that this document will be sufficiently high level and suitably structured that its readers will use it for IM&T guidance and to understand the information and technology direction of this Trust.

This Strategy can be broadly split into four main themes which are detailed in the following section. It is vital to note that each of these sub-strategies are contingent on each other – responsibility for data quality, confidentiality, monitoring are common themes throughout. Within each of the sub-strategies there will be some repetition. However, this repetition allows each of the sections to be a standalone strategy that staff and public can refer to for specific information about the relevant areas. The four main themes are:

1. Health Records and Data Standards – Chapters 1 to 2

Lack of co-ordination between paper and information strategies is no longer acceptable given that the whole of the health service is looking to migrate the health record from its existing paper form into an electronic version. Fundamental to the success of this migration is a strategy for ensuring a systematic and planned approach to the continued quality and management of these records within the organisation from their inception to disposal.

2. Information Security – Chapter 3

How this Trust will ensure that its data is of the highest quality throughout the organisation and highlights the mechanisms, standards and legislation with which the Trust must comply

3. Information – Chapters 4

This chapters define the high level principles by which the Trust and its employees will progress from the current reactive use of information to a proactive, innovative information culture.

4. Systems, IT Infrastructure and Telecommunications – Chapters 5, 6 and 8

These chapters detail the Trust’s technical strategy which will underpin the success of the above mentioned sub-strategies and looks at the areas of hardware, software, application, wide area networks and support level agreements
INFORMATION MANAGEMENT & TECHNOLOGY

The vision
One of the key visions of the precursor to Informing Healthcare, “Better Information, Better Health” was to:

“Provide patient centric information services to support health care activities directly at the point of practice. The majority of information to be made available as a by-product of the information collected as part of the patient care process across health service organisations.”

This still Trust fully supports this vision but recognises that this statement must be divided into the following strategic goals which comprise the key objectives of this Strategy:

<table>
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<th>Patient centric</th>
<th>Provide clinical, patient centric information service which allows health care workers to carry out their duties of patient care.</th>
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<td>Integrated patient care</td>
<td>Help provide a continuum of care by enabling access to high quality, meaningful clinical and corporate information to staff, public and other health care agencies.</td>
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<td>Continuous quality improvement</td>
<td>Directly support clinical governance ensuring continued improvement in quality of patient care by providing good quality information on clinical performance.</td>
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<td>Open, loosely coupled systems</td>
<td>Provide integrated systems which eliminate “islands of information” and automate and optimise the health care work flow. Underpinning this objective is the requirement for health care workers to have access to well managed and well supported technology throughout the organisation.</td>
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<td>Technology</td>
<td>Leveraging the benefits of technology to support the Trust’s clinical services and estates strategy.</td>
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<td>Stakeholder focus</td>
<td>For information and technology services to be customer focused, ensuring that all IM&amp;T development are aligned with local needs, Trust’s service strategy and other national objectives, in particular Informing Healthcare.</td>
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Within the Trust the culture of information is a developing one. While there are many examples of good information use the culture is often characterised by a reactive use. The general lack of IM&T investment and the demands of increasingly sophisticated internal and external stakeholders have resulted in an Information Management section that is continually under pressure. Consequently, the main source of information is direct from the Trust’s patient administration system (PAS) with limited provision for a data warehouse or executive information system (EIS).

Critically there is limited linkage between the Trust’s PAS and other systems e.g. Theatre system, radiotherapy system. The non-acute systems of the Trust fare worse in this scenario with a multitude of systems local to each site. This means that information retrieval is difficult and subsequently means that information analysis of patient intervention(s) is challenging.

It is hoped that the new PAS, coupled with the Welsh Clinical Portal will go a long way to address these problems. However, a technologically advanced system does not necessarily lead to improvements in the use of information. This is an altogether more difficult problem to solve and requires the need for an individual strategy, to address the problems associated with this that manifest themselves within the organisation.

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1 Better use of health information – Informing Healthcare (Oct 2002)
INFORMATION MANAGEMENT & TECHNOLOGY

As previously stated, the current “Information Culture” within the Trust needs to be more proactive and advanced. Information is used reactively and can be used more effectively to inform the Trust agenda, it only provides limited support for clinical care, and consequently its use in improving patient care is limited. While the quality of data is often good there is a general mistrust of information with the clinical fraternity and large sections of clinicians (in the broadest sense e.g. nurses, support staff et al) do not use or have access to information. Critically, information for patients is limited. As this Strategy develops and the Trust is able to make better use of its available information, develops an information culture and improves the information available, then the services offered to the population of Conwy and Denbighshire will improve measurably.

