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Executive Summary.

Purpose of the document.

The purpose of this document is to present a five year strategic plan for the Information Communication and Technology (ICT) within Welsh Ambulance Service (WAST) NHS Trust from 2009 - 2014. The document describes how the ICT Strategy is an integral part of the Trust’s overall business planning process. It should also be viewed in conjunction with the Trust’s main strategic direction, which forms part of the overall Time To Make a Difference (TTMD) Project.

Management Strategy

WAST is one of the largest geographical Ambulance Service providers within the NHS it therefore requires a robust, effective and adequately resourced ICT infrastructure. The ICT strategy itself must ensure that it supports the business objectives and critical success factors of the Trust.

Its key focus is to deliver an infrastructure, which is of benefit at the clinical, operational, management and corporate levels of the organisation. This can only be achieved by making sure that each requirement is prioritised and is balanced by the needs of the organisation as a whole.

Equally, the Welsh Assembly Government (WAG) has recognised the important contribution to be made by ICT within health and has produced a National NHS ICT Strategy called “Informing Health Care”. This paper outlines a number of key principles and standards against which local strategies and implementations can be measured.

WAST’s ICT strategy has therefore been written under the umbrella of the National initiatives and indicates the mechanisms by which we will implement the key National issues. It should be stressed that the document underpins the delivery of ICT locally (i.e. at Trust level) by ensuring commitment to National strategies, standards and initiatives, this must not be interpreted as relegating local priorities to ‘second best’ since by addressing and implementing the key principles of the National strategy, we are also facilitating the improvement of the local ICT service by ensuring a consistent and approved approach to delivery. WAST’s overall approach has been to analyse the business processes and objectives of the Trust and to identify the information and IT requirements to support them. Existing systems have been reviewed and measured against the business criteria and, where appropriate, developments to these systems have been identified to meet business, operational and clinical need.

The Trust’s Business Strategy and Service Plan.

WAST has acknowledged that all ICT requirements must be taken into account and to become inherent in the business planning process and priorities within WAST. Section 11 “Achieving the Vision” sets out the agenda for the strategic options and the future role of ICT within WAST. This represents a description of what needs to be achieved from the deployment of ICT investments. Detailed project plans, actions and financial statements will be produced later and therefore will not be part of this strategy paper.
ICT Implications.

In order to assist and support the Trust business planning process the ICT objectives will be based on the following:

- To provide a comprehensive and integrated computer environment which will be among the best when rated against all major National efficiency, effectiveness and quality indicators.
- To deliver quality services which are responsive to the needs of patients, staff, the wider community and purchasers of health care.
- To satisfy the health care needs of Wales NHS community and extend some services over a wider area as the opportunity permits.

In summary, to support the business objectives and to deliver the required enhancements, future ICT features and services will be designed to:

- Make quality information available when and where required. This implies reliance on data for its accuracy and consistency. This in turn requires computer application systems, which capture data as a result of normal working practices to support the business and clinical functions.

In order to be able to make optimum use of this new ICT environment it will require the support of an ICT infrastructure, which includes appropriately skilled ICT staff, effective user training, communications networks, computers, standards/policies, and adequate management arrangements.

Information.

The strategy sets out the vision for improving health care through the appropriate use and management of information and the systems which underpin it. The strategy also aims to ensure that patients, carers and the public have the information necessary to make decisions about their own treatment and care, and to influence the shape of health services generally. This view is completely in line with the overall direction of the National Informing Healthcare direction.

To achieve these objectives, the strategy commits to:

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<td>Lifelong electronic health records for every person in the country.</td>
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<td>Round the clock on-line access to patient records and information about best clinical practice, for all NHS clinicians.</td>
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<td>Genuinely seamless care for patients through GP’s, hospitals and community services sharing information across the NHS information highway.</td>
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<td>4.</td>
<td>Fast and convenient public access to information and care through on-line information services and Telemedicine.</td>
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<td>The effective use of NHS resources by providing health planners and managers with the information they need.</td>
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The key objectives against which WAST ICT requirements have been measured are:

- enhancing professional standards of care;
- implementing the strategic direction;
- managing resources and risk;
- managing the business;
- managing performance; and
- develop the organisation.

The Trust’s ICT strategy encompassed the following:

- an analysis of existing ICT provision;
- a review of business needs and their ICT implications;
- future role of and strategic options for ICT support; and
- propose management arrangements and timetable for the next steps.

Central to the achievement of this goal is the development of an “information culture” where decision-making is based on relevant, accurate and timely information. The attributes of a successful information culture include:

- leadership and commitment to the appropriate use of information demonstrated from the top of the organisation;
- a willingness throughout the organisation to support an “information culture” with an emphasis on data quality and data ownership. This must then be viewed as essential prerequisite for good quality information; and
- a willingness throughout the organisation to use information technology, the processing power of which makes possible an explosion in the information that can be made available and accessible.

The strategy has also addressed a number of key ICT issues, which impact on the successful delivery of an ICT service, both within the existing infrastructure and future requirements. The document reiterates and proposes a way forward in each of the following areas of policy and procedures:

- procurement process and system implementation;
- technical standards;
- hardware and Software standardisation;
- hardware and Software management;
- disaster recovery; and
- information and data standards and quality.
Organisation Implications.

The strategy reviews the organisational implications associated with an ICT infrastructure, focusing on ICT as a discipline and the major functions carried out within it. In particular, it draws out the importance of the following:

- ICT professionalism and what it means;
- a strategy driven by information need;
- understanding information delivery and the tools required; and
- an integrated approach to ICT delivery with a model proposed.

In so doing, it addresses the management arrangements for ICT, the training and the human resource implications and the requirement to deliver the ICT agenda for the next few years.

Implementation.

The last two sections of the strategy address the overall ICT vision of the Trust and the method of how the organisation will implement and require the appropriate funding.

Clearly the level of development that can be achieved will be dependant on the successful managing of the following constraints that exist:

- the substantial number of ICT Projects that will be in progress;
- the Trust’s ability and resources to perform and complete Projects;
- the Trust’s ability to assimilate organisational change;
- availability of funding both capital and revenue; and
- the internal ICT skills and resources and their capacity to cope with implementing and running new systems.

Faced with these constraints the Trust’s approach to achieving the strategic aims should be based on realism, effective organisation and incremental development. It is impossible at this stage to give an accurate assessment of the required finances for the implementation and maintaining of the goals and aims of this strategy. This is because it is difficult to assess the external costs for either retaining or replacing the Trust computer systems to fulfil the strategic objectives.

WAST as part of the overall TTMD Projects is currently in the process of producing numerous forms of business cases. These business cases will require either internal approval through the Trust’s Capital Planning Group or other various means to gain revenue. In the case of requiring external funding the Trust will have to produce Business Justification Cases (BJC), Strategic Outline Cases (SOC), Outline Business Cases (OBC) and Full Business Cases (FBC). All these are required depending on the overall amount required.
Investment.

The Trust’s ability to invest in ICT over the next few financial years is extremely limited. As part of the normal internal business planning process Departments will need to prepare their own cases, which require an ICT investment and this will then form part of the negotiations with the relevant service commissioners. However it will be essential to prioritise the potential spends and to manage the procurement so that the priorities are accommodated as flexibly as possible. The approach to establishing priorities both in the short and the longer term will be to categorise the various components of the potential investment into the following levels:

- mandatory adherence to legislation and NHS wide business processes;
- support for facilities, which are needed to secure current levels of income;
- support for improving the quality of patient care delivery;
- support for increasing income and/or increasing effective use of resources; and
- other proposed investments e.g. investigation of new technology.

Currently there is still a significant level of investment required to achieve both National and Trust requirements in the existing organisation ICT infrastructure. It is hoped that by working in close partnership with the key stakeholders throughout Wales and through the Informing Health Care (IHC) that WAST will receive the requirement investment as indicated within this Strategy for both capital and revenue as detailed within section 12.
The Projects.

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1.0 Purpose of the document.

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1.1 Definitions of the ICT Strategy.

In order to understand the principle and aim of this document it will be important to understand two key definitions, which are:

A. What is Information Communications & Technology (ICT)?

Both the National Health Service (NHS) and the Department of Health & Social Services within Wales have increasingly recognised information as a vital resource needing effective management. The term ICT covers the use and management of information / data through organised systems of all forms, whether based on human endeavours, paper methods or Information Technology (IT) including computer hardware and software and telecommunications networks. ICT also includes the communication of voice (telephone / radio) and images.

B. What is an ICT Strategy?

Johnson and Scholes in “Exploring Corporate Strategy” define a strategy as follows:

A Strategy is the direction and scope of an organisation over the long term which has been planned to achieve advantages for the organisation through its configuration of resources within a challenging environment, to meet the needs of the users and to fulfil the key stakeholder’s expectations.

With this understanding an ICT Strategy is a summation of a medium to long term plans which over lay the delivery of information services and the mechanisms by which that delivery will take place (e.g. hardware, software, communication networks, professional standards, training requirements etc.). The Strategy’s contents are the means by which the organisation fulfils its aims, obligations, objectives and primary functions. As a long-term investment, ICT requires careful planning. Its purpose is to translate ICT potential into best practise at a local level (i.e. for the Trust and local stakeholders). This requires senior management working both with internal and external partners to formulate a clear direction in order to establish efficient and effective systems, remove duplication of data and work, and fulfil the organisations expectations for information provision.
If the organisation is to maximise the benefits and to minimise the costs, consistent methods are also needed. These methods then need to be prioritised in order to subsequently fulfil information requirements. Such direction and methods can only be established and achieved by preparing an ICT Strategy. Therefore a local ICT Strategy should be set within the overall context of an organisation’s purpose and long-term goals.

The next sections of the document will set the Trust’s ICT Strategy into context it will define WAST’s overall aims and objectives in an ICT setting and review both the National and local initiatives required to support this process. Equally, the strategy is designed to ensure a coherent, corporate approach to ICT rather than reflect a set of disparate, contradictory views. Within this remit however, it is essential that the needs and requirements of the organisation are paramount – the strategy is intended as a framework within which we must work, it’s not a straightjacket or an end in itself.

2.0 Introduction.

The Welsh Ambulance Services NHS Trust (the Trust) was established in 1998 and has a proud reputation of providing high quality healthcare paramedic Emergency Medical Services (EMS) and Patient Centre Services (PCS) to a population of approximately 2.9m population across Wales. This covers a land area of 20,600 square kilometres. Wales and therefore WAST covers a wide geographical and challenging area with a mixture of rural, urban (Cardiff) but mostly sparsely populated areas with a transient population of over one million. The workload of the Trust is impacted upon this transient population as do major National and International sporting events such as ruby and football fixtures.

The Trust’s annual income is approximately £132m, of which £80m comes from Health Commission Wales for the provision of the Emergency Medical Service. The full range of ambulance services are delivered by over 2,500 staff who in 2007/08:

- Attended 302,000 emergency incidents
- Undertook 57,000 urgent journeys
- Transported 1.4m non-emergency patients to 200 treatment centres.

To support the delivery of this service the Trust has over 300 ambulances and other vehicles and a wide range of facilities including:

- Ninety-one ambulance stations
- Four control centres
- Four operational vehicle maintenance workshops

In addition, there is a National Training College, associated Regional Training Centres, three Regional Offices and a Trust Headquarters (based at St Asaph).

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1 Urban – more than 3 people per acre
   - Rural – between 0.5 and 3 people per acre
   - Sparsely populated – less than 0.5 people per acre
Operationally, the service is delivered through a regional management structure comprising the three regions of North, Central and West and the South East of Wales. On the 1st April 2007 NHS Direct Wales became part of the Trust. WAST therefore now provides the service functions for NHS Direct Wales. However it should be noted this ICT Strategy will not address issues concerning the provision of the core services for NHS Direct as this initiative is lead on a National UK basis at present.

3.0 The Trust's Business Strategy and Delivery Plan.

3.1 Aims and Objectives.

The Trust’s overall Strategic Plan aim is to provide a healthcare service which is of the highest quality and is responsive to the demands of commissioners and patients alike; whilst, at the same time, being thoroughly effective and efficient in its use of available resources and satisfying the needs of its workforce.

3.1.1 WAST has the following core aims:

- to provide the best possible service to the public through effective integration within the NHS in accordance with the NHS Plan;
- to deliver the highest standards of professional pre-hospital care, involving everyone in the decision-making process, and seeking constantly to improve the working lives of all staff;
- adherence to the NHS Clinical Governance framework through continuing professional development; and
- to maximise available resources, and the efficiency with which they are used, to enable the Trust to deliver these aims.

3.1.2 Consequently, the Trust objectives intend to:

- continue to respond to patients’ needs;
- develop a culture of listening to patients, staff and users and matching services to what we are told;
- achieve and exceed National and local quality standards;
- develop services in the most cost effective and efficient way;
- provide constant clinical and organisational improvements by systematic audit, monitoring and revision of systems and services;
- endeavour to create a culture where staff feel valued;
- optimise the contribution to all staff;
- create a climate of openness, both internally and externally;
- develop and use evidence-based medicine;
- create a climate of professional collaboration between consultant medical staff, GPs, LHB’s, Commissioners of services and other Trusts;
- adopt the highest standards of integrity and business ethics; and
- create an appropriate environment for changing patterns of care.

These broad objectives will require a determined and focused effort over the next five years. Systems and organisational cultures will develop to enable them to be pursued vigorously.
3.1.3 National policy and guidance drivers

The Trust has a pivotal role in the development of health and social care services in the communities throughout Wales. This case has been developed to respond to the key principles and proposals of a range of national and local policies and guidance.

The Wanless Review\(^2\) set an overall context for whole systems change within the health service to create sustainable services in Wales. Over the last few years, the Welsh Assembly Government has published the following key documents:

**Designed for Life\(^3\)** underlined the messages of the Wanless Review by recognising the need for change in service delivery to meet the needs of the population and for a shift from acute-based to primary/community-based care. It emphasised the need to modernise non-acute services thus enabling the service to be taken to the patient, rather than the opposite. It expects all health and social care organisations to develop new ways of working.

