



Yorkshire Ambulance Service



NHS Trust

*An Aspirant Foundation Trust*

# ICT Strategy

**2012-2017**



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**Version control**

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## Glossary of Terms

Term / Acronym	Description
ACD	Automatic Call Distribution
ACCD	Real-time status display
AD	Associate Director
A&E	Accident & Emergency
BAU	Business as Usual
BCP	Business Continuity Planning
BI	Business Intelligence
BT	British Telecom
BYOD	Bring Your Own Device
CAD	Computer Aided Dispatch
CCG	Clinical Commissioning Group
CIP	Cost Improvement Plan
CMS	Capacity Management System
CS1K	CS1000 Avaya Telephone Switch
C&W	Cable & Wireless
DH	Department of Health
DMZ	De-militarised Zone
DOS	Directory of Services
DR	Disaster Recovery
ECS	Emergency Care Solution
EOC	Emergency Operations Centre
e-PR	Electronic Patient Report
ESR	Electronic Staff Record
GP	General Practitioner
GPOOH	GP Out of Hours
GUI	Graphical User Interface
HCP	Health Care Professional
ICCS	Integrated Communication Control System
ICT	Information Communications Technology
ITIL	Information Technology Infrastructure Library
IM&T	Information Management & Technology
iSDN	Integrated Services Digital Network
KPI	Key Performance Indicator
LHC	Local Health Community
MDT	Mobile Data Terminal
MI	Management Information
MIU	Minor Injury Unit
N3	National Health Service Internet Network

<b>NHS</b>	National Health Service
<b>NHS WIC</b>	NHS Walk in Centre
<b>PAYG</b>	Pay As You Go
<b>PCT</b>	Primary Care Trust
<b>PDA</b>	Personal Digital Assistant
<b>PDS</b>	Personal Demographic Services
<b>PESTLE</b>	Political, Economic, Social, Technological, Legal & Environmental analysis
<b>PMO</b>	Program Management Office
<b>PPCI</b>	Primary Percutaneous Coronary Intervention
<b>PSTN</b>	Public Switched Telephone Network
<b>PTS</b>	Patient Transport Services
<b>QIPP</b>	Quality, Innovation, Productivity, Prevention
<b>RTC</b>	Road Traffic Collision
<b>SAN</b>	Secure Area Network
<b>SAAS</b>	Software As A Service
<b>SCR</b>	Summary Care Record
<b>SHA</b>	Strategic Health Authority
<b>SQL</b>	Structured Query Language
<b>SWOT</b>	Strengths, Weaknesses, Opportunities & Threats
<b>UCC</b>	Urgent Care Centre
<b>VCC</b>	Virtual Communications Centre
<b>VDI</b>	Virtual Desktop Infrastructure
<b>VM</b>	Virtual Machine
<b>VOiP</b>	Voice over Internet Protocol
<b>WAN</b>	Wide Area Network
<b>WFP/O</b>	Workforce Planning & Optimisation
<b>WIC</b>	Walk in Centre
<b>YAS</b>	Yorkshire Ambulance Service Trust

## Introduction

This document sets out the five year strategic plan for the Information Communication Technology (ICT) function<sup>1</sup> within Yorkshire Ambulance Service (YAS) from 2012-2017.

Over the last few years the Trust's ICT team have delivered a number of key projects including providing a single integrated systems infrastructure for a number of Trust functions including EOC, PTS and Fleet, standardised desktop and network infrastructure across the Trust, strengthened encryption and data security and completed Communication Centre Virtualisation (CAD, Telephony, Voice Recording and Airwave Digital Radio).

This strategy builds upon the Trust's existing ICT infrastructure and resources and the previous ICT Strategy 2009-13. It seeks to ensure future developments support delivery of the corporate objectives defined within the Trust's Annual Business Plan and Five Year Integrated Business Plan (IBP), is cognisant of national and regional NHS ICT programmes and embraces an ever changing technology landscape.

The aim of this Strategy is to support the Trust's mission of "Saving lives, caring for you" by continuously seeking out improvements, promoting communications and developing technological solutions that support the highest level of clinical care whilst delivering value for money.

YAS is committed to the provision of high quality information communications systems to support operational services, local management and statutory reporting requirements. Additionally, the Trust understands the importance of developing a robust framework for handling personal information in a confidential and secure manner to appropriate ethical and quality standards.