Changing the culture of information use within the organisation will not be easy and will not happen overnight. It requires support from the top down, the right tools, the right staff and the right attitude within the organisation. The latter point will be the hardest to change. However, this is not impossible and with hard work it can be achieved.

How the strategy will work
Ideally strategic documents should be concise and flexible, easy to read and easy to implement. Socratic teachings show us the value of living a life governed by well thought out principles. Thus, the main thrust of this information strategy will be six key principles, which, when applied to a series of key areas will ensure that the organisation’s information culture is proactive, well informed and forward thinking.

The Key Principles of information management
i. Information will be used to inform the organisation of its performance, both clinically and managerially. It will identify areas of strength and weakness, and enable us to learn from our areas of best practice and improve our areas of poor performance and will be used for continuous quality improvement and not for judgement.

ii. All staff, public and external organisations will have access to relevant information that is timely and accurate.

iii. All information will be sourced from the highest quality data. All members of the organisation will be aware of their responsibility for data quality. The data quality will be constantly monitored and where necessary remedial action will be taken.

iv. All data will be entered at a single point, and any duplication of data entry will be eradicated. As a minimum, all data will meet the national standard for data validity, coverage and quality.

v. All information that is processed, distributed and stored will comply with relevant requirements of the 1998 Data Protection Act, The Caldicott Report, BS7799 and the Human Rights Act.

These principles and the accompanying strategy are not set in stone and will be regularly reviewed, added to and amended when necessary.

Chapters of the Strategy
As previously discussed the main body of the strategy will be a series of “chapters” that will be implemented within the individual directorates, always bearing in mind the six principles. Not all the objectives will be applicable or relevant to every directorate. It is anticipated that the monitoring of progress against the objectives will take place in the directorate’s annual review. The objectives in the chapters are generic in their nature; it is this that will allow the broad interpretation and implementation, however this does not mean that a token approach will be tolerated.
The implementation of the objectives will be progressed with directorate staff in conjunction with the information management team. The IM&T steering group and its sub committees will play a vital role in continual monitoring and problem resolution.

Chapter 1 : Health records, records management
Chapter 2 : Data Quality & Standards
Chapter 3 : Information security, and human rights.
Chapter 4 : Information Management and developing an information culture
Chapter 5 : Clinical and business systems
Chapter 6 : Infrastructure, telecommunications and support
Chapter 7: Training and Development

As with the guiding principles, these chapters will be reviewed regularly at the IM&T Strategy Group, amendments, new chapters and new or revised objectives will be added where necessary. The chapters will be discussed in a logical order. However, the order does not necessarily indicate degrees of importance.
The move away from paper records towards electronic records as a part of the Informing Healthcare strategy has been slower than anticipated. However progress has been made on the individual Health Record through the emergency healthcare record and the pilot in Gwent with the GP Out of Hours Service. This project forms the foundation of a record that can be viewed across primary and secondary care.

However project such as the IHR do not resolve the issue of how to manage the paper record. It is hoped that as a part of the Strategic Outline Case for the Trust's Whole Systems Modernisation of Services that the move to electronic records is included will be formally adopted. This would enable valuable space currently required to store paper records can be freed for other functions. Work to reduce the volume of paper will need to begin in advance of any structural changes to enable us to release our current storage space. However, we are a long way from being able to implement and use a truly electronic (paperless) record and we will have paper records in some shape and size for a number of years.

The involvement of key people in the selection of the appropriate system and the change management processes surrounding the planning and implementation are key to the success of this work.

The issues that have historically “dogged” the medical records function continue to provide a challenge, in particular they are

1. Legacy of low priority given to records management and related facilities
2. Lack of awareness of the importance of good record keeping
3. Lack of information sharing between professions and work units
4. Tendency to treat records as personal rather than corporate assets
5. Lack of co-ordination between paper and electronic information strategies

**External influences**

The areas identified above are recognised by all concerned with record keeping to be the main areas to be addressed but there are further guidelines, legislation and standards which directly affect the management of records:

The Data Protection Act 1998 (replacing most of the Access to Health Records Act) covers both computerised and certain manual personal data and establishes a set of principles with which users of personal information must comply.