**Delivering Emergency Care Services\(^4\)** which sets out an integrated strategy for unscheduled care in Wales. It describes significant changes to the coordination of services and improvements to processes in the provision of safe and fast access to services under the banner of **Making the Connections\(^5\)**.

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\(^4\) *Welsh Assembly Government. (July 2006) Delivering Emergency Care Services (DECS)*

3.2 **Trust’s Local Service Delivery Plan.**

The Service Plan for WAST contains the following priorities:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Requirements for WAST</th>
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<tbody>
<tr>
<td>Improving emergency services in terms of availability, quality,</td>
<td>• Continued improvement in response times.</td>
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<tr>
<td>comprehensiveness and speed.</td>
<td>• Developing an effective response to “Reforming Emergency Care”.</td>
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<tr>
<td></td>
<td>• Continued integration with local health economies.</td>
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<tr>
<td></td>
<td>• Preparing for integration of all GP out of hours services within NHS Direct.</td>
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<tr>
<td></td>
<td>• Improve disposition of EMS Ambulances.</td>
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<tr>
<td></td>
<td>• Develop complementary systems of non-ambulance response such as Community</td>
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<tr>
<td></td>
<td>Responders.</td>
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<tr>
<td>Reducing waiting times throughout the system.</td>
<td>• Participating in a whole system approach to these issues, e.g. widening coverage</td>
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<tr>
<td></td>
<td>of PCS services to include non-hospital centres.</td>
</tr>
<tr>
<td>Continuing to implement on agreed timescales the National cancer</td>
<td>• Continue to meet milestones in Coronary Heart Disease National Service Framework,</td>
</tr>
<tr>
<td>plan and the National service frameworks in coronary heart disease,</td>
<td>particularly in response times, audit and work with cardiac networks.</td>
</tr>
<tr>
<td>mental health and services for older people.</td>
<td>• Further study of the relevance and clinical effectiveness of thrombolysis in the</td>
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<td>field.</td>
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<tr>
<td></td>
<td>• Developing services to meet needs of the elderly.</td>
</tr>
<tr>
<td></td>
<td>• Further development of work of NHS Direct mental health lead to integrate and</td>
</tr>
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<td></td>
<td>improve services.</td>
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</table>

In addition, WAST must respond to other National developments: -

- “Shifting the Balance of Power”: the need to develop good working relationships and effective commissioning arrangements for EMS and PCS services with local Health Boards and other key stakeholders;

- Informing Healthcare development of Electronic Patient Records and e-mail access for all health professionals.

The Local Service Delivery Plan identifies the following 15 priority areas for the period 2009-2014:-

- TTMD Phase 1
- Risk Management – Control Assurance Level 3
- New ways of delivering care
- Improving Working Lives
- Clinical Governance
- Agenda for change
- Performance standards
- Patient and Public Involvement
- PCS Collaborative commissioning
- Education & Training
- GP Out of hours calls
- Equality & Diversity
- ICT Strategy
- Develop Corporate Governance
- Meet financial targets
4.0 Business Needs.

This section takes note of the fact that all ICT requirements must fulfill a business need and support the delivery of services whilst becoming inherent in the business planning process and priorities within WAST. The Trust has three separate EMS Control Centres and three PCS Contact Centres as well as three NHS Direct Control Centres. These Control Centres functions operated independently, both within and between each business area that constitute WAST. The Trust seeks to create a Virtual Call Centre environment which will interlink the current functions of the Ambulance Service with NHS Direct. This process will become the start of the Unscheduled Care Service within Wales. Sections 11, “Achieving the Vision” sets out the agenda of the strategic options and the future roles of ICT within the Trust in order to achieve these goals. This Strategy therefore represents a description of what will be achieved from the deployment of the required ICT investments.

4.1 Business Plan background.

As part of the process of developing Directorate business cases departments will be required to address not only the means to maintain and deliver service initiatives but will also need to take into account any ICT developments or issues. Future business cases should therefore adequately describe the requirements of ICT in order to ensure the investment. These business cases must then broadly reflect the required investment in the business as a whole and to then balance the priorities for investment in ICT (ICT should not drive the business but this factor is becoming increasingly important).

Once this has been accomplished WAST will then build upon this framework for the development of the Trust’s Local Service Delivery Plan and all internal strategies such as the ICT and HR.

4.2 Business plans and priorities.

The Trust business plans and priorities are contained within the overall Trust Local Service Delivery Plan.

4.3 ICT Implications.

In order to assist and support the Trust’s business planning process the ICT objectives will be based on the following: -

- to provide a comprehensive and integrated computer environment which will be among the best when rated against all major National efficiency, effectiveness and quality indicators;
- to deliver quality services which are responsive to the needs of patients, staff, the wider community and purchasers of health care; and
- to satisfy the health care needs of the community within Wales and extend some services over a wider area as the opportunity permits.
In summary, to support the business objectives and to deliver the required enhancements, future ICT features and services will be designed to:

- make quality information available when and where required, thus implying reliance on data that is accurate and consistent, which in turn requires computer application systems that capture data as a result of normal working practices to support the business and clinical functions.

In order to be able to make optimum use of this new ICT environment it will require the support of an ICT infrastructure, which includes appropriately skilled ICT staff, effective user training, communications networks, computers, standards and policies, and adequate management arrangements.

4.4 Constraints, Trends & Key Drivers.

The Trust also needs to be aware of the constraints, trends and key drivers that may affect its aspirations and performance. Consequently, the Trust will need to take account of the following factors:

4.4.1 Increase in Demand.
The demand for emergency healthcare treatment is almost certain to increase in both qualitative and quantities terms. Public expectations will be greater as people become more knowledgeable about diseases and treatment. Patients will be more critical about standards of care, non-clinical services and will be less willing to wait for treatment.

Popular expectations have been raised by the Government’s introductions of Key Performance Indicators / Targets (KPI’s). Increased demands will be fuelled by developments/improvements in medical practice. The percentage rise in the number of older people will continue to create more demands on the NHS as a whole. It is anticipated that over the next few years the trend within Wales for the number of patients over 65 will increase on average by 15% whilst at the same time, the birth rate is expected to decline.

4.4.2 Economic Climate.
The cost of increased demand for healthcare will almost certainly outstrip growth in the economy. The drive for increased value for money, more cost effective treatment, reduced length of stay and increased day case work will need to accelerate, especially in areas of clinical and nursing practice. The number of patients suitable for day case and non invasive surgery will continue to increase and therefore place further demands on WAST.
4.4.3 Other Significant Influences.

As well as the increased demand on resources and the continual expectation of delivering National performance targets, there are other changes, often government inspired, which materially affect the way in which healthcare is provided. Significant changes are likely to be:

- increased demand for emergency services;
- promotion of NHS as a primary care led service and continuing development of protocols to provide seamless care;
- further development of the new seven merged Trusts;
- the development of the commissioning role, critical analysis of outcomes and evidence based commissioning leading to a cessation of treatments considered to be either unnecessary or of marginal benefit;
- areas of greater specialisation (e.g. Cancer Centres, hub and spoke models, Diagnostic Treatment Centres etc);
- changes in medical training;
- changes in the roles of professional groups, particularly the role of a Paramedic to become more integrate with other Health professions (i.e. the Emergency Care Paramedic); and
- a widening research base and to provide evidence of effective outcomes linked to clinical audit reviews.

4.5 Management Strategy.

WAST is one of the largest geographical Ambulance Service providers within the NHS and therefore requires a robust, effective and adequately resourced ICT infrastructure. The ICT strategy itself must ensure that it supports the business objectives and critical success factors of the Trust.

*It's key focus is to deliver an infrastructure, which is of benefit at the clinical, operational, management and corporate levels of the organisation. This can only be achieved by making sure that each requirement is prioritised and is balanced by the needs of the organisation as a whole.*

Equally, the NHS Executive has recognised the important contribution to be made by ICT and has produced an overall Wales vision paper called “Informing Healthcare” which outlines a number of key principles and standards against which local strategies and implementations can be measured.

WAST’s ICT strategy has therefore been written under the umbrella of the National initiatives and indicates the mechanisms by which we will implement the key National issues. It should be stressed that the document underpins the delivery of ICT locally by ensuring commitment to National strategies, standards and initiatives, this must not be interpreted as relegating local priorities to ‘second best’ since by addressing and implementing the key principles of the National strategy, we are also facilitating the improvement of the local ICT service by ensuring a consistent and approved approach to delivery.
4.6 Approach.

WAST’s overall approach has been to analyse the business processes and objectives of the Trust and to identify the information and IT requirements to support them. Existing systems have been reviewed and measured against the business criteria and, where appropriate, developments to these systems have been identified to meet business, operational and clinical need.
5.0 The National ICT Direction.

5.1 Introduction.

Modernising Wales has been a central theme of the Welsh Assembly Government (WAG) programme since it came into office in May 1997. Crucial to that objective has been the drive to modernise the NHS with the aim of giving everyone equal access to the same level of medical care wherever they live in the country. Better care for patients and improved health for everyone depends on the availability of good and accurate information, accessible when and where it is needed. IHC as established an ICT direction which sets out the vision for improving health care through the appropriate use and management of information as well as the systems which underpin it. The purpose of this information strategy is to ensure that information is used to help patients receive the best possible care. The strategy will enable NHS professionals to have the information they need to provide that care and to play their part in improving the public’s health. The strategy also aims to ensure that patient, carers and the public have the information necessary to make decisions about their own treatment and care, and to influence the shape of health services generally.

To achieve these objectives, the strategy commits to:

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<tr>
<td>1.</td>
<td>Lifelong electronic health records for every person in the country.</td>
</tr>
<tr>
<td>2.</td>
<td>Round the clock on-line access to patient records and information about best clinical practice, for all NHS clinicians.</td>
</tr>
<tr>
<td>3.</td>
<td>Genuinely seamless care for patients through GP’s, hospitals and community services sharing information across the NHS information highway.</td>
</tr>
<tr>
<td>4.</td>
<td>Fast and convenient public access to information and care through on-line information services and Telemedicine.</td>
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<td>5.</td>
<td>The effective use of NHS resources by providing health planners and managers with the information they need.</td>
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The strategic information objectives are:

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

#### For Professionals
- On-line access to local and national evidence on treatment.
- Fast, reliable and accurate information about the individual patients in their care.
- Fast, easy access to local and national knowledge bases that supports the direct care of patients and clinical management decision making.
- Access to information to support them in the evaluation of the care they give, underpinning clinical governance, planning and research, and helping with their continuing professional development.

#### For the Public
- Fast, convenient access to accredited information.
- Involvement in health service policy.
- There is a vast amount of information which is potentially useful for these purposes and the information strategy should be concerned with ensuring the most useful information is captured in the most convenient way and is as accurate and up to date as possible.
- The public wants the opportunity to access information such as good health and lifestyle advice. But people are also interested in understanding how the health service is performing in the delivery of healthcare services, both in terms of the efficiency of the service - for example, as indicated by waiting lists and waiting times - and also increasingly in its effectiveness in terms of outcomes.
- It is important for the NHS to grasp the extent to which the public wants access to comparative clinical outcome information relating to local NHS facilities. Despite the acknowledged difficulties in ensuring fair comparisons, the arguments for tackling these difficulties and making such information available are irresistible.
- People also need easy access to good quality information to enable them to influence local service development, as well as local and national policy.
- There is a case, too, for giving the public more systematic access to information to support self-treatment and care, where this is appropriate, so they know when professional help is required, and where and how to obtain it. NHS Direct will help meet this need.

#### Information Objectives supporting the key groups

#### For Patients
- Accredited independent information.
- Provision of on-line access to services and specialists.
- Patients and their carers are increasingly interested to learn more about their condition, the treatments they are undergoing, and the likely outcomes, as well as needing information to support them in day-to-day living with long-term conditions and in helping them access health and social care services.
- The prime source of such information will continue to be the healthcare professionals with whom they are in contact, but it is important that all the information they get - whether directly from those professionals or other sources - should be reliable.
- In addition patients are interested in understanding the outcome performance of those individuals and teams in the NHS who are treating them.

#### For Managers & Planners
- Availability of accurate information for planning purposes.
The principles on which the National direction is based are as follows:

<table>
<thead>
<tr>
<th><strong>Information will be person based.</strong></th>
<th>Person-based systems will hold a health care record for each individual, which can be referenced to that person’s NHS number.</th>
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</thead>
<tbody>
<tr>
<td><strong>Systems will be integrated.</strong></td>
<td>Wherever practical, data will need to be entered onto computers only once. From that point on, it can be available, within other systems, either internally or within other designated NHS organisations.</td>
</tr>
<tr>
<td><strong>Information will be derived from operational systems.</strong></td>
<td>Data will be obtained from systems used by healthcare professionals in their day-to-day work. There should be little need for different systems to capture information specifically for management purposes.</td>
</tr>
<tr>
<td><strong>Information will be secure and confidential.</strong></td>
<td>Information held on computers will be available only to those who need to know it and are authorised to know it.</td>
</tr>
<tr>
<td><strong>Information will be shared across the NHS.</strong></td>
<td>Common standards and NHS wide networking will allow computers to communicate so that information can be shared, subject to security and confidentiality safeguards.</td>
</tr>
</tbody>
</table>
5.2 Information should focus on health.

Information needs to look further than the incidence of illness and provision of treatment. Evaluation should be outcome related so that plans and provision of local healthcare meet local needs, addressing the prevention of ill health as well as supporting the delivery of care. In order to ensure delivery of these strategic objectives the NHS will be required to achieve specific targets over the next few years. These specific targets are defined within the National direction as follows:

| A | Reaching agreement with the professions on the security of electronic systems and networks carrying patient-identifiable clinical information. |
| B | Developing and implementing a first generation of person-based Electronic Health Records, providing the basis of lifelong core clinical information with electronic transfer of patient records between GPs. |
| C | Implementing comprehensive integrated clinical systems to support the joint needs of GPs and the extended primary care team, either in GP practices or in wider consortia (e.g., Primary Care Groups/Primary Care Trusts). |
| D | Ensuring that all acute hospitals have the ability to undertake patient administration, including booking for planned admissions, with an integrated patient index linked to departmental systems, and capable of supporting clinical orders, results reporting, prescribing and multi-professional care pathways. |
| E | Connecting all computerised GP practices to **PSBA the National data network infrastructure** |
| F | Providing 24-hour emergency care access to relevant information from patient records. |
| G | Using **PSBA** for appointment booking, referrals, discharge information, radiology and laboratory requests and results in all parts of the country. |
| H | The development and implementation of a clear policy on standards in areas such as information management, data structures and contents, and telecommunications, with the backing and participation of all key stakeholders. |
| I | Routinely considering telemedicine and telecare options in all Health Improvement Programmes. |
| J | Offering **NHS Direct** and Unscheduled Care services to the whole population. |
| K | Completing essential National infrastructure projects including the networking infrastructure, National applications etc. |
| L | Opening a National Electronic Library for Health with accredited clinical reference material on **PSBA** accessible by all NHS organisations. |
| M | Planning and delivering education and training in informatics for clinicians and managers. |
6.0 WAST ICT Strategy.