## ICT's guiding principles and objectives

The pace of change, demographic and financial challenges faced by the NHS are unprecedented. The Health and Social Care Act 2012 sets out a clear ambition to improve outcomes for patients and the quality of care, move to more locally based commissioning with active input from patients, carers and the public to shape and re-design services with an emphasis on providing care closer to home and to minimise inefficiency and duplication across services so that NHS funding supports patient care directly and delivers the most value to patients.

The Trust has developed a number of Strategic Goals and Objectives to respond to these challenges (detailed in Table 1) and recognises the important role ICT plays in delivering these. In addition to supporting the delivery of safe and effective services ICT has a key supporting role in:

- Delivering timely emergency and urgent care services in the most appropriate setting
- Developing culture, systems and processes to support continuous improvement and innovation

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<sup>1</sup> For the purposes of this document, the term ICT covers the management of Information Technology (IT) including hardware, software, telecommunications, radio communications and voice and image data transfer.

- Healthcare resilience
- Providing cost effective services that contribute to the objectives of the wider health economy

The development of this five year strategy supports the achievement of Foundation Trust status and these strategic objectives by placing the following objectives at the heart of future ICT investment:

- To work in partnership with other Health and Social Care organisations to provide seamless patient care in the most appropriate setting
- Support NHS economy interoperability through the integration of information, systems and technology
- Support the Trust's service transformation programme in delivering process and performance improvement
- Ensuring ICT has the skills and flexibility to quickly and proactively respond to change

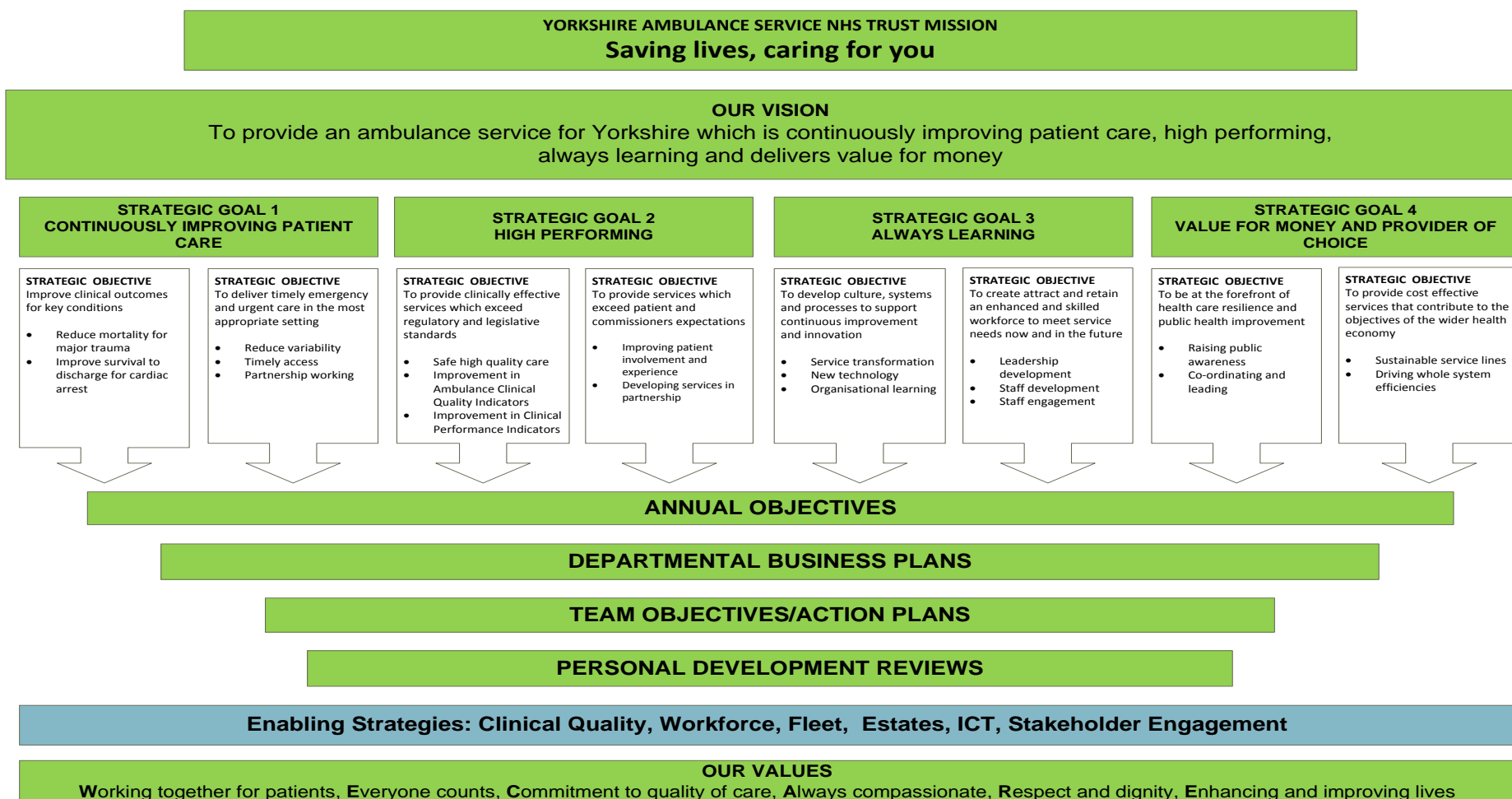
Specific ICT priorities over the next five years to achieve these aims include:

- The establishment of 111 infrastructure through the implementation of NHS Pathways and building interoperability between 111 and primary care systems
- The roll-out of the Emergency Care Solution (ECS) patient care record system to allow greater sharing of patient information between care providers and facilitate patients being seen and treated in the most appropriate location
- Improving patient booking and vehicle tracking and information systems to support modernisation of Patient Transport Service (PTS) services
- Continue to modernise ICT infrastructure and processes to improve overall service resilience
- Continuing the implementation of the Information Technology Infrastructure Library (ITIL) best practice standards and rolling out a new Six Sigma Lean Management Project to improve ICT service delivery across the Trust
- Delivery of the 'intelligent ambulance' concept to maximise ambulance clinician's access to timely patient information and decision support tools.

To support the use and development of ICT across YAS the ICT team have developed a number of aims and values to guide behaviour and decision making to:

- Enable the monitoring and improvement of service quality through the effective application of processes
- Demonstrate our ability to provide services that meet business and patient needs
- Ensure that ICT activities are aligned with business requirements and objectives
- Improve the use and effectiveness of resources
- Improve customer satisfaction
- Ensure staff are fully aware of their roles and responsibilities in supporting the service management policies
- Ensure staff are aware of the relevance and importance of their activities within the wider business context and how they contribute to the achievement of service management objectives.

Table 1: YAS Strategic Priorities





## Strategic Context

### Social and technological trends:

Social trends, such as an increasingly ageing population combined with the increasing costs of healthcare, are driving the need for alternative models of healthcare provision driven by technology such as telephone-based assessment, appropriately focused care pathways, tele-health and telemedicine.

The world of ‘communications enabled’ devices is changing rapidly and the deployment of smart applications which will undoubtedly see the emergence of contacts to the Trust from devices that are equipped and able to provide more than just ‘verbal’ communications and content. Hundreds of applications already exist that provide levels of medical content and information that could be used to inform clinical triage decisions and appropriate contact points. The images below show typical examples of the type of applications being developed, these two apps have had over 250,000 downloads in the UK alone.



**Figure 1** – Shows typical examples of the type of self-health care applications being developed.

A scarcity of natural resources, environmental damage and waste reduction along with the Government’s commitment to reduced carbon emissions continues to drive, not only an increased use of IT (such as video conferencing), but also technological innovations and the management of ICT services (e.g. server virtualisation to reduce resource consumption).

### Regulatory Framework:

In order to meet the demographic and financial challenges, NHS policy directives led by the Health and Social Care Act (2012), emphasise the requirement for healthcare providers to offer a ‘first contact resolution’ at each patient touch-point with the organisation. To implement this, there has to be greater integration and co-operation by those who offer NHS services direct to the public. The DH strategy “The Power of Information” supports this approach through the following priorities:

- Use of the patient’s NHS number where known to aid the sharing of patient information across healthcare providers
- Capturing of records and information electronically at source

- Provision of online access to patient records for patients and healthcare professionals (where relevant to their job), using a variety of mobile devices wherever possible
- Facilitation and implementation of interoperability between all NHS systems as the technology allows
- Implementation of bar-coded medicines management
- Use of coding and terminology consistent with national protocols and guidance throughout all systems within YAS in order to prepare for national changes when they are implemented
- Ability to share anonymised public data freely for re-use by independent information intermediaries
- Changes to the current information governance rules and the way in which they are applied, in order to ensure there is an appropriate balance between the protection of confidential / identifiable information and the accessibility of information.