- The collection and processing of information only for specific purposes
- The obligation to ensure that information is accurate and up to date and retained in a form which identifies the subject for only as long as is necessary for the purpose.
- For the Record - Managing Records in NHS Trusts and Health Authorities (WHC (2000)71), sets out the requirements in relation to the management of our records – from strategy to destruction.

Welsh Risk Pool standards are drawn from all of the above with emphasis placed upon the existence of an organisation-wide records management strategy endorsed by the board and with clear accountabilities for its implementation.

The Healthcare Standards for Wales require organisations to have effective records management processes in place.

Safeguarding Children (Child Protection) requires robust record keeping and information sharing to ensure that all those dealing with children have the ability to access the necessary information.
The Unified Assessment Process has required a review of the current record keeping and information sharing processes.

The National Confidential Enquiry into Peri-Operative Deaths recommends that “Non-availability of a patient’s previous notes at the time of an acute admission is a major administrative failure and should be exposed as such.” This recommendation highlights the need for review and development of the Trust’s existing Health Record service.

**Strategic objectives**

The work required to comply with the above is, in some areas, significant and this strategy is written in the knowledge that resources will be required to be identified to enable it to be fully achieved.

The Strategy applies Trust wide to all users of paper and electronic records.

Priority has been given to the legislative requirements and account has been taken of the time-scales in the Welsh Assembly Government.

- Develop a business case for the procurement of electronic medical records system and the retention of older records i.e. to digitise the existing paper record.
- Review the workload and staffing to identify any areas where efficiency savings can be made. It is recognised that in the current financial climate we are unlikely to be able to recruit additional staff.
- Review the physical storage capacity and the funding for microfiching/scanning. Review the current storage and retention procedures in light of the available resources.
- Continue to participate in the CHKS Standards for Patient Records and Information Management Accreditation Programme.
- Agree and disseminate standards of good record keeping, and develop best practice.
- Raise the profile of records management. The Records Manager will have cross-organisational authority to ensure action.
- Review the options available to deliver an effective training programme.
- Health Record Committee to continue involvement in all new paper record design within the Trust.
- Review the key performance indicators and ensure action plans are developed to address any areas of weakness. Ensure performance against these indicators is reported quarterly to the IM&CT Strategy Group.

Performance against these objectives will be reported at the IM&CT Strategy Group meetings and will also be included in the Groups annual report to the Trust’s Clinical Governance Committee.
INFORMATION MANAGEMENT & TECHNOLOGY
CHAPTER 2 – DATA QUALITY STRATEGY

The Trust has always appreciated the importance of data quality – however the old maxim “Garbage in – Garbage Out” is still true in some areas. This is a function staff throughout the organisation (clinical and non-clinical) and the impact of not appreciating the importance of records management, be it paper based or electronic, and the impact is can have on patient safety and the overall efficient operation of the Trust. As an organisation we need to ensure that our data is of the highest possible quality. We have to ensure that our data recording meets the standards specified by the Welsh Assembly – as a minimum. Our clinical coding will be the basis of all our clinical information – if this is not right then all our clinical information will be incorrect too. Our clinically coded information is used for a multitude of high level clinical indicators which are published nationally. It is fair to say that we cannot underestimate the importance of data quality and clinical coding.

Objectives

♦ A data quality forum will be established and chaired by a senior clinician. This group will be responsible for ensuring data quality standards throughout the organisation, including systems that do not fall under the direct control of the IM&T department.
♦ The Trust will achieve the necessary all Wales Data Accreditation Standard as a minimum.
♦ All data recorded, where relevant will meet the national standard as set down in the most recent version of the Welsh Health Service data dictionary.
♦ Data quality reports will be produced on a regular basis and distributed throughout the organisation.
♦ Where there are areas of poor data quality, or data items not meeting the required standard, the directorate manager, training manager and relevant member of staff will be notified and an action plan to resolve the situation will be identified. A record of the action will be kept and monitored.
♦ The validity of data items will be audited on a random process as dictated by the data quality group.
♦ A rolling program of education will be developed to educate the organisation about data quality issues and new developments, and critically to emphasise the importance of data quality. This programme will form part of the IM&T Training Strategy and will link directly into KSF requirements.
♦ The clinical coding manager will develop a rolling program of audits looking at the quality and validity of the clinical coding. This will be carried out in conjunction with the relevant clinical coder and the Clinician responsible for the work. A record will be kept of all audits undertaken and the results will be reported back to the IM&T Strategy Group.
♦ Clinicians will be encouraged to liaise with “their” coders on a regular basis, to discuss coding issues.
♦ Clinical coding will benchmarked and audited with clinical coding from other organisations.
Since 2005, the role of Information Security has been better-described as Information Governance (IG). This reflects the breadth of the role in ensuring that the Trust meets the many and varied legislative and mandated requirements imposed on it.