6.1 Introduction.

The NHS is an increasingly complex organisation – the separation of purchaser / provider functions and with the constant restructuring of Trusts all of these have placed considerable demands and pressure on the information providers as well as the systems to support that provision. Because of this one of the aims of this strategy is to give information provision and systems development a higher profile and to place it into a business and clinical context for the Trust.

ICT will play an increasingly important role in the future survival and success of the Trust. This role will be altering as the current applications have been based on discrete operational systems for individual Departments to functions which will support the provision of a holistic clinical care process. Directorate and management information will be based upon data captured at the operational level. ICT will become a key component in the provision of high quality patient care delivered by resources that are more effectively and efficiently managed.

6.1.1 The guiding principles are:

- The strategic direction of, and investment priorities for ICT will reflect the business strategy and priorities. The opportunities offered by advances in Information Technology will also inform and influence future business plans.
- Users are responsible for the creation and quality of data, which, wherever feasible, will be captured as the by-product of an operational support process.
- Users will play a major role in the choice of application systems having due regard to corporate standards and investment criteria which will influence data and functional integration.

6.1.2 The goals are thus:

- The Trust’s overall systems architecture must have the flexibility and expansion capability to cost effectively cater for new and changing business requirements.
- Any investment in ICT will include adequate consideration of and provision for the support skills that are required to realise the benefits of the investment.
- The Trust will progressively develop a patient focused set of operational systems, which, over time, will move the capture, and use of clinical data closer to the patient and to those caring for the patient.
- The systems will support the planning and co-ordination of care delivery by all professions involved.
- The information gathered will increasingly support audit and the monitoring of outcomes.
- The Trust will develop a capability for producing relevant and usable management information across a range of systems and data sources.
- All systems, whether patient based or business systems will be developed and operated in a manner which assists the Trust to be as efficient and effective as possible in delivering care to its patients.
Wherever feasible ICT will be used in ways, which improve the work environment for staff (including adherence to Health & Safety legislation) as well as the relationship of the Trust with its customers.

All staff will receive adequate training in the use of all aspects of ICT that are necessary to the successful performance of their role.

6.1.3 The key objectives:

The key objectives against which the ICT requirements have been measured are:

- enhancing professional standards of care;
- implementing the strategic direction;
- managing resources and risk;
- managing the business;
- managing performance; and
- develop the organisation.

The Trust’s ICT strategy encompassed the following:

- an analysis of existing ICT provision;
- a review of business needs and their ICT implications;
- future role of and strategic options for ICT support; and
- proposed management arrangements and timetable for the next steps.

6.1.4 Consultation process:

There has been a deliberate policy to involve all appropriate parties in the development of the ICT Strategy this entailed the following:

- consultation with the Trust’s Regulatory Steering Group;
- Submitted draft paper to IHC;
- interviews and workshops with sections of WAST staff;
- distribution of the draft document to the Trust’s Lead Regional WAG office based in Mold;
- distribution of the draft document to a representative sample of staff across the Trust, summarising the results of this work together with a brief analysis of possible conclusions;
- modifications based upon feedback from those staff; and
- a Gap analysis was conducted, matching the organisation, Directorates and the National ICT direction requirements.

6.1.5 Organisational implications:

This Strategy also covers important topics such as the organisational implications associated with ICT and in particular emphasises the importance of consistency, accuracy, standards and co-ordination within information provision as well as the importance of information professionalism and how it can be achieved. It is also designed to promote better understanding of the delivery of information and the skills, resources, training and infrastructure required to support it.
6.1.6 Information culture:

Continuous improvement of its clinical services and business management process is a priority goal of the Trust. Central to the achievement of this goal is the development of an “information culture” where decision-making is based on relevant, accurate and timely information. The attributes of a successful information culture include:

- Leadership and commitment to the appropriate use of information demonstrated from the top of the organisation.
- A willingness throughout the organisation to support an “information culture” with an emphasis on data quality and data ownership. This must then be viewed as essential prerequisite for good quality information.
- A willingness throughout the organisation to use information technology, the processing power of which makes possible an explosion in the information that can be made available and accessible.

Making possible the development of an information culture requires the development and further integration of the Trust’s ICT capability in addition to the behavioural changes implied in the above bullet points. Developments envisaged in the ICT capability will enable the Trust to communicate electronically with external bodies such as other NHS Trusts and LHB care providers. The key aims of the strategy are therefore:

- to support internal and external access to patient, clinical and diagnostic information;
- to support the need for management and performance information;
- to ensure accuracy and reliability of data; and
- to exploit ICT and enable knowledge based decisions.

The National ICT direction describes a common way forward for ICT for all sections of the Health Service in Wales. It has as its foundation the business goal of the Health and Social Services Department which is to support better care and communication through the appropriate use of ICT and in particular:

- Staff will use information to continuously improve the service they provide.
- An ICT environment will support the controlled sharing of information across the service.
- Information will be handled and communicated securely, smoothly and efficiently.

This overall provision is seen to provide a range of benefits for patients, clinical staff and managers alike. To put WAST’s strategy in context however, we must first outline the wider dimension through a review of the National ICT direction.
7.0 **Current ICT Infrastructure.**

Over the past two years the Trust has placed a considerable amount of investment into the ICT infrastructure. This programme is detailed within various Trust business cases such as Vantage Point House Project. These ICT cases have now placed the Trust in a position where it is now quite advanced in terms of technology capability. However due to the fact that the Trust did not replace any of its existing core systems as part of this plan such as the EMS Command and Control system, the organisation is now required to review these environments. There is still a very large gap between the current information systems as a whole and the strategic vision for supporting clinical related information.

8.0 **The Way Forward.**

8.1 **Introduction “Information”.**

A key requirement in meeting management needs effectively is the provision of accurate, timely and accessible information. Improvements in information provision will depend to a large extent upon developments in the management of the underlying data. Good quality information is as important to running the business side of the Trust as it is to delivering patient care. The delivery of improved patient care is the cornerstone of this ICT Strategy, either by improved planning of services or through the provision of information systems to support the individual patient care process. Either way, data capture, accurately recorded and effectively communicated to a wide variety of users (to support seamless care, primary and secondary care, data following the patient etc.) will be the only mechanism for achieving the person-based information required to support this concept, both locally and on a National base.

There will be an increased demand for patient centred information both at the individual and aggregated levels. Information demands for the future will be based on the means to deliver clinical services / audit and the quality of those services are at the heart of all considerations about the future plans and intentions of the Trust. A major objective of the business planning process and the ICT Strategy is to make clinical data available at, or sufficiently close to, the point at which care is delivered to the patient. This will ensure that clinical staff will be assisted in providing improved levels of care to the patient. To achieve this objective successfully the data must be readily and easily accessible, accurate and up to date.
8.2 Purpose and Objectives of Information.

The key purposes of information in healthcare are:

- to support clinical care of the patient by providing information such as patient details, access to historic information, prescribing, etc;
- for communication between health care professionals, including the processes of assessment, planning and intervention;
- provide a professional knowledge base to support clinicians in the provision of care to the individual;
- assist in the management of resources;
- support business management in terms of service planning, performance monitoring and service standards; and
- to achieve interaction with external bodies such as LHB’s, Commissioners, WAG, etc etc.

To be of a genuine benefit, information delivery has to be appropriate to the needs to which it is being used. Therefore the key objectives of information for the Trust are:

- to support access to patient, diagnostic and clinical information as close to the point of delivery of care as possible;
- to support the internal and external demands for information e.g. operational effectiveness indicators, statutory reports, activity monitoring;
- to ensure the timeliness, consistent, relevance, accuracy and availability of data; and
- to enable the organisation too actively use information i.e. enables knowledge-based decision-making.

8.3 Information Culture.

Although the technical solutions will be demanding a significant challenge will come from the organisational and culture changes that will be required. If the benefits for patient care that are possible from the new technology are to be maximised, many current practices will have to be abandoned and new approaches adopted. For example, established ways of recording data will, inevitably, be replaced once electronic facilities are introduced. Duplicate manual and IT systems will not co-exist satisfactorily in the new environment. The Trust will need to determine how best it can support this organisational and cultural change over the period of the ICT Strategy.

To achieve this large agenda within WAST the organisation has recognised that planning, commitment and prioritisation is required. In particular it is essential that the Trust:

- Develops an information-based organisation.
- Continues to foster Trust Board level ownership and leadership.
- Balances local needs with National standards and initiatives. This strategy reviews both National (statutory) and local requirements – it is unlikely that any organisation can satisfy every perceived need and therefore prioritisation and understanding of the National and corporate agenda is critical to the creation of a successful ICT infrastructure.

### 8.4 Key critical success factors.

This “critical success factor” relates to the responsiveness, openness, accountability and accessibility of the organisation and requires information sharing (as well as gathering) to enable it to succeed. This “sharing” will account for both internal NHS organisations and with the general public. This Strategy will support and facilitate the development of the key critical success factors, which are to:

| Enhancing Professional Standards of Care | - Support Research and Development and continue to develop innovative skills and knowledge.  
- Develop the theme of Continuous Improvement in all services.  
- Continue to invest in our staff. |
| Implementing our Strategic Direction | - Focus on performance.  
- Continue to position WAST as a centre of excellence.  
- Complete Enabling Measures as contained with the TTMD Project. i.e. centralisation of all core facilities. |
| Managing Resources and Risk | - Manage income and expenditure and build on our second financial position, recognising the need to achieve greater efficiency.  
- Manage all elements of Risk.  
- Continue to implement the HR Strategy. |
| Managing the Business | - By increasing efficiency continue to develop services during a period of minimal purchaser growth.  
- Deliver Contracts and achieve with Purchaser support, targets set at National, Regional and Local level.  
- Continue to enhance Business Management. |
| Managing Performance | - Be at the forefront of clinical advancement.  
- Improve Clinical and Service efficiency.  
- Measure performance by target setting throughout the organisation.  
- Establish benchmarks for our services in order to monitor improvement. |
| Developing the Organisation | - Improve the communication (both internally and externally).  
- Work collaboratively with other organisations both in the Health Sector and within the rest of our community.  
- Continue to further devolve responsibility and accountability for the delivery of patient services. |
None of these functions can be performed adequately without a sound ICT base. Equally, ICT provision can never be allowed to stand still. The continually changing National requirements and the increasing local demand for wide ranging and high quality information and data provision require a systematic and adequately resourced strategy for ICT investment.

8.5 ICT Standards, Policies and Procedures.

A key element of any ICT Strategy is having the appropriate standards, policies and procedures in place. At present this is one area within the Trust that requires attention as the scope is currently lacking. A comprehensive set of standards needs to be introduced, which is based on good practices recommended in the National ICT Strategy and elsewhere.

WAST has a wide-ranging set of customers for its information from the Department of Health, LHB, Commissioners to individual Managers and many other users within the Trust itself. It is therefore central to this strategy that we ensure that information standards are applied equally to the delivery of all types of information. Although the external users may well have a different level of need to the internal customer, the underlying standards against which the data is measured and the delivery established are exactly the same.

Previous sections were concerned about the information process required to support the long term needs of the Trust; there are a number of other factors in the development and implementation of a successful ICT Strategy and these are based around a set of ICT standards, policies and procedures which allow delivery to be accomplished within a consistent overall framework.

Data standards and the professional delivery of information are therefore critical to the successful implementation of the ICT Strategy and the use of the data in particular, it facilitates:

- effective clinical and managerial decision making by delivery of consistent data/information;
- the empowering of users of information by the provision of high quality data; and
- the eventual communication of patient based data across traditional boundaries (GP and Acute and Community links etc.) in an effort to support seamless care and the creation of the electronic patient record.

The importance of standards cannot be over emphasised in order to facilitate the corporate and operational delivery of information. This understanding can also be seen through the number of National projects designed to support this concept.
8.6 Information, Data Standards and Quality.

Ensuring data and information conform to certain standards is an important mechanism for ensuring that the enormous amount of data produced by WAST and the NHS generally has a common language where data is understood and is capable of being exchanged. These standards are considered to be critical to both internal and external delivery of information (recognised as such by the National Initiatives of the Data Accreditation Programme) and are therefore considered in more depth in the Section 9.4.

8.7 Procurement Process and Implementation.

WAST will procure all future systems in line with NHS guidelines these will include:

- Using the National procurement initiatives such as Procuring Information Systems Effectively (POISE).
- Following European regulations where project size and scope demand it complying with the guidelines of the Capital Investment Manual.
- Take account of any National guidance with regard to procurement from IHC.

The ICT Directorate has already produced the Trust’s procurement policy and working with the Business Service Partners (BSP) has enforced its recommendations.

8.8 Technical Standards.

All investments must be made within a National framework of technical standards designed to ensure that systems (both within and among organisations) can communicate with each other. WAST also requires internal standards in order to ensure that resources can be managed effectively and efficiently.

8.9 Hardware/Software Standardisation.

Other than the major Trust information systems which have been implemented such as the ALERT system there is a widespread use of stand alone hardware and associated software. Historically, there was no overall standardisation on either the procurement of equipment (computers, printers etc) or software all of which has lead to the use of different products and versions of software throughout the three regions of the Trust.