The one full time person in post has never represented an adequate resource to meet the many demands of the IG agenda in the Trust, and the workload in this area continues to increase. It is notable that most other Trust in Wales employ at least three staff to undertake this work.

However, it seems unlikely that additional resources will become available, and this strategy focuses on managing the reasonable expectations of the Trust.

The Trust is directly subject to the following Acts of Parliament -

- Data Protection Act 1998
- Freedom of Information Act 2000 (and Environmental Information Regulations)

and is indirectly subject to other related legislation, such as-

- Human Rights Act 1998
- Crime and Disorder Act 1998

The Trust is also mandated by Welsh Assembly Government to implement –

- BS 7799/ISO 27001 Information Security Management
- The findings of the Caldicott Report, and so on.

**Primary Objectives**

To develop a project plan that would enable the Trust to focus on key obligations in all area of Information Governance.

- To develop and maintain the IM&T Security policy.
- To develop and maintain a Data Protection policy for the Trust.
- To support the Trust Caldicott Guardian in meeting the principles of the Caldicott Report.
- To develop policies and guidance that support the confidentiality of patient information.
- To support induction and training programmes to ensure all staff are aware of their responsibilities in relation to Trust and patient confidentiality.
- To work with Trust managers in the development of policies and procedures that support information governance throughout the Trust.
- In conjunction with relevant partner organisations, to develop Information Sharing Protocols that will ensure the security of patient information shared between such partners and to promote awareness of these protocols throughout the Trust.
- To minimise the risk that the Trust is exposed to in relation to data protection and IM&T security.
- To support the work required to meet the requirements of Welsh IM&T Risk Management Standards.
- To ensure the IM&T function complies with BS7799.
- To ensure the Trust meets its responsibilities under the Freedom of Information Act.
- To work with other NHS organisations and share best practice and to keep abreast of any developments in data protection and IM&T security.
The Trust needs to optimise the use of its information resources. The benefits associated with improved use of these resources will be wide ranging and positive for the organisation. However, this will not happen overnight and will require support from the Trust Executives and significant investment in resources and time. In many ways, the development of an information culture that makes positive and proactive use of information underpins the success of the whole strategy.

**Objectives**

- The Information Department will be restructured to support the development of an Information Culture within the Trust.
- The restructured department will assign an information analyst to each Directorate to liaise with clinicians and management staff. The analyst will attend specialty meetings and be the main point of contact for that directorate. This will lead to improved data quality, and information reports which are actively used by the directorate, and reflect clinical outcomes and activity in a meaningful way.
- A review of data collection processes for all inpatient, outpatient, and daycase activity will be conducted – to ensure compliance with national guidance, and develop clinical "buy-in".
- The department will develop its skills in business modelling, to support the ongoing review of data collection processes, and to support service planning around activity and waiting list management.
- The data warehouse will be developed further to support waiting list management, and direct use by Directorate staff.
- Information reports will be delivered via the Intranet and other mechanisms, eliminating paper reports.
- The Corporate Informatics Committee will approve all changes to the way in which data is recorded on the all corporate systems.
- The Clinical Informatics Committee will act as clinical advisors on all health informatics issues.
- Relevant policies and procedures will be written to ensure data quality improvements are maintained in the long term.
- Clinicians to regularly receive basic reports on clinically coded information (e.g. top 10 diagnoses and top 10 operations every quarter).
- The Information Department will represent the Trust on the Consultant Outcome Indicator Programme (COMPASS), and actively promote the use of externally validated benchmarking data (e.g.CHKS Signpost) or other suitable information or benchmarking services and ensure that data is used for continuous improvement.
- A strategy to improve the timeliness of clinical coding will be developed and implemented.
- A strategy to increase the timeliness and cycle of activity reporting will be developed and implemented.
- The Corporate Performance, and other key reports will be further developed, to ensure the Trust receives relevant, accurate and timely management reports.
- The department will develop a set of performance indicators to support the continuous improvement of the service.
- Continuous Professional Development will be actively supported. Staff will attend relevant courses and, where possible, join a national body for informatics professionals.
Integration of systems

The Trust has continues to have a large number of discreet departmental systems. Most of these systems have been procured on the basis that they are the best of breed and are notoriously difficult and expensive to interface and tends to make sharing of information difficult and impractical.

The Trust will work with IHC to ensure that all future procurement will operate within the national Care Management Services Strategy. Furthermore all existing systems, where possible, will need to be adapted to allow compliance with the adopted service orientated architecture approach which will allow for:

♦ improved patient care and enhanced clinical decisions;
♦ more control over orders, reduced wastage and fewer delays;
♦ reduced administrative effort and operational costs;
♦ better informed business decisions.

As an interim approach to the migration to the full SoA the trust will develop a form of local or regional Master Patient Index (MPI). The MPI will allow all clinical and administration systems to link to an index. Modern technology will be able to expose the information from these system which are linked by the MPI and will a break down these islands of information. The MPI will be a precursor to the national demographic service and will enable local development of systems to meet project such as Access 2009 in the interim.

Access to systems

The Trust has a large number of sites spread over a large geographical area. The ability to access systems at the point of need is therefore a fundamental principle for the Trust. Since the first strategy was written in 2002, there have been technology advances which make accessing the Trust network a lot easier. However, the main objectives for access to the IT services remain the same:

Objectives

♦ Systems should be accessible to authorised users connected to the LAN and from all sites connected to the WAN and to DAWN.
♦ Access should also be available to authorised users via secure dial in using either modems connected to the PSTN or via ISDN, or Broadband.
♦ The development of the PSBA will allow further access to and from other agency networks such as Social Services and Further education. This broadens the scope for creating healthcare settings within areas such as schools and Leisure Centres and Social Services.

Departmental & clinical systems

As in many other areas of IM&T departmental systems and other clinical systems have constantly evolved since the last versions of the strategy. The evolution has been rightly driven by the needs of the service. During the past five years the Trust has implemented or procured many systems to support the following services to name but a few:

Renal Unit

Catheterisation laboratory and cardiac system
INFORMATION MANAGEMENT & TECHNOLOGY

CHAPTER 6 – SYSTEMS STRATEGY

Diabetic system

These were all examples of commercial procurements but the Trust has achieved great success in developing its own systems such as Therapy Manager - a collaboration between the Trust and a commercial software company. This solution has been developed to meet the exact needs of the therapies service within the Trust and has revolutionised the work of the departments. Not only is the service becoming paperless but they have explored technology which support peripatetic workers – technology such as GPRS and “synchronisation”.

The success of these systems has made it clear that no single solution can support the Trust and its needs – Informing Healthcare, commercial suppliers or in-house developments in isolation cannot provide the requisite service in such a fast moving environment. What is required is a pragmatic approach – one which will provide an infrastructure to encourage innovations such as Therapy Manager as well as utilising national services as they become available. This can only be achieved through the development skills and technology which will allow interfacing of all these options.

Effective clinical information management lies at the heart of the Trusts’ strategy. During the next five to ten years, effective IM&T support for core business processes and access to information will play an increasingly central role in the planning, delivery and monitoring of patient care in the Conwy and Denbighshire NHS Trust and the wider health service.

Objectives

♦ The Trust will establish technology and skills which will allow systems –whether they are local, national or commercial supplied to interface with each other. Fundamental to this will be the development of a Master Patient Index.

♦ Where possible, systems will be replaced by functionality provided by PAS, the Welsh Clinical Portal together with other national services as they become established.

♦ As the IHC programme develops it is likely that national services will be available which will adopt a more loosely coupled service orientated architecture which will allow organisations to shift away from traditional integration.

♦ Best of breed systems will only be procured if they mitigate clinical and operational risk which cannot be handled the main corporate and clinical systems.