To resolve this a hardware and software standards paper will be produce in line with the Trust procurement policy. The primary advantages associated with software standardisation are as follows:

- Rationalise the number of packages in use within WAST.
- Allow data and resources to be shared among users.
- Cut down the training overhead.
- Facilitate support and maintenance to end-users.

Standardisation on hardware is likely to provide similar benefits and will make management of the infrastructure more efficient as well achieve value for money.
8.10 **Security and Confidentiality.**

The Trust has recognised that as it becomes more and more reliant upon automated information systems, so the protection of this information/data as a valuable resource becomes increasingly important. The real concern of the Trust is the data of the systems and not necessarily the computer hardware on which it runs or is stored. This is why it is better to talk about ‘information system security’ rather than ‘computer security’. The security of the Trust’s healthcare data is concerned with the preservation of:

**Confidentiality:** That no one, NHS staff or outsider, who is not authorised, should have access to the Trust’s healthcare data or other data used for supporting functions.

**Integrity:** That it should be possible to rely upon that the information generated by the Trust’s computer systems (i.e. it is accurate). The Trust needs to ensure, for instance, that the data used for patient treatment is not only present, but also complete and accurate in every detail.

**Availability:** That the Trust’s system should be able to provide data when and where it is needed. For example, this is especially important where emergency treatment is dependent on information processed by a computer system, but will also apply to many support functions.

The degree to which these aspects are preserved is the Trust’s measure to the security of a system. The IHC has formulated an appropriate Data Protection Programme. In the course of the work to develop this, it became clear that the Trust required:

1. A top-level information systems security policy specifying the basic NHS requirements and appropriate security.
2. A method of assessing the various risks and relating these to appropriate countermeasures. This is achieved by complying with the CCTA Risk Analysis and Management Method (CRAMM).
3. An integrated means of managing the various aspects of security so that the required countermeasures are in place and continue to function correctly.
4. Supporting security guidance covering particular topics and products for implementing aspects of the desired security design.

The Trust has devoted a great deal of time and effort into the formulation of its Information System Security Policies and is actively in the process of producing ICT policies such as the Internet and Email policy. The ICT Directorate is currently working with the Trust internal auditors “Mersey Internal Audit Agency (MIAA)” to address this whole area as part of the BS7799 Project. It is the aim to achieve BS7799/ISO accreditation in 2010/11.
8.11 Contingency and Disaster Recovery Planning.

The nature of WAST prime computer functions and the changing and increasing complexity of these requirements has lead to an increased dependence on the ICT components and its infrastructure.

In particular, the operational interdependence of these various functions and departments has now been re-emphasised and strengthened by the integrated nature of the ICT environment and the business. Any threat to the computer environment will inevitably have repercussions for other departments which share and distribute common patient based data.

The ICT Directorate will therefore conduct a detailed exercise to review the whole area of disaster recover planning. This will consider the risks, business impact and costs associated with threats to the computer systems and the benefits associated with alternative disaster recovery mechanisms.

8.12 Project Management.

Project Management methodology will be PRINCE (Project IN Controlled Environments) as recommended for the public sector use.

8.13 Financial Implications.

Clearly identifiable costs are already available for those parts of the infrastructure, which are already in place and which were subject to a formal procurement process. However, by definition, this strategy does not include any detailed specifications or definitions of all the future information requirements highlighted elsewhere in this document.

The specific requirements in each application area and the complexity of the chosen solution will determine the overall final costs.

In addition, there will be a basic split in costs between:

- Costs associated with the implementation and support of statutory and National initiatives, which are unavoidable.
- Costs associated with implementations to satisfy local information requirements and which will therefore have to be prioritised against need.
There is therefore, an imperative to define the costs associated with the National and mandatory initiatives in order that the overall scope of the financial implications can be more readily assessed. All future ICT Business Cases or ICT requests by the Users will have this requirement identified as part of the initial implementation process. ICT projects will have the following key areas evaluated in order to identify any potential capital and revenue consequences:

- **Staffing.**

- **Training requirements.**

- **Hardware.**
  - Purchase price
  - Upgrading capability
  - Maintenance and support costs
  - Any other relate device such as printers etc.
  - Depreciation factor

- **Software.**
  - Purchase & Licensing price
  - Upgrading capability
  - Maintenance and support costs.
  - Depreciation factor

- **Replacement process to be explained and to then be identified within the financial programme of the Trust.**

- **Any capital charges.**

- **ICT Consumables.**

- **Disaster Recovery to understand about required contingency arrangements/recovery procedures.**

- **Premises, including upgrading, maintenance and security requirements.**

As priorities become clear a more formal structured costing process will be adopted and enforced. To assist in this area the ICT Directorate has already produce an ICT procurement Policy.
9.0 Purpose and function of the ICT Directorate.

The primary function of the Directorate is to provide a service to the users of ICT both within and outside WAST. It exists because the proper use and understanding of information is vital to the effective and efficient running of the organisation. As such, it is tasked with providing ICT support to other professionals who are responsible for the achievement of the business objectives of the Trust. Its priorities are therefore determined by the needs of the organisation as a whole. This strategy defines some of these priorities in terms of the National imperative and the Trust’s strategic obligations whilst this section will outline some of the key functions associated within the ICT Directorate.

9.1 ICT Professionalism.

This concept of “Professionalism” is based on standards, competencies and a partnership, which places equal demands on all parties committed to the relationship, where service providers and users work together to establish the desire requirements. The issue of ICT Professionalism is critical to the success of information service provision and is currently the subject of much debate nationally in the light of the moves towards formal “Statements and Recognition” qualifications and the formulation of the first National ICT body called “ASSIST”. One of the reasons why ICT is under focus and subject to the current developments is that the discipline tends to be a very broad church with a wide range of skills and specialisation’s.

For example, ICT professionals can (and do) include:

- Information providers/managers / Health Informatics.
- Information analysts.
- Statisticians.
- Data collectors/Librarians.
- Hardware specialists / System Engineers / Operations Managers.
- Network managers/system administrators / Communication Managers.
- Programmers/Application developers / System Developers.

The purpose of this section is to set ICT into a professional collaborative context within the Trust whilst the remaining sections will outline the roles and functions of the ICT Directorate.

9.2 ICT Staffing Levels.

The ICT Department staffing levels were set against a range of priorities and developments, which were current at the time of the ICT Business Plan 2007 / 2008.

Since then, there have been significant changes in the demands on the ICT service, with a tremendous growth in the requirement for the provision of external information (tripling the workload), increasing internal demands to support a wider range of business / operational requirements and a significant increase in the number of National ICT initiatives which WAST is required to support and implement.
The preferred model of delivery outlined earlier in this document will allow existing resources to be used more efficiently and effectively but consideration must also be given to reviewing general resourcing requirements against the comprehensive ICT service required by WAST both in terms of information provision / analysis and the technology skills to support that delivery.

9.3 Structure of the Directorate.

The structure of the current Directorate has been achieved through the commitment of the Trust Board to delivery the requirements identified within the ICT Business Plan 2007/2008. However due to the nature of the NHS this structure will change for time to time, this will reflect current resources capability of the Trust, political climate and the means to address National and local ICT requirements. With this understanding the current structure is as shown.
9.4 Information Management – “Health Informatics Department”.

9.4.1 Information Management / Analysis Functions.

The management of both the information process and of the information itself is essential to any successful delivery. It facilitates and encourages the consistent and accurate implementation of standards, allying their use to local need and internal WAST requirements, ensuring they support rather than hinder information delivery to end users.

It also allows data to be more widely understood by all users and make sure that analysis functions carried out on that data are applied professionally for the benefit of all information users.

9.4.2 Information Delivery, Presentation and Analysis.

This is the key primary deliverable of any information management function and is vital to support the organisation’s ability to fulfil its critical success factors. The function of the Health Informatics Department as a whole is responsible for the delivery of standard, ad-hoc presentations and the key deliverables for WAST as highlighted in the table below:

<table>
<thead>
<tr>
<th>Corporate</th>
<th>Operational</th>
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<tbody>
<tr>
<td>Clinical Analyses</td>
<td>⇋ Clinical Audit</td>
</tr>
<tr>
<td>Performance Management</td>
<td>⇋ Ensure Contracts are being achieved</td>
</tr>
<tr>
<td>Performance Indicators</td>
<td>⇋ Directorate Analysis</td>
</tr>
<tr>
<td>Purchaser Analyses</td>
<td>⇋ Clinical Breakdowns and external Service level Agreements</td>
</tr>
<tr>
<td>National Indicators</td>
<td>⇋ Service Reviews</td>
</tr>
<tr>
<td>Local Targets / Benchmarking</td>
<td>⇋ Trend Analyses Local Performance</td>
</tr>
<tr>
<td>Management data provision</td>
<td>⇋ Internal Service Level Agreements</td>
</tr>
<tr>
<td>Procedure Analyses</td>
<td>⇋ Speciality Reviews</td>
</tr>
<tr>
<td>Statutory reporting</td>
<td>⇋ Operational Breakdowns</td>
</tr>
<tr>
<td>Ad Hoc Analyses</td>
<td>⇋ Ad Hoc Analyses</td>
</tr>
</tbody>
</table>

9.4.3 Data and Information Analysis.

A function carried out by information specialists within the Health Informatics Department on data sets from a wide ranging and diverse organisation, along with data from other sources (e.g. National and Regional analyses) against which WAST’s own performance can be measured and modelled.
9.4.4 Statutory Returns / Mandatory Changes.

The production of statutory returns, intended eventually for the DoH, has been a traditional function of all Health Informatics Departments within the NHS. When the purchaser-provider split took place, the number of statutory returns, which had to be completed by, WAST increased significantly and now represents a substantially increased workload. The nature of these returns also leads to changes in the way that the data is recorded and there are significant resource demands in ensuring that changes in data standards (and data requirements) are reflected in the WAST return.

Many of these changes require rewrites of current extraction software to gain access to the Alert & Cleric database which supports these returns – these ‘Data Set Change Notices’ (the mechanism by which the changes are communicated to the NHS), some of which are of a very complex nature requires both skills in technical knowledge and an in-depth experience of the nature the business.

The function of the Health Informatics Department has the overall responsibility for ensuring this takes place and consideration will have to be given to ensuring that resources are sufficient to meet this function as the changes and demands increase.

9.4.5 Information Library.

There is an increasing range of material available on both general and specific information issues. The creation of the National ICT Strategy has generated a wealth of supporting material, as well as a variety of training packages for both specialist ICT staff and for more general use. A number of departments have indicated the need for a provision of a general library of information on such topics as Clinical related data, training material and access to electronic library material etc. Although much of this material is currently available from traditional information sources the volume of material now becoming available makes it difficult to manage effectively. Therefore access to the Trust intranet and the World Wide Web (WWW) is viewed as essential in the promotion of education training and development.

9.4.6 Data Quality.

The means of inputting data into both the technical and manual systems, which have been, devolved down to the users and department levels. This form of data is known as “operational data” however due to the very nature of staff performing their duties this valuable data source requires to be validated. Obviously, poor quality data leads to inadequate information. Data quality needs to be monitored and managed and it is with this in mind that the Health Informatics Department now performs this vital task. Poor quality data will be reported back to the department responsible thereby ensuring that the issue is picked up internally and addressed. Data provided as part of the statutory process to external users (Health Commissions, WAG and other key stakeholders etc) are checked regularly by the Health Informatics Department for completeness, accuracy and timeliness. Significant failure to meet these standards could result in, at worst, loss of income to failure to achieve the required Trust KPI’s all of which will require the wrong type of attention. It should also be noted that there is now within the NHS a mandatory corporate responsibility to ensure that reporting to Trust Boards that data must be accurate and timely.
It is therefore very important that WAST resources the means to perform data quality reviews / audits in order to meet the demands which will be placed upon it by the data accreditation process.

9.4.7 Information Systems Development.

The information management function, along with both the end users and technical staff, should make a significant contribution to the development of systems / databases within WAST. This area has to ensure that the overall development path is consistent with the information requirements at National level, whilst at the same time making sure that local operational and corporate needs are also met.

9.4.8 Policies and Standards.

The importance of data and information standards has been well documented elsewhere in this strategy. The formulation, communication and maintaining of these standards is an important information management function. The information management function must also ensure that any changes to National standards (e.g. Korner etc) are accurately reflected in the internal policies and standards of the Trust. It must also make sure that the Trust meets its obligations in ensuring that data is recorded in alignment with these standards.

9.5 Information Technology (IT) Functions – “ICT Operations Department”.

9.5.1 Operational Support.

One of the ICT Directorate key functions is to support and develop the existing ICT operational systems within WAST. As a major Ambulance Service, WAST requires extensive application and general system software / hardware support for the users of the essential computer systems within the existing technology infrastructure. This support requires a department with a high degree of specialisation with secondary support skills in order to ensure consistency of service to the end user. To put this into a very simplistic manner WAST could not afford to lose the function provided by these computer systems as it has already been proven throughout the world that patient lives will be put at risk.

9.5.2 Technical and Systems Development.

There are a number of systems within WAST which are capable of being developed locally or in tandem with existing suppliers. The function of the Operations Department will be required to support these developments with the appropriate technical skills, ensuring that the information needs identified by the Health Informatics Department and the end users are supported by a sound technical environment.
9.5.3 **Help Desk.**

The ICT Directorate provides a first line support and maintenance cover of all of the mission critical computer system within the Trust for 7 x 24 hours per day, 365 days per year. Therefore an effective help desk and on call cover service is essential to support users who may be experiencing difficulties with the hardware or software to carry out their job functions. This process is further enhanced with out of office hour’s support from the major computer software and hardware companies.

The provision of a more extensive help desk facility and associated on-call arrangements is considered to be critical to the effective operational running of the organisation and is currently subject to review.

9.5.4 **Network Support.**

With the increasing use of data networks both internally and externally combined with the increased desire for electronic communication between WAST and its customers and other Healthcare stakeholders have generated the need for appropriate resources to manage and implement the network infrastructure and provide proactive first-level trouble shooting skills.

Some of these skills are already available however consideration will need to be given to provide the necessary ICT Training in order to consolidate this environment in light of all the future developments and importance of infrastructure.

9.5.5 **Hardware Maintenance and Software Support Contracts.**

WAST has a number of large-scale hardware and software contracts, which require control and management. In addition, decisions will have to be made on the control and co-ordination of small-scale hardware purchase and associated maintenance and support. Currently, development of procurement of minor hardware purchase (such as personal computers) has meant that the total number of hardware items within WAST is difficult to determine and co-ordinate effectively.

Consideration should be given to a centralised procurement policy, which will allow the acquisition of PCs to be recorded and monitored. This would not affect the Directorates ability to order their own kit (to approved standards) but would facilitate better co-ordination and prepare us for any change in policy on maintenance and upgrading. Currently, there is no formal maintenance policy for personal computers, primarily because in the past maintenance contracts of this type were not proven to be cost effective.

The increase in the total number of PC’s, the increased use of networks and the reduction in cost of PC maintenance contracts (as a result of the National Supplies “call off” contracts) have made a review of the provision of hardware maintenance arrangements appropriate.
9.5.6 **Standards and Policies.**

Standards and policies are required for fundamental ICT Operations practices such as system security, maintenance, back up, operational support and help desk facilities. Local standards have developed in a number of these areas and should be extended and revised in line with current and future National guidelines.

9.5.7 **Procurement and Project Management.**

Supporting the effective procurement of information systems and providing appropriate project management skills on implementation is a key component of the ICT function.

The resources required to procure information systems to approved standards (Procurement of Information Systems Effectively – POISE) and the subsequent management of the implementation to an approved methodology (PRINCE) should not be underestimated and represent a significant call on ICT skills, whether the department leads the process or alternatively provides technical support to other departments leading their own development.

10.0 **ICT Training.**

The National ICT strategy recognises that without appropriate and relevant skills within Provider organisations such as WAST the scope and range of such a strategy could never be implemented successfully and the potential benefits associated with good information management would never be fully realised. It also recognises that to an extent a culture change is required within the NHS generally to enable the true value of information to be fully understood by professional staff and managers.

In particular, it acknowledges the importance of the awareness of all staff that real benefits will only be gained by partnership with ICT staff and a commitment to contribute to the information systems development required to sustain the organisation’s information needs; it is equally essential that there is a corporate understanding and commitment to take responsibility for the collection and ownership of the data which supports information provision.

To achieve the benefits associated with both the National and the WAST ICT strategy there are a number of National training initiatives and guidelines to maximise information use within NHS organisations.

There are four main strands to the National Training Programme:

- Training awareness for Managers and Clinical Professions.
- Training for ICT professionals.
- ICT Strategy for training specific groups.
- Local delivery.
10.1 Training / Awareness for Managers and Clinicians.

Emphasis has been placed on the requirement for Chief Executives and Senior Managers to play a major role in the implementation of key ICT initiatives – the National programmes, seminars and workshops are therefore designed to ensure that these groups not only have an understanding of the ICT strategy generally but that knowledge is rooted in a deeper understanding of the crucial role that information plays in all aspects of healthcare planning and management.

A number of specific computer assisted learning packages have also been developed which are designed to facilitate managers/clinicians skills in information management, resource utilisation, decision-making and planning in healthcare settings.

The ICT Directorate working in partnership with the Education Training and Development Department will be developing an ICT Training specification in order to procure an external training contract. It will be the aim to then develop “focused ICT learning sets” for management teams and staff to provide general training courses but to also provide staff with an understanding of the issues surrounding the use of ICT in the business process of the Trust. This will hopefully ensure the production of more robust Departmental Business Cases.

10.2 Training for ICT Specialists.

Implementing the ICT strategies (National and local) requires well training skilled and motivated ICT staff.

There are a number of general IHC -ICT specialist workshops and seminars to keep professionals abreast of the current issues within the NHS ICT infrastructure. However, these alone are not enough and there is an increasing requirement to set an agreed ICT training budget within the Trust.

10.3 Specific Group Training.

In addition to the needs of managers, clinicians and specialist ICT staff, there are of course other groups of WAST staff whose training needs are equally important and whose contribution is vital if the benefits associated with this strategy are to be realised.

This is of particular importance to WAST where the introduction of computer systems has devolved the means of data capture / input to a wider range and diverse staffing groups. WAST is dependent on these staff to engage effectively with the information systems for both the quality of data upon which information delivery is based and the operational effectiveness of our patient care.
10.4 Local Development.

WAST has already carried out a number of training initiatives locally as part of a wider training programme and /or as part of the information delivery process. In particular:

- Identification of Needs analysis has taken place with general Manager’s groups to facilitate the use and provision of information.
- Training needs identification has taken place for ICT staff through the annual needs analysis carried out by ICT Directorate.
- It is the intention to produce an ICT Training Strategy, which will be linked to a procurement of an externally provided training contract.

10.5 Develop Staffing (Human Resources Strategy).

There is a fundamental requirement to set ICT Training needs into a wider Human Resources framework for ICT professionals, which should focus on the recruitment retention and the development of ICT specialist staff.

WAST has now in place a highly developed technology infrastructure and is therefore now reliant on the provision of information by ICT professionals. It is viewed as being critical that a consistent and coherent strategy is formulated which has as its core the requirement for a well-developed, stable and robust ICT infrastructure.

The framework should be developed in connection with the Human Resources Department and needs to focus on:

- Workforce planning and recruitment
- Training and development
- Good employment practice
- Retention and skills development

The framework can also be used to consolidate and formalise the existing activity, which is taking place on training needs identification, individual career and personal development. The intention should be to develop a strategy, which encompasses the needs of the organisation, the requirements of ICT staff, and the National initiatives, which are currently supporting the ICT discipline – there is for example, a National Human Resources Framework for ICT Specialists which was developed by the NHS Training Division (England).

WAST framework should facilitate:

- Professional, high quality delivery
- The attraction, development and retention of staff
- Recognition that ICT does make a significant contribution to the effective management and thereby to healthcare.
Any ICT Human Resources strategy must also take into account developments such as the National ICT Association (ASSIST) and the development of a new professional qualification, known as the Statement of Recognition for Information Management and Technology. The development of the training strategy locally should be agreed by the ICT and Human Resources departments and consistent and effective use should be made of the IHC training co-ordinator, who is responsible for the dissemination of information about National training programmes and material and can therefore facilitate our local developments.

Consideration should also be given to reviewing the possibility of the development of an Open Learning Centre within WAST. As one of the largest Ambulance Trusts in the NHS there may be considerable merit in establishing a learning centre where ICT training is a fundamental, (but not exclusive) function within it. National assistance is often available and there is a detailed good practice guide on the setting up, organisation and operation of an ICT Learning Centre (ICTLS).
11.0 Achieving the Vision.

11.1 Introduction.

The previous sections have described and explained both the position of the existing ICT infrastructure and the importance of data. However to achieve the strategic ICT goals the Trust will require a more comprehensive, modern and robust infrastructure.

This section explains the process of how the Trust will achieve an Electronic Patient Record (EPR) and by doing so consider what would be the most realistic route which takes into account the need to ensure consistency of patient based information and how this vital source of data will be communicated to those responsible for the provision of patient based services. The method to achieve these requirements as defined in section 11.2 “The Projects” was through the consultation process as described within section 6.1.4. It should also be stressed that the projects as defined within section 11.2 will take into account the needs of the any National requirement such as detailed within section 5.2 “Information should focus on health”.

The philosophy, which lies behind the infrastructure, is summed up in the Diagram below, which identifies the overall delivery mechanism.
These mechanisms will be based on the development of a data warehouse whose data will have originated from the various WAST systems and external systems. This data warehouse will then be integrated into the Trust Electronic Patient Record (EPR) environment. This new environment will then enable for the first time for the Trust to develop more clinical related information and systems. The EPR infrastructure will create an overall Trust’s Master Patient Index (MPI). The MPI will store all the related Trust’s patient contact information within a database (i.e. the system will record / store every single patient contact details such as name, address, incident location and medical treatment given by WAST). The future infrastructure will use both web based technology and new mobile technology.

To enable the means to provide this new environment of capture, recording and dissemination of data to Trust staff WAST will need to address a number of other related Projects. Due to the strategic importance of these Projects it should be noted that the following Projects are interdependent on each other and it is therefore vital that WAST successfully delivers on all of them in order to ensure the overall achievement of an EPR and a clinically based system.

The overall principle of the new environment and infrastructure will be based on the facility to share and transfer data between them. This will be further encouraged with an on going programme to implement and maintain a Trust Intranet and web capability. This information will be aimed at making a wide range of useful information available in an easy to access and assimilate manner to mobile Trust staff as well as potential other key NHS stakeholders such as the wider community services.
11.2 The Projects.

The following projects are not listed in order, priority or implementation sequence:

<table>
<thead>
<tr>
<th>Projects</th>
<th>ICT projects</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Active Directory</td>
</tr>
<tr>
<td>2</td>
<td>Adastra Alert/EMS interface</td>
</tr>
<tr>
<td>3</td>
<td>ARRP implementation</td>
</tr>
<tr>
<td>4</td>
<td>Automatic Vehicle Location (AVLS), Mobile Data (MDT), Satellite Navigation (Sat Nav)</td>
</tr>
<tr>
<td>5</td>
<td>Business continuity and Disaster recovery</td>
</tr>
<tr>
<td>6</td>
<td>Business Systems</td>
</tr>
<tr>
<td>7</td>
<td>Centralised Data Centre x 2</td>
</tr>
<tr>
<td>8</td>
<td>Document Management system + SharePoint</td>
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<tr>
<td>9</td>
<td>Electronic Patient Record (EPR)</td>
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<td>10</td>
<td>Electronic Staff Record (ESR)</td>
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<td>11</td>
<td>Fleet Management System</td>
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<td>12</td>
<td>Geographical Information System (GIS)</td>
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<td>13</td>
<td>ICT – IT external support to deliver the IT projects</td>
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<td>14</td>
<td>ICT Security development</td>
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<tr>
<td>15</td>
<td>ICT Service Desk</td>
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<tr>
<td>16</td>
<td>ICT staff training &amp; development</td>
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<tr>
<td>17</td>
<td>Infection Control System</td>
</tr>
<tr>
<td>18</td>
<td>Mapping and Gazetteer</td>
</tr>
<tr>
<td>19</td>
<td>Mobile Communications within Wales – such as First Community Responders</td>
</tr>
<tr>
<td>20</td>
<td>New Emergency Medical Services system</td>
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<tr>
<td>21</td>
<td>New Patient Care Services (PCS) system</td>
</tr>
<tr>
<td>22</td>
<td>Patient Report Form (PRF) data capture &amp; analysis</td>
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<tr>
<td>23</td>
<td>Performance Management System</td>
</tr>
<tr>
<td>24</td>
<td>Remote access to Trust systems</td>
</tr>
<tr>
<td>25</td>
<td>Review and upgrade of Hardware</td>
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Project 1  Active Directory

The Trust main operating system is Microsoft and therefore in order to ensure the organisation has in place a secure and managed process of ensuring only appropriate and authorised Trust staff have access to the Trust IT infrastructure and its computer systems WAST must implement Active Directory. Active Directory forms part of the Microsoft Windows 2003 Operating System its function is to manage the user accounts and therefore the means to access the Trust’s data network.

The Trust currently runs multiple Active Directory domains based on the legacy organisation computer systems. The problem with these old domains means standardisation of the Microsoft products such as Word can not be achieved. The current infrastructure also does not support the new ways of working such as to enable staff to access their email and business systems from anywhere within the Trust or remotely.

To address the business needs of the Trust this project will introduce a single new Active Directory which will be supported by a backup strategy. This new Active Directory called the “Ambulance Domain” will encompass a single domain structure as per the prescribed Microsoft recommended model for a large, geographically challenged organisations such as WAST.

The rollout of the single Active Directory structure is closely aligned to the replacement e-mail configuration scheduled to complete by the end of September 2009.

This project will act as the catalyst to achieve most of the Microsoft required projects within this Strategy therefore failure to achieve this project will stop many of the project defined within this section 11.2.
Project 2  Adastra (GP computer system), Alert &CAS interface.

Based on National health care targets such as ‘Modernisation of Ambulance Services’, ‘Delivering the NHS Plan’ and ‘Reforming Emergency Care’, a common theme has emerged to improve emergency service response and development of a universal emergency call prioritisation system to be shared across the NHS. WAST along with other NHS Ambulance trusts have been encouraged to set up and evaluate pilot studies to provide an efficient in management of AS1 minor Category ‘C’ emergency calls.

The Trust has looked internally at the core businesses operated within its remit and the resources available within. It was noted that NHS Direct is staffed with highly qualified nurses and health care professionals, who operate a Clinical Assessment System (CAS). This provision provides health care advice via the use of the telephone system triage process.

It is the belief that by combining the resources of Paramedic EMS and PCS that resources available in these areas can to be used in conjunction with NHS Direct to provide an enhanced triage process to manage Category ‘C’ calls the in the first phase and if successful to develop into all calls received from the public and other NHS key stakeholders.

The Trust has trialled a process of the Clinical Desk within the Ambulance Control Rooms to filter Cat C calls, although this was a limited test it did prove the concept could be achieved. However this trial was conducted under a manual process without the NHS Direct and Ambulance computer systems been interfaced.

The future environment sought will allow the transmission of patient demographic details, the initial medical complaint and other information between the two core business systems via the use of an application interface which links the EMS Command & Control system to the National NHSD CAS application. This interface will provide greater efficiencies of use. This process will then enable diagnosis and advice offered to the general public to then be further directed to other various NHS routes of treatment such as GP OOH, Community Nurses and/ Health Visitors. The net effect of this should be more appropriate calls arriving at the Ambulance Control Rooms, i.e. only true life threatening calls CAT A.
**Project 3  Airwave Implementation (AARP)**

The Trust currently operates legacy analogue voice radio networks across Wales which supports the means of Control Rooms to voice communicate to Ambulance crews in both EMS and PCS. The technology infrastructure is out of date and can no longer be maintained. To address this problem the UK Government has invested in the development of a secure and modern radio infrastructure which has been designed for all emergency services within the UK. For the NHS these services have been managed and procure through the Department of Health (DOH). The DOH has commissioned the company “Airwave” to provide the National communication infrastructure to implement a Tetra digital radio network on behalf of the UK Ambulance services. The value of the project is around £55 million over ten years.