♦ All clinical systems must be procured via a valid business case which fully identifies any IM&T support consequences including maintenance and resource. IM&T strategy group will be the approval body.

♦ Application support, and day to day systems management of each departmental systems will be reviewed in conjunction with IM&T and will need to comply with service management best practice in order to clearly define the roles and responsibilities of the department and those of IM&T

♦ The Trust will review skills and training requirements of the IM&T support staff in line with developments in medical devices. Increasingly medical devices are reliant on PCs and clear lines of support must be established for their support.

♦ Business continuity procedures will be produced and managed by the directorates with guidance from the IM&T department.

♦ Computing equipment for clinical systems will conform to Trust IM&T standards.

♦ Maintenance of computing and networking equipment will be the responsibility of the IM&T department.
INFORMATION MANAGEMENT & TECHNOLOGY
CHAPTER 6 – SYSTEMS STRATEGY

Business systems

As with Clinical Systems, effective information management lies at the heart of the Trust’s strategy. During the next five to ten years, effective IM&T support for core business processes and access to information will play an increasingly central role in the planning, delivery and monitoring of financial, human resources and operational services in the Conwy and Denbighshire NHS Trust.

The Trust’s high level strategy is to procure systems that support effective working and the supply of information where and when it is needed to support management decisions.

As with clinical systems, the IM&T service has had to develop local systems to cope with operational projects and as such local resources for development will be required to sustain future business systems.

Objectives

❖ Core IM&T support will concentrate on the corporate systems such as Financial Management System, Electronic Staff Record, data warehouse and reporting software.

❖ In order to minimise “islands of information” the IM&T function will avoid developing in-house solutions e.g. Access databases. Historically these systems have been developed on an ad-hoc basis and are high maintenance assets which often contravene data protection legislation.

❖ IM&T support will provide more of a structured “business/systems analyst” and project support instead of the traditional development or coding resource. Support for in-house developments will be via the major corporate systems, structured procurements processes or managed through outsourcing the development to external providers whom are best placed deliver.

❖ All business systems must be procured via a valid business case which fully identifies any IM&T consequences including support, maintenance and resource. These business cases will be reviewed and approved/rejected by the IM&T strategy group.

❖ Application support, and day to day systems management will be reviewed in conjunction with IM&T and will need to comply with service management best practice in order to clearly define the roles and responsibilities of the department and those of IM&T.

❖ Business continuity procedures will be produced and managed by the business users with guidance from the IM&T department.

❖ Computing equipment for business systems will conform to Trust IM&T standards.

❖ Maintenance of computing and networking equipment will be the responsibility of the IM&T department.

Web services

The internet and intranet contain a wealth of information about the Trust. However, to date, the Trust has simply “scratched the surface” of the potential of web services. The trust needs to leverage this technology to ensure that corporate and clinical information can be disseminated quickly and efficiently with minimum effort to appropriate stakeholders.

Objectives

❖ The web steering group will continue to oversee web developments at the Trust. A senior executive should chair this group.

❖ Additional investment should be made in recruiting and training staff in web technology or appointing external contractors to provide the web design, training and support service.
Information on the Trust web sites should be presented in a corporate standard.

The use of the web and interaction with users will be actively monitored and ensure that the web services of the trust meet the needs of its service users.

All Trust policies and procedures should be accessible on the Trust Intranet site.

All directorates should have their own web pages – presented in a corporate template.

Trust corporate clinical statistics and activity should be available readily on the web.

A Trust wide on-line questionnaire service will be made available.

The intranet site will be developed into a Trust ‘portal’ – a standard desktop view for all users providing essential information and applications required to carry out their day to day activities.

The Trust will exploit the benefits of the national enterprise agreement with Microsoft and lever the benefits of Sharepoint wherever possible.
Infrastructure
In order to deliver the strategy outlined in the previous sections it is essential to have a robust, well managed and effective infrastructure. The infrastructure is the means of delivering IM&T services to the health care professionals at the point of need in a timely and secure way.

Over the past three years there has been considerable central and local investments in
- Local area networks (LAN)
- Wide area networks (WAN)
- Voice services and
- Computing equipment

The coverage is, however, not complete and the majority of the equipment, such as PCs and servers, is reaching the end of its useful and supportable economic life. Planned investment in the infrastructure is required.