The Trust is now in an advanced position with the implementation of this project with the aim of achieving a live status by November 2009. This will mean that the Trust will have a secure voice communication to all Ambulance crews. However to achieve data transmission to the Ambulance fleet as in line with all other UK Ambulances the Trust has had to produce a OBC and to procure for these additional device. This requirement is being addressed as part of project the Automatic Vehicle Location (AVLS), Mobile Data (MDT), Satellite Navigation (Sat Nav).

**Project 4  Automatic Vehicle Location (AVLS), Mobile Data (MDT), Satellite Navigation (Sat Nav)**

In order to enable the full benefits of the ARRP £55 million project the Trust requires the installation of IT technology into the fleet. These new devices will enable the Control Rooms to automatics communicate with the fleet to provide data such as location of incidents, email if required and location of fleet itself.

The Trust currently does no have mobile data, AVLS or Satellite Navigation (SAT/NAV) across all three regions. SAT/NAV is fitted to some vehicles but this is in a stand alone capacity within the South East region.

By introducing these devices into the fleet and combining this with the automated functions with the command & control computer systems (ie EISEC) such as this will now enable the Control Room to locate the fleet and to then transmit incident, location and details. The incident location will automatically be sent to the SAT/NAV. All of this will eliminate the current voice traffic between Control room staff to Ambulance crews which in turn will speed up the deployment process therefore improving response times. This project will be required for such other project as:-

- Electronic Patient Record (EPR)
- Mobile Communications within Wales – such as First Community Responders
- Virtual Clinical Contact Centres (Control Rooms) Infrastructure development
Project 5  
**Business continuity and Disaster recovery**

In today’s business environment, the Trust is becoming increasingly dependent upon its ICT resources. As a result, there is a need to ensure that ICT resources are always available, as any outage can have serious business implications. The Trust has developed ICT DR plans which are designed to provide immediate response and subsequent recovery from specific ICT-related incidents at the Trust’s Control Rooms both WAST and NHS Direct sites namely:

- Total destruction or loss of access to the data centre housing the site ICT systems
- Failure of major parts of the ICT infrastructure i.e. Local Area Network.

This is achieved by the use of duplication of critical systems. All DR plans reflect the configurations of the legacy organisations and are designed to provide immediate response and subsequent recovery from any major unplanned IT interruption resulting from a catastrophic event such as a major fire. Specific procedures relating to technical and administrative recovery activities are included within the respective Recovery Team plans.

As part of the ISO27001:2005 standard, regular ‘system recovery’ events also take place which provides assurance of the integrity of system backup and recovery procedures.

A business critical activity is to ensure that all data are available 24/7 and fully backed up. The current strategy is to complete a full system back up every Friday evening, with incremental backups being completed Monday to Thursday. The amount of data that is held on servers and backed up has increased significantly over recent years, so much so that the backup “window” is now so tight as to almost encroach on the working day.

In support of the DR plan, all business data are backed up to tape for off-site storage. The existing DR plans should be reviewed in line with recent developments and the introduction of a single Active Directory structure. The issues relating to the backup and restore function of business critical data will be resolved with the delivery of the Distributed File Storage solution as defined within projects Centralised Data Centre x 2 and Document Management system + SharePoint.

All ICT DR processes will be aligned with the overall Trust Business continuity and Disaster recovery under the management of the Trust Emergency Planning Dept plans.

In addition, the Trust will seek accreditation to BS25999 which is the recognised standard for Business Continuity. The standard is particularly relevant for an organisation which operate in a high risk environment such as WAST, where the ability to continue operating is paramount for the organisation itself, its customers and stakeholders.
Project 6  

**Business Systems**

The Trust is a Microsoft site however, due to historic installs of software the current devices (laptops & PC’s) in operation within the Trust operate on a mixture of different software versions.

Within this environment applications such as Microsoft Office have been installed to provide staff with the necessary tools to carry out their duties. Not all users are using centrally provided data stores and duplication of data is evident throughout the ICT infrastructure. Differing standards of back office business systems make it difficult to adopt a coherent approach to business support services. It is imperative to the Trust that if business support functions are to benefit directly in the support of the service, then increased functionality and communications through these tools is vital. It is therefore the aim of this strategy to:

- Provide business systems supportive tools that enhance and support the requirements of the users.
- Ensure a standard system is implemented across the Trust.
- Enhance Trust wide communication through the use of functional business tools.

Project 7  

**Centralised Data Centre x 2 & Central Server Computing**

The ICT Directorate has only a limited resource capability to support a dispersed ICT environment. The task of support is currently man power intensive. The consequences of this is that the ICT Department is constantly “fire fighting” and therefore not able to function in a professional manner. The current infrastructure also makes the task of monitoring, securing the environment and addressing “Best Practice” as goals, extremely difficult.

There is also a requirement to reduce the cost of ownership associated with the deployment and maintenance of distributed applications, operating systems, software tools and bespoke applications. Given the current level of resource and the expanding requirements to improve the quality of service to the user population, it is proposed that WAST adopt a centralised data centre to deliver the required services to the Trust. This will allow the delivery of a highly resilient platform of services and dramatically improve the support services offered by the ICT operations team. In order to deliver the vision of a virtual Welsh Ambulance Service it is imperative that a centralised data centre is implemented.

In order to ensure the delivery of the TTMD programme WAST will require a highly resilient and robust platform on which to base its ICT services. It is a further requirement that WAST increase the functionality of the current system provided if it is to move towards becoming an exemplar service. The implementation of a centralised data centre will ensure that WAST will have an expandable infrastructure to allow for future enhancements to the service. The delivery of a robust business continuity plan will be almost impossible to deliver without the implementation of the proposed centralised data centre. In order to provide the required level of business continuity it is proposed to provide dual data centres which are able to support each other in the event of a system problem.
To also ensure that business continuity and disaster recovery can take place it will also essential to have in place a duplicate data centre. These data centre will have in place the exact same hardware configuration and will through the new data network service of Wales IHC, PSBA will automatically mirror all data and information between the centres. This will ensure that backups are automated and that the Trust never experiences down times.

Given the current level of resource and the expanding requirements to improve the quality of service to the user population, it is proposed that WAST adopt a Central Server Computer strategy to deliver the required desktop applications and to then support this from two central locations. This will allow the distribution of a Windows NT terminal emulator used to display an NT session on client based workstations from anywhere within the organisation. Using this form of technology both application operation and data storage can be held and executed from two central locations.

It is proposed that the Trust commission external advice to provide an analysis of the current ICT technology deployed within the Trust with a view to suggesting a method to improve the current level of system availability and functionality in line with this documents strategic vision.

**Project 8 Document Management system + SharePoint**

There is no document management system in use within the Trust. Data is stored in a number of places and multiple copies of documents exist. Access to computer data is difficult and is currently facilitated via shared drives which require large resources to administer. With the introduction of a centralised Data Centre it is a logical step to ensure that Document Management systems are also implemented, this will ensure a far more robust method of access to and sharing of documents, as well as ensuring that version control of documents is made far easier. The advantages of the implementation of such a system are as follows:

- Reduced management overhead of access to and sharing of documents
- Reduced data storage
- Centralised point of information
- Reduces duplication of data
- Better version control
- Enhanced access for all Trust staff
- Easier and clear access to data
- Centralised control of documents
- Helps the integration of WAST with NHS Direct due to easier sharing of documents

This process will be developed further into a data warehouse and document management system which will contribute to a number of organisational objectives.

- Performance & Service Improvement – By providing easy to access information that can aid performance management, staff will be better equipped with the information necessary to identify areas for improvement.
- Communication – By providing a single portal to information for all members of staff, it will become easier to communicate issues to staff effectively. It would also allow staff members to communicate to each other.
IT Infrastructure – By implementing this system the IT infrastructure will be improved and will promote an improved service delivery.

The project will provide the ability for the Trust to analyse organisational data and to create a single view of this data using core BI technologies. This will bring together key data, ad-hoc analysis and the presentation of information in a format that can be customised for individual users. Further, the outputs from this project will support the Trust’s performance management processes by providing an interface for performance management, including the following functionality:

- Monitor: Monitor progress in a scorecard or dashboard;
- Analyse: Quickly analyse what is driving variances against anticipated or planned outcomes;
- Plan: Adjust a plan or budget to meet changing business conditions.

The Data Warehouse systems will be designed to receive & extract data from the various other information systems and will be developed to serve two primary functions:

- The provision of information in an accessible and user friendly format in order to facilitate the Management and staff to gain access to data.
- To facilitate Management staff to perform modelling and strategic forecasting to build complex modelling environments to help prepare for the future and model the effects of complex decision-making. This part of the Data Warehouse includes functionality typically associated with an Executive Information System (EIS).

The Data Warehouse will also develop to present and compile data with two views: one a ‘high level’ Executive view and the other a General Managers view both will allow further drill downs to a more detailed level of activity. In both cases, the Data Warehouse will be used to monitor performance against a series of National and local performance indicators. WAST already has in place the building blocks for this environment and in fact has a form a Data Warehouse, which stores over five years worth of the “Alert” data. Over the next years WAST will need to consider the method to enhance this delivery method either through internal development or to procure a new environment.

The objective is to provide the integrated ability to work with the Microsoft Office system environment. The Trust must have a performance management framework that facilitates ease and speed to build, personalise, manage and deploy the robust scorecards and dashboards that enable Trust Managers / Directors / Executives / Trust Board to continually monitor what's happening within the Trust.

The proposed solution will enable the Trust to meet its objectives by:

- Providing an integrated holding area for Trust data that is from a variety of sources, non uniform and scattered throughout the Trust;
- Managing demand for lots of information from lots of users; reducing time and resources;
- Providing a holistic view of Trust activity and performance from a number of directorates.
Project 9  

**Electronic Patient Record (EPR)**

One of the key targets contained within the *Informing Healthcare* that directly impacts on the Trust’s ICT strategy is the requirement to develop an Electronic Patient Record (EPR). EPR describes the record of the periodic care provided mainly by one institution. The EPR will be the means that WAST will provide patient related data to the National Electronic Health Record (EHR). The term EHR is used to describe the concept of a longitudinal record of patient’s health and healthcare from cradle to grave. It combines both the information about patient contacts with WAST as well as subsets of information associated with the outcomes of periodic care held in other Healthcare providers EPR’s.

The whole concept will be access through the National communications infrastructure in order to ensure: -

- That patients can be confident that the NHS professionals caring for them have reliable and rapid access, 24 hours a day, to the relevant personal information necessary to support their care

- That every NHS professional with on-line access to the latest local guidance and National evidence on treatment, and the information they need to evaluate the effectiveness of their work and to support their professional development

For WAST this will eventually replace the Patient Report Form (PRF), however this will take some time to implement and therefore it will be essential to maintain the paper PRF. WAST will need to produce an agreed Output Based Specification (OBS) for the software with IHC. This OBS will set the agreed standards for the major core functions of the software. This new system will also be linked to the National Radio Project ARRP and the Mobile Data Terminals. The means to record and to gain access to date will be provided through new computer colour terminals within all of WAST emergency Ambulances.

WAST is already in the process of reviewing this whole area of recording patient information and has established an internal PRF/EPR Group. This Group has produced a Project Initiation Document (PID) which details WAST approach to achieving the requirements of the EPR and to balance this with the OBS. WAST would like to extent this project further by exploring the process of sharing patient information with Wales A&E Departments.

In order for WAST to implement this environment the Trust will have to go through a European Journal procurement process for both the hardware and software.
Project 10  

Electronic Staff Record (ESR)

The Trust utilises the Electronic Staff Record (ESR) which is a real-time system and is provided by a consortium comprising McKesson, Oracle and the NHS. ESR is a UK National project which will replace numerous payroll and HR systems with a single, national solution to be used by all NHS organisations throughout England and Wales.

The ESR programme is an important building block within the modernisation programme outlined in the NHS Plan (2000) and the NHS Improvement Plan (2004).

The core system supports the following functions:

- HR Management and Administration
- Payroll and Pensions
- Recruitment linked through an interface to NHS jobs
- Bank Administration
- Absence Management
- Career Management
- eKSF
- Management self-service
- Employee self-service.

A key objective of the ESR project will be to review of attendance management and monitoring will be undertaken to exploit the interface capabilities of ESR and Promis (rostering system), this will provide ‘real-time’ sickness absence input and improve sickness absence monitoring. Further developments over the next few years will be the deployment of the ESR to managers and staff to allow self-service to certain aspects of the ESR modules.

HR have identified the following key benefits from the ESR in its early stages:

- Remote access for staff outside of the Trust Headquarters
- Improved monitoring and reporting facility
- Improved accuracy and consistency of data
- Greater reporting capability and increased access to reports through management self-service
- Efficiency saving derived from streamlining HR administrative functions
Project 11  Fleet Management System

The Trust currently has in place the computer system “Fleetman” which is provided by Cleric Limited. This system is an integrated fleet management package which provides a controlled system for vehicle workshops. Its facilities are designed to maximise efficiency, minimise costs and provide extensive reporting and costing capabilities. However the system is limited compared to the private sector fleet management systems.

The Trust through the Make Ready project contained within the Trust’s National Estates SOC requires the necessity of a detailed fleet management system. The Trust will need to review the existing system against the market place in order to ensure that the Trust can manage its fleet and to deliver the Estates SOC.

Project 12  Geographical Information System (GIS)

WAST is at the cutting edge of service delivery, and as such requires a solution to deliver integrated spatial data with health intelligence. The ability to subsequently deliver this information within a browser environment will allow the Trust to act as an independent data portal. The opportunity to expand the usage of the system to external users from WAST will also be possible.

It is intended that the solution may allow WAST to eventually act as a spatial data hub for all of the Wales NHS community to utilise. This information will be delivered via the Trust’s GIS and the intranet (NHS Net).

The data sources will be delivered in a variety of media, initially, this could be data extracted from A&E systems, to other common data format such as excel from GP’s for example. This will allow WAST to create a data warehouse of spatially corrected data that can be aggregated against polygon data sets e.g. LHB boundaries, Wards, Regional boundaries. There is also an opportunity to extend the interoperability work with the other emergency services by undertaking similar analysis against such things as Police beat boundaries and Fire Service Station Grounds. One of the benefits of this approach is the aggregation of this data, which means that issues relating to the data protection act (identification of individual) are avoided.