Due to operational pressures, approved capital investments in IM&T have often overlooked the revenue consequence which can be hidden or masked by suppliers. Typically, discretionary capital may be spent on equipment such as bulk ordering of PCs without any funding for installation and on-going support and maintenance.

High level infrastructure objectives
- To ensure that all changes and amendments to the infrastructure and software will be subject to IM&T change control procedures.
- To support the installation and maintenance of the core infrastructure and equipment including desktop devices, servers, printers & network devices.

Local Area Networks
Effective network connectivity within campus sites is crucial to the delivery of the Trust’s IM&T Systems Strategy. The Trust strategy for LANs will be to continue with the existing programme to migrate from 10Mb ethernet to 10/100Mb switched ethernet networks on appropriate sites. On larger Trust sites Gigabit ethernet has been adopted for core network uplinks and 100Mb uplinks are being introduced at all community hospitals. Eventually all sites will move towards a Quality of Service (QoS) enabled network capable of supporting video, imaging and voice.

LAN Objectives
- A network audit will be completed by our current network partners. The network and its management will be reviewed every two years.
- To fully staff a dedicated network team to provide pro-active management of the network. Including a dedicated network manager (Cisco qualified) and network support analyst.
- Requests for network services will be channelled through the Head of Infrastructure.
- All requests for network services will be subject to change request control which identify fundamental information such as site, location, and budget holder approval.
- LAN services will not be delivered until all requisite information is provided.

Wide Area Networks
Wide area connectivity is increasingly important in the delivery of healthcare service. The last two years has seen much activity in the development of the WAN on both local and national level. All major sites have been connected to the WAN, allowing employees to access basic IT systems such a email and the Trust Information Server. Local developments such as the North Wales Telemedicine project will allow clinicians to provide a service to a wider community, increasing
speed of access to healthcare, reduced travelling time for both staff and patients. In addition, other video conference initiatives are emerging within the Trust.

Due to the bandwidth intensive nature of telemedicine, the increasing demands for information throughout the Trust and the convergence of voice and data dictate that the WAN will need to continue to develop, upgrade and evolve to meet these demands.

Objectives

- To appoint suitably trained staff or enhance strategic partnerships to oversee day to day WAN management.
- To review all local and national initiatives that will impact the WAN and ensure the Trust is in a position to realise all benefits of these developments.
- To be involved and influence any national forums on WAN developments.
- The main task to be undertaken in respect of the WAN will be to re-integrate voice and data. The new high speed links have been introduced for data, but voice is still on the old megastream links which means that we have duplicate costs. This was a situation anticipated by the Assembly, since the situation in the Trust is a reflection of the much greater issue of converging voice onto the new IP-VPN.
- Complete review and update of the existing contacts.
- In order to meet the national strategic guidelines on security and cross agency working it is essential that the Trust implements a firewall to the recommended NHS standard.
- To adopt the benefits of the PSBA (Public Sector Broadband Aggregation) project and promote the sharing of information across care agencies.

Computing equipment

Various studies have shown that the purchase price of a personal computer accounts for only 20% of the Total Cost of Ownership (TCO) of that asset over its five year economic life. There is therefore a significant hidden cost to the Trust. The Trust’s strategy is to minimise the TCO of computing assets. This will be achieved by standardisation of applications and hardware together with more effective management of the asset.

Objectives

- To fully staff a dedicated server support team including a server manager and server support analyst.
- To review provision of software and hardware via alternatives such as leasing.
- Reduce training costs and support the interchange of information and staff by standardising on the software applications as approved by the IM&T Strategy Group.
- Non standard applications will only be supported on a “best endeavours” basis.
- Simplify and minimise support costs by standardising Server, PC, Laptops and PDAs – equipment not on Trust standards will only be supported on a “best endeavours” basis.
- Use remote management software where possible to reduce the time and travelling costs of IM&T staff.
- Adopt the use of thin client technology as its prime method of delivery of IM&T at the desktop where appropriate.
- Move all desktop environment to a ‘portal’ environment. PCs operating systems will appear as a Trust corporate platform delivering relevant applications and information directly to the user.
To ensure old IM&T equipment are disposed of according to IM&T policies by providing a drop off point to which Trust staff can arrange for equipment to be shipped.