Data supplied without coordinates will then be geo-coded using Quick Address Batch and loaded into the system using the standard tools within the GIS. The users will then generate various analysis results for example: -

- Hot spot map – Category ‘A’ Calls
- Choropleth map - Coronary Heart Disease/ Month of the year/PCT or Ward…etc

The above can then be made available to the users via the GIS. Once this analysis has been created and the results made available, it will allow the Trust the opportunity to extend the solution for delivery into the wider community of Wales. It is likely that different end users may require different options; therefore the evolution of this portal will require further discussion and additional service may be required once the initial data collection and installation is complete.
Project 13  
ICT – IT external support to deliver the IT projects

In order to deliver the ICT Strategy the current IT establishment will require the support of external consultancy to support the means to achieve this programme. This is required due to the fact that the existing Dept heavy workload but also because it lacks the expertise and knowledge to deliver these areas of technology.

Project 14  
ICT Security development

Information systems used by NHS organisations and their information partners are becoming increasingly interconnected. This creates many benefits, as well as introducing new risk factors. Many of the critical services that are essential to the well being of the UK are dependent, on Information Technology. Both public and private sector organisations provide these services, it is therefore essential that the Trust adopts a stringent security strategy to ensure both service resilience and patient confidentiality.

This will be addressed as detailed below:

- Implementation and configuration of firewalls
- Adopt ISO 17799 standards
- Implement the appropriate Welsh risk management standards
- Comply with the Code of connection
- Introduce data encryption
- Improve management of remote access
- Ensure a robust inventory of Trust ICT assets
- Review the Trusts Anti Virus software
- Implement mail filtering and monitoring
- Implement Internet filtering and monitoring
- Implement end point security
- Review and implement enhancements to the Trusts physical access to ICT equipment
- Implement system operating procedures
- Implement ICT policies
- Review and implement enhancements to patch management
Project 15  ICT Service Desk

The ICT support services of the Trust are provided by a small internal support team. Currently the Service Desk is utilising the National Service Point Help Desk computer system which allows users to log and track requests and problems; however this is not in full operation at the moment. The Trust is currently reviewing the system in order to ensure it matches the needs of supporting ARRP and the future direction of the organisation.

It is the intent of this project to:

- Implement a procedural document explaining the processes involved when logging faults
- Ensure a fault escalation process is in place
- Ensure a single point of contact for the logging of all ICT related faults and requests
- Implement agreed SLA’s between ICT and its customers
- Provide a true reflection of the quantity, quality and trends of the ICT Support Team through regular statistical information
- Ensure that all ICT Technical engineers have the capability to fully utilise the proposed ICT Service Desk tool regardless of their location
- Ensure that the required flow of information in relation to ICT faults is made available to all that need it
- Ensure that the ICT operations support team have the required tools and information needed to support the Trusts infrastructure
- Conform to ITIL best practice in the provision of ICT support services

Out of Hours Support Provision

The Trust ICT support team provide out of hours technical assistance to ensure continued smooth operation of the core service. However the means to record this activity is not possible. In order to ensure the ARRP infrastructure is support 7x24 the Trust may will need to consider how it can provide the support.

The current system of support provision can be burdening for the support persons involved. The Trust will evaluate the current on call IT arrangements and produce a summary report of these findings with recommendations for improvements or enhancements to the out of hours support service.
Project 16  ICT staff training & development

Further development and modernisation of the Trust cannot be delivered through new systems alone. It is through staff training and development that the full benefits of systems will be realised. In order to achieve the aims and objectives of this strategy, training and development of all staff across the organisation is essential.

It is therefore the intention of this strategy to:

- Provide ongoing ICT training for staff
- Establish an IT skills matrix for all staff
- Conduct an IT training needs analysis across the ICT Operations team
- Further develop IT training plans for all ICT staff
- Provide a solution to address the gaps in skills required versus training needed
- Ensure that all ICT staff will have received an individual performance review and possess a personal development plan by the end of 2008
- Ensure all IT staff are trained to work to BS and ITL standards
- Develop training documentation for all ICT systems in use by the organisation
- Assess the skill level of all existing ICT operations staff and where needed implement training for any identified shortfalls

Staff Development

The Trust ICT support team are constantly challenged by new developments within both within the IT sector and the Communications sector. It is therefore the strategic intent of this document to:

- Update and improve IT staff skills both theoretically and practically
- Identify IT skills needs
- Support staff through the necessary training mechanisms
- Implement additional support resources as required by service developments
- Evaluate required office space within which to seat IT support personnel

Staff Recruitment

The recruitment of Trust ICT staff needs to match the requirements of the Welsh Ambulance Service. In order to match the required personnel to the requirements of the role the Trust should:

- Produce an ICT recruitment strategy
- Evaluate recruitment methods and selection processes
- Ensure that any recruitment of posts is in line with comparable salaries and skills elsewhere in the industry
- Ensure that all ICT posts are recruited under the A4C umbrella
Project 17  Infection Control System

In order to measure, monitor and manage the process of cleaning the Trust’s fleet for such infections as MRSA and professional process needs to be put into place. This process will then require management procedures and this is where a new computer system will address these issues. The system itself will allow samples to be taken directly within the vehicles and to then transmit this data to a computer system to be further analysed. All of this information will stored and record in order to ensure the fleet is kept within safe levels of infection.

Project 18  Mapping and Gazetteer

Mapping Systems

Mapping within the Trust has three main purposes:

- Real-time management of ambulance resources. Using predefined algorithms it suggests, in the case of ECC, the nearest resource to arrive on scene within the shortest time.
- In the case of PTS, mapping is used to derive the most efficient route for ambulance resource to perform multiple patient transports, within the same journey, to the same healthcare facility. From a planning point of view, mapping is used to establish future resource requirements and their location of work given the predicted level of incident / transport activity.
- Within the vehicle, mapping forms an integral part of satellite navigation, aiding ambulance resource in travelling the most efficient route to incidents, taking account of topography.

To date a number of different mapping tools have been used and as such consistency between positioning resource, mobilising resource and the route taken in attending the incident may differ.

- As a reporting tool, mapping is used to present management information relating to ambulance activity, patient pathways and health and social demographics. As an example, mapping has been used to aid neighbouring hospital trusts within their service reconfiguration and supported development of regional initiatives such as the Falls schemes.

The Trust seeks to implement standardised mapping tools, enabling the use of the latest advancements in technology to assist the Trust in effectively managing its resource.

Gazetteer

A gazetteer contains a rich dataset of business names, domestic and commercial property names, addresses, telephone numbers and grid co-ordinates used within the Control Rooms to accurately identify the location of incidents. As a mobile healthcare provider the organisation is reliant on accurate information to enable it to respond to public requests for assistance. As part of the standardisation process the various gazetteers within the Trust now required to be addressed a merged into a single gazetteer database.
The ICT Dept. now seeks to develop a centralised common gazetteer that can be used by the all the Control Rooms in order to support the deployment of resource in the delivery of patient care. The gazetteer will be deployed in such a manner that data can be interchanged with other emergency services providers, in addition to being maintained via traditional methods which include the use of internal resource and third party dataset integration. Furthermore, the ICT Directorate is working collaboratively with Government Offices to establish a process which will allow members of the public to inform the Trust of their exact location, giving details of their house name and grid reference for example, which will then be recorded in the gazetteer to assist operational colleagues in locating remote premises should the Trust receive a call for assistance.

**Project 19  Mobile Communications within Wales – such as First Community Responders**

As part of the process to enhance the Operational deployment of resources WAST has been keen to develop alternative forms of communications to these vital resources. A example of this development has seen the use within the North Region of utilising hand held technology devices to communicate both outward and inward data traffic to First Community Responders. A pilot study was conduct to evaluate this technology and has been proven a success with all key stakeholders. With this in mind WAST would now like to deploy this technology throughout Wales.

**Project 20  New Emergency Medical Services system**

WAST is required to procure a new EMS as the existing contract with MIS the software house who supplies the ALERT system currently in place through out all of the Control Rooms will soon reach its termination date. An ICT Group has been established with the remit of developing an Output Based Specification for the new EMS system.

Currently the EMS system is delivered on a regional basis, whilst this is a single supplier system the systems themselves are not linked to each other in a IT manner that allows seamless Operational capability. The Trust has in place an advanced method of bring together management reports but we now need to address the hardware requirements in order to achieve a number of other projects such as virtual Clinical Contact Centres. This new system will need to consider procurement routes however the Trust is also exploring the opportunity of a logically upgrade path with the BSP.

**Project 21  New Patient Care Services (PCS) system**

WAST PCS legacy systems are running on a regional basis, there is a total of five systems currently in use throughout WAST. The problem created by this infrastructure is an inability to transfer calls from EMS to PCS and vice versa. Further problems are created by the inability to produce collective management information. The overheads in management of these systems require a greater level of support than a single vendor platform would offer. Two of the existing legacy systems have been developed in house by staff that have now left the Trust. To address this issue the Trust has now procured a new PCS system of which is advanced in its implementation.
The aim of this project is to standardise on a single national PCS system bringing with it the benefits of being able to achieve a virtual Control Rooms, along with the ability to transfer calls to and from EMS.

**Project 22 Patient Report Form (PRF) data capture & analysis**

The Patient Report Forms (PRF) are currently collected from each of the 35 ambulance stations and brought to a central pickup point before delivery to an external company called “Advance Ltd”. On receipt of these documents, Advance Ltd converts the PRF forms to microfiche media and disposes of the paper-based record. The converted PRF is then subsequently delivered to the ICT Department based at Belle Vue for storage. Retrieval of this information is manual task undertaken by the Health informatics Department upon a written and authorised requests.

Problems with the current arrangement are the time to locate historic PRF’s the accuracy of the data contained within the records itself and the issue of a “Save Haven” to store the records. On analysing this process it is clear that WAST could provide a short-term solution to address these problems and to find a method to display this information quickly and in a user-friendly manner. The proposed short-term solution will be to migrate the PRF to an electronic format using a form scanning process. It should be noted that the long-term plan would be the Electronic Patient Record rather than a manual PRF.

In order to improve the mechanism by which information is obtained from incidents attended by staff an electronic storage and retrieval mechanism is required for the PRF. This information together with data held within the Alert system provides an enriched data set to provide an overview of a given incident. This information will then be accessed in a secure manner from the Trust’s Intranet.

To convert the required data set obtained from the PRF into an electronic record, the PRF would have to be scanned and stored as individual data within an electronic record. The process proposed will store relevant information as an image to be displayed within the Trust’s intranet solution. This will then allow quick and easy access to incident data for staff.

**Benefits**

- Reduced storage requirements.
- Efficient method of storage for 10-year period.
- Improved storage and retrieval mechanism.
- PRF data can be fully merged and interrogated as part of incident details held within ambulance computer systems.
- Form scan device can be used for additional projects within the WAST organisation.

The outcomes of this Project will enable and provide benefits towards the EPR Project. Areas where WAST will be conducting reviews will be as follows:

1. Review current PRF itself in terms of the clinical information it records.
2. Review the quality of the data contained within the PRF.
3. Review the method of data record at A&E Departments.
4. Review the possibility of Clinical Coders.
**Project 23  Performance Management System**

The Trust supports the process of ‘whole system’ performance management framework. An in-house developed system has enabled the monitoring and publication of agreed Key Performance Indicators (KPI’s) from each Directorate in the Trust. The defined indicators are provided each month through a web enabled collation tool. The output from the tool provides Trust and Area performance management reports.

Operational performance management information is provided in an inconsistent manner across the areas with a number of systems that have remained in place due to historic reasons. The introduction of the Query IT tool has enabled the amalgamation of the then four now three emergency Control Rooms into an SQL data warehouse environment.

An Information Strategy will be developed with key stakeholders as the central driver for management information. A review of reporting technologies that are currently in place across the Trust will be undertaken to assess benefits realisation through the lifetime of products and also value for money. Working closely with the stakeholders the review aims to identify the key information systems that meet the needs and strategic aims of the Trust.

The Trust will consider the introduction of a performance management system that offers qualitative and quantitative performance management functionality and supports “dashboard style” reporting to the appropriate levels of Trust staff.

It will be essential to improve the capacity and capability of the performance monitoring and performance management functions in order to ensure the success of any future modernisation of the Trust application and ensure viability under any potential new NHS financial regimes. The Trust will review and evaluate systems to support this process.

In addition the Trust plans to further develop consistent web enabled, interactive reporting to support operational performance management as well as the needs of ‘whole system’ performance management. The reporting process will be underpinned by further development of the data warehouse which will see appropriate internal datasets such as rostering and fleet and external data sets such as A&E Commissioning Datasets (CDS) added to provide enhanced analysis to the Trust and its stakeholders.

Whilst much of the focus has been on retrospective analysis the Trust is keen to implement predictive modelling tools to support the business planning function.

The overall aim is to work with the performance management functions of the Trust to move away from performance monitoring and embed performance management, instilling an ethos of continuous improvement in the organisation.
Project 24  Remote access to Trust systems

The Trust currently operates disparate remote access solutions, enabling staff to gain access to email and remote desktop services from defined locations, which include:

- N3 connected sites
- Sites with 3G and GPRS commercial network provision
- Home working utilising Broadband network services
- Access dependant on the software and security services installed on the remote accessing device.

These solutions are provided by different third party providers, using various technologies, where secure access is dependent on the security software deployed and remote desktop applications.

The Trust seeks to implement a common ICT infrastructure enabling staff to gain remote access to email and desktop application services, providing centrally hosted data storage for Trust business applications.

The chosen solution will comply with IHC requirements to ensure remote access security provisions using approved two-factor authentication for user access.