General Support Strategy

The trust will adopt the IT Infrastructure Library (ITIL) standard, which is the accepted best practice service management standard for IM&T. ITIL will allow the Trust to define standards of support services and enable monitoring and benchmarking of these services against other organisations.

The key strategic objectives for IM&T support are:

- To review helpdesk and support structure in line with user requirements.
- IM&T representatives should attend directorate meetings on a regular basis to promote good communications and understand directorate specific issues.
- To provide feedback to directorates about other IM&T schemes and issues which may affect users.
- To ensure that requests for IM&T services should be channelled via the IT helpdesk.
- To develop a web-based IM&T service request and helpdesk for use for all IM&T issues.
- Clinical system problems which affect patient care will be given the highest priority.
- To endeavour to close the majority of calls via first line support.
- A service level agreement level will be agreed with each directorate with clear guidance on responsibilities. In principle the service agreement will indicate that IM&T are responsible for corporate systems and infrastructure and that the directorates manage their specific applications, data and users.
Voice services

Traditionally data and voice services have been provided as separate services in terms of connectivity to remote sites, apart from the major sites where the provision of centralised operator services some years ago saw the installation of links capable of supporting voice and data. The Trust has already embarked on a strategy to converge data and voice communications on one wide area link, allowing continued desk to desk calls between sites to be carried on the same communication channel as data, using Voice over IP (VOIP) technology. The Trust's strategy will be to examine other areas where VOIP can be introduced to achieve the following benefits:

- Reducing overall communication costs.
- Improving service levels.
- Introducing operational benefits on sites with no current direct voice services.
- IP Telephony should be considered in areas where traditional voice switching may be running to capacity or where smaller switches reach the end of their economic life and maintenance becomes expensive or unavailable.

A comprehensive set of detailed recommendations are included within the Trust’s Strategic Review Report. The key high level recommendations are as follows:

The Trust should recognise and embrace the trend towards convergence of voice and data communications. Thus convergence should be recognised as a strategic goal of the Trust and investment in voice (and data) communications should only be made if it supports this strategy. This should be achieved by a process of migration rather than wholesale replacement as follows:

- Implement the use of IP telephony following the success of the pilots at Bowen Court and the BSP. In particular, development of an IP telephony capability at Glan Clwyd. This may be achieved by either IP enabling the existing iSDX or complementing it with an IP based telephony solution.
- Roll-out of IP telephony based solutions to non-iSDX sites. This may be pure IP telephony or a system complementing the investment at Glan Clwyd as appropriate for each location.
- Migration of users at Glan Clwyd to the IP based solution.

The Trust should merge the management and administration of voice and data communications. This should be supported by:

- The development of a new structure within IM&T to support both voice and data networking infrastructure and services.
- The transfer of appropriate budgets to IM&T.

In the longer term the Trust should adopt a more holistic approach to patient communications. This could ultimately result in the development of a Trust-wide patient communications facility incorporating both the switchboard service and the contact centres which are currently evolving, for initiatives such as partial bookings, throughout the Trust.
Managing the strategy

The Trust has already a huge commitment and in-roads to the delivery of the Strategy via key projects such as PAS procurement and Order Comms.

Core to this strategy is the acceptance that the Trust Board have made a clear commitment to electronic working and the requirement to develop the “information culture” at the Trust.

As stated throughout this document, the critical success factor will be the organisation’s ability to change and modernise its working practices. The IM&T directorate will be key to supporting the culture of information use and empowering users with the necessary IT knowledge and skills to carry out their duties effectively.

To support and guarantee success of the Strategy, a robust programme of IM&T schemes must be implemented and significant investment will still be required in addition to the strategic projects to develop IM&T skills and upgrade and maintain essential technical infrastructure.

To date, many of the objectives stated in this document have not been funded. However, the strategy will drive the business cases for funding and progress against the Strategy will be contingent on funding being made available or re-allocated.
Appendices

Appendix A – Major Investment Schemes
Appendix B – High level summary of major IM&T projects – Gantt chart
Appendix C – Informing Healthcare programme
### INFORMATION MANAGEMENT & TECHNOLOGY

#### APPENDIX A

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**GRAND TOTAL**  3,024,000  2,602,000  559,500
Appendix B
Appendix C – Informing Healthcare Programme