Project 25  Review and upgrade of Hardware

Historically the Trust has purchased from a single supplier where appropriate to do so. This has included equipment such as servers, desktop PC’s, Laptops and other specialised devices. However due to lack of funding the systems in place are of varying age and configuration. The Trust has not had the benefit of a refresh programme to ensure that its hardware platform has been kept up to date with the requirements of the Ambulance Service. The Trust has not undergone a review of its infrastructure or its strategy for procurement of hardware. Therefore the purchase of the equipment in place has not been determined and hence it is felt that some of the equipment purchased has not been fit for purpose. The Trust now needs to ensure that they evaluate the best possible solution for their hardware platform and further ensure that as far as possible the future needs are considered during this process.

It is therefore the intention of this strategy to:

- Evaluate and implement an appropriate single supplier for server and desktop hardware
- Refresh out-dated PC’s
- Evaluate staff needs for hardware, e.g. Adjustable monitor stands, etc
- Ensure a hardware refresh programme is in place
- Review current hardware maintenance contracts to determine the level of service provided and the appropriateness
- Review suppliers costs and level service support to achieve best value and service provision
- Review the available hardware technologies and implement the best approach to meet the trust’s requirements
- Ensure that any solution implemented within the new infrastructure is able to cope with the future demands of the service
Project 26  Review Managed services contracts

The trust has in place a number of managed service contracts that are required to ensure robust management of ICT systems. It is essential that these contracts are reviewed from time to time to meet the requirements of the Trust. Further to this in order to ensure best value for money and appropriate service provision it is essential that these contracts are reviewed to ensure the continued operation of ICT services. It is the proposal of this strategy to ensure that there is a centralised system for management of these contracts.

Project 27  Review of IT Support

The ICT Operations structure currently provides support for operational and business systems predominantly during the hours of 9am to 5pm Monday to Friday. The ICT operations team is a National Ambulance Service team, support is provided regionally by regional teams, however resources can and will be allocated from other regions as and when required. Out Of Hours (OOH) support is provided by an on call rota system covering the hours outside of the above.

Whilst the current staff are providing ICT support to the current user base there is no agreed service levels or approach to their support. Support is provided on a best endeavours basis. Similarly OOH support varies between regions and again there is no agreed standard. All of this may be required to be changed once ARRP and MTD are fully installed throughout the Trust.

It is therefore the intention of this strategy to:

- Introduce an ITIL approach to ICT support for all ICT staff
- Implement an OOH ICT on call policy
- Introduce SLA’s and ensure staff are aware of their content and adhere to the agreements made within
- Ensure that all ICT support staff work closely with the service desk in the resolution of ICT incidents
- Ensure agreed working practices, i.e. Start and Finish times, on call rotas, etc
- Ensure a fault escalation process is in place with agreed timescales
- Ensure that all staff adhere to agreed documentation processes

Project 28  Station access system "Clocking on system" development of Promis

As part of the TTMD the Trust is currently reviewing the estate facilities and is trying to address some of the problems of an organisation, which is geographically challenged. One of these problems is the issue to address security and the means to record staff attending and leaving during their shift patterns from these dispersed Ambulance Stations. This element will address the means to provide a computer system to record from all WAST Ambulance Stations the activity of staff working hours and to provide this data back to the central location based at HQ. This information will then be transferred into the new National Finance, Payroll and HR system. The Trust has installed a workforce management system called Promis from the company Software Enterprise.
This system has various modules which support the collection of staff information at present this process requires the newly install Resource Management Centres to do a lot of manual methods one of which is the recoding of staff presences. The means to achieve this will be via IT through the introduction of access points and web facilities.

**Project 29  Status Plan Management implementation**

As part of the process to address the Estates SOC the concept of Ambulance resources Centres (ARC’s) and Make Ready Depot (MRD’s) has over the years been further developed into an operational deployment methodology called “Status Plan Management” (SPM). SPM considers both the elements of clinical cleanliness and methods of locating the Ambulance Operational fleet to be deployed where the demand is required. The use of SPM will enable the Trust to ensure that, wherever possible, the new ambulance facilities are optimally located. The actual means to deliver SPM will require enhancements to the main EMS system.

**Project 30  Storage Area Network**

Demand for information and access to that information has increased ten fold within the NHS as the NHS itself strives to improve patient care within the UK. IT within the NHS has been tasked to provide improved technology and services to allow greater access and functionality to data stored and the systems used to manage day-to-day operations.

As benefits of information sharing and system integration are being realised, additional requests for analysis and review of data held and presented within these systems has placed greater importance on the archive and online retrieval of information stored. To perform such tasks as outlined above, the old methods of archiving and removal of long termed infrequently accessed data has changed. This information is used to advise management on improvement to be made within services supported within each trust and the NHS as a whole.

The volume of data stored is increasing each year due to government mandates on the storage of patient related information. Given the geographic dispersal of offices and control rooms, different data stores are present throughout the trust. System backups are performed on multiple locations and media rotation is required to ensure secure offsite storage of archived information.

With the initiatives of the new estates strategy, a more centralised approach to storage and retrieval is required to provide greater efficiency of support, system maintenance and modular storage upgrades. The cost of storage is now reducing due to production improvement. Storage technology is now advancing due to new breakthroughs in new technology. With these factors in mind, ICT will be looking to implement a new best of breed storage systems taking advantage of Storage Area Network/Network Attached Storage technologies. A centralised approach to data is essential if the Trust is to ensure fewer computer rooms, benefit from economies of scale, provide a more robust back up and improve security of ICT systems.
Project 31  Telephony system review and upgrade

The Trust’s legacy telephony infrastructure encompasses various telephony solutions and configurations, enabling staff to communicate across the public PSTN network. The Trust’s current telephony platform is managed and implemented at a regional level. The provision of radio communications also plays a vital role within the Trust and it is imperative that the telecoms infrastructure is integrated in its working of this platform with the radio communications system.

The current infrastructure is a mismatch of technologies to telephony delivery. There is no overall central approach, and the current service is delivered on a local basis by individual sites. Staffs charged to manage these systems are delivering the service on a best endeavours basis with little formal telecommunications skills or experience. The means to also control financial aspects of the existing telephone infrastructure is virtual impossible. The current budgets for all forms of telephony within the Trust is well over £400,000 per annum. This amount not only increases every year but also the Trust has no means to monitor or manage this vast expenditure.

The vision for telephony will be to consolidate these services ensuring a virtual delivery thus ensuring equal and fair distribution of workload as well as improved resilience for the service. The provision of this new and revised infrastructure would ensure increased resilience for the Trust and an enhanced functionality to aid smarter and leaner ways of working. It is also proposed to integrate the telephony system with back office systems thus providing increased functionality for back office users and allowing greater vision of presence information and access to other services such as Voice Mail, Faxes, etc.

To modernise the Trust telephony infrastructure the ICT Dept will procure an IP based telephony solution, providing toll free telephony communication across the Trust’s newly implemented WAN. Two provisions will be developed, the first solution to support administrative (non-operational) telephone communication across the Trust and the second, i.e. a virtual telephony environment, will be implemented to support the Control Rooms function, enabling incoming emergency calls to be answered by the first available call-taker.

The above is only the first phase in order to achieve the overall virtual Clinical Contact Centres (Control Rooms) infrastructure development. However to achieve this will require committed partnership with BT and suppliers of telephony as to date no other UK Ambulance Service has achieve this development.
Project 32  Voice recorder upgrade to all Clinical Contact Centres (WAST & NHS Direct)

Voice recorders are used within all regional control centres and within the NHS Direct Wales contact centre, to record both internal and external communication with all parties this includes radio communications as well as voice. The Ambulance service has a statutory requirement to record all of its 999 communications. Communication is recorded and archived to provide an additional level source of reference to aid with the replay of sequence of events as required for inquiries and training requirements to improve the quality of service offered to the general public.

The solutions in place are noted to be incompatible with all the Control Rooms operational environments. The Trust seeks to procure a new voice recorder solution, integrating the proposed systems with the intended new computer systems, Airwave radio and telephony services, to be implemented to support EMS, PCS and NHS Direct.

Project 33  PSBA & WAN upgrade

The Trust delivers services from over one hundred different locations across 8,500 square miles. The historic merger process of the previous Trusts and general lack of any investment of the years in IT has resulted in the Trust inheriting separate ICT infrastructures, establishing a heterogeneous environment across the Trust estate. These solutions comprise disparate communication systems using different user configurations, supported by in-house and independent third party suppliers.

A uniform strategic approach is now required to integrate the disparate voice, data, and video conferencing solutions in order to maximise the economies of scale, increasing productivity and delivering consistent business services whilst reducing operating costs.

The Trust, working in collaboration with IHC seeks to develop and implement an ICT infrastructure to take advantage of modern technologies such as IP Telephony, network based mobile phone and video conferencing solutions, interconnecting the Trust estate both internally and externally with other NHS and third party organisations.

WAST will embark on a process of upgrading the existing Trust’s Wide Area Network (WAN) and in partnership with IHC will ensure this links in with the upgrade to the National development of the PSBA
12.0 Implementation & Investment.

12.1 Introduction.

The section “Implementation & Investment” explains the potential time frame and financial requirements.

The strategy has identified a number of key developments over the next five years. This section will review the overall implementation and investment required and to then set out a timetable at a strategic level, concentrating largely on major milestone completion dates, where these are known or are mandatory.

It should be noted that many of the initiatives outlined are significant projects in their own right and will require to be managed to the appropriate project management methodology; the National initiatives alone require a significant resource commitment and are complex projects, both at the information management and technical levels.

Clearly the level of development that can be achieved will be dependant on the successful managing of the constraints that exist:

- The substantial number of ICT Projects that will be in progress
- The Trust’s ability and resources to perform and complete Projects.
- The Trust’s ability to assimilate organisational change.
- Availability of funding both capital and revenue.
- The internal ICT skills and resources and their capacity to cope with implementing and running new systems.

Faced with these constraints the Trust’s approach to achieving the strategic aims should be based on realism, effective organisation and incremental development. It is impossible at this stage to give an accurate assessment of the required finances for the implementation and maintaining of the goals and aims of this strategy. This is due because of difficulty at this time to assess the scope of any likely external costs as the need for retention or replacement of the Trust’s computer systems to fulfil the strategic goals is unclear.

WAST as part of the overall TTMD Projects is currently in the process of producing an Outline Business Case (OBC) for both the requirement for a new Estates infrastructure as well as considering the implication of procuring the ICT strategic direction. Careful consideration to the financial and organisational consequence for each Project will need to be given as part of the process in developing the ICT elements of the OBC.

The purpose of the table below is therefore to place local priorities within the National context. It should be stressed that the National initiatives, although imposed, will have strong, positive advantages to WAST. The statutory initiatives will however require both priority investment and implementation support. The range of local developments required to support WAST internal information needs and requirements will have to be set within the context of these National initiatives and resourced in such a way as to ensure that local information deliverables are consistent with statutory obligations but are not lowly prioritised because of them.
Giving the uncertainties about future investment indicative prices has been produced via a combination of discussions with the suppliers of strategic products, previous experience and some best guesses. The major ICT Projects are presented within the investment table with an indication of the time frames.

12.2 Investment.

The Trust’s ability to invest in ICT over the next few financial years is extremely limited. As part of the normal internal business planning process Departments will prepare cases, which require an ICT investment, and this will then form part of the negotiations with the commissioners. However it will be essential to prioritise the potential spends and to manage the procurement so that the priorities are accommodated as flexibly as possible. The approach to establishing priorities both in the short term and the longer term will be to categorise the various components of the potential investment into the following levels:

- Mandatory adherence to legislation and NHS wide business processes.
- Support for facilities, which are needed to secure current levels of income.
- Support for improving the quality of patient care delivery.
- Support for increasing income and/or increasing effective use of resources.
- Other proposed investments e.g. investigation of new technology.

Currently there is still a significant level of investment required to achieve the requirements as defining within this ICT Strategy. It is hoped that through working in close partnership with the IHC and the commissioners that WAST will receive the requirement investment in both capital and revenue as indicated within the next section.

(Financial information to be provided later.)
### 13.0 Glossary of Terms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>A&amp;E</td>
<td>Accident and Emergency</td>
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<tr>
<td>CAS</td>
<td>Clinical Assessment System</td>
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<tr>
<td>DOH</td>
<td>Department Of Health</td>
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<tr>
<td>EHR</td>
<td>Electronic Health Record</td>
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<tr>
<td>EPR</td>
<td>Electronic Patient Record</td>
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<tr>
<td>HR</td>
<td>Human Resource</td>
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<tr>
<td>ICRS</td>
<td>Integrated Care Record Service</td>
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<tr>
<td>ICT</td>
<td>Information Communication and Technology</td>
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<tr>
<td>IM&amp;T</td>
<td>Information Management and Technology</td>
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<tr>
<td>Internet</td>
<td>Web service which have access to all external services</td>
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<tr>
<td>Intranet</td>
<td>An exclusive internet / web service for WAST only</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>Korner</td>
<td>Standard DOH returns</td>
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<tr>
<td>LDP</td>
<td>Local Delivery Plan</td>
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<tr>
<td>LIS</td>
<td>Local Implementation Strategies</td>
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<tr>
<td>LSP</td>
<td>Local Service Providers</td>
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<tr>
<td>NHS</td>
<td>National Health Service</td>
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<tr>
<td>NHSnet</td>
<td>An internal data network for usage within the NHS</td>
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<tr>
<td>OBC</td>
<td>Outline Business Case</td>
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<tr>
<td>OBS</td>
<td>Output Base Specification</td>
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<tr>
<td>OJEC</td>
<td>Official Journal of the European Community</td>
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<tr>
<td>PC</td>
<td>Personal Computer</td>
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<tr>
<td>PEC</td>
<td>Paramedic Emergency Control</td>
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<tr>
<td>PES</td>
<td>Paramedic Emergency Services</td>
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<tr>
<td>PRINCE</td>
<td>Project in a controlled environment</td>
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<td>PTS</td>
<td>Patient Transport Service</td>
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<td>TTMD</td>
<td>Ambulance Service Development Team</td>
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<td>WAG</td>
<td>Welsh Assembly Government</td>
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<tr>
<td>WAST</td>
<td>Welsh Ambulance Service</td>
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<tr>
<td>WWW</td>
<td>World Wide Web</td>
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<tr>
<td>LHB</td>
<td>Local Health Boards</td>
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