The ways in which patients and Health Care Professionals contact the Trust is also becoming increasingly complex with a growing number of primary care providers and service options, growing use of telecare (particularly pendant schemes) and the implementation of 111. This trend is likely to continue as CCGs develop services tailored to meet local health needs, telecare/home monitoring solutions using smartphones and other mobile devices become more available and with increased use of collaborative tools for healthcare professionals (see **figure 2**). The Trust needs to provide initial communication ‘touch-points’/contact portals that are more capable of supporting the needs of these ‘communication enabled and aware’ service users, quickly linking them to the most appropriate ‘first point of resolution’. This requires effective patient identification and verification (e.g. NHS number) recognition and efficient handling capability.

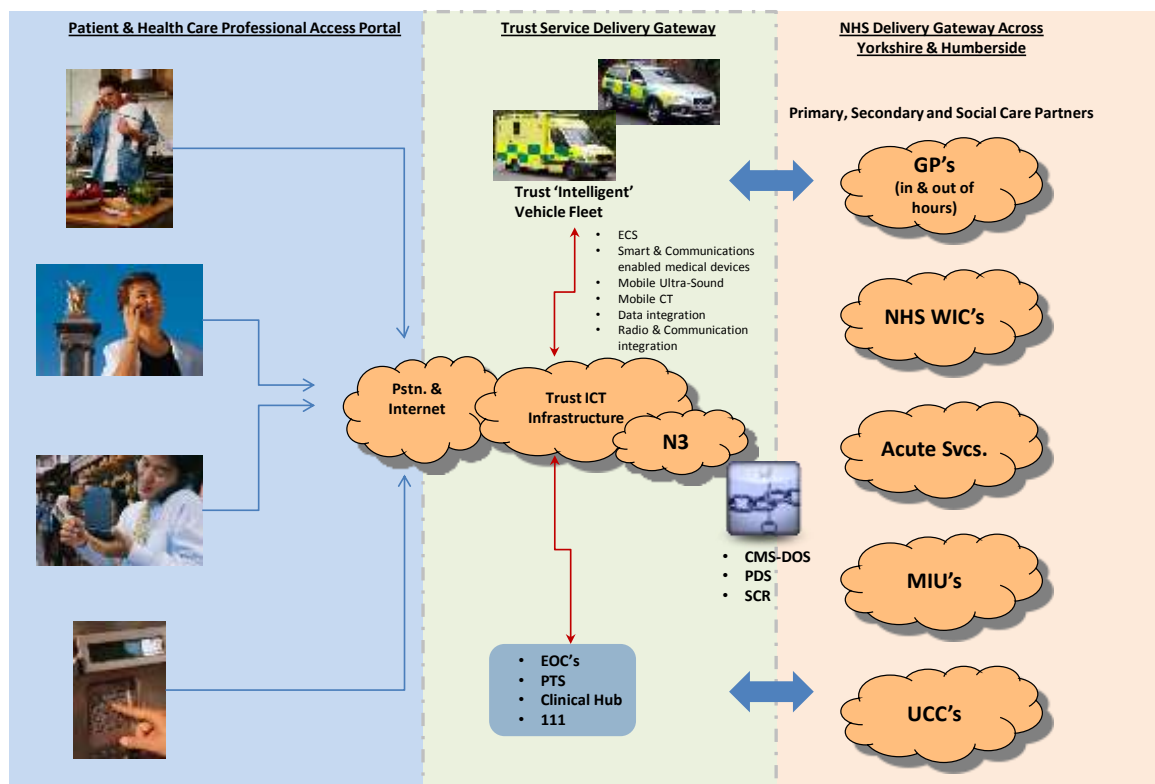


Figure 2 - Shows the ever increasing complexity in the way patients and Health Care Professionals will contact the Trust and the requirements to link them to the most appropriate 'first point of resolution'.

The YAS ICT Strategy must aim to ensure that information is recorded once, at the first point of contact and shared securely with patients, commissioners and other care providers where the need arises. In terms of direct ambulance patient care and care pathways, this will often mean treatment closer to the patient's home with clear links and sign-posting to primary and secondary services and health information.

The real Patient and Trust benefits will come with a service that is truly capable of offering, at 'first point of contact', the most appropriate pathway of care through the implementation of a Contact Service Portal that addresses the needs of differing groups of users and links effectively and seamlessly to other services across the NHS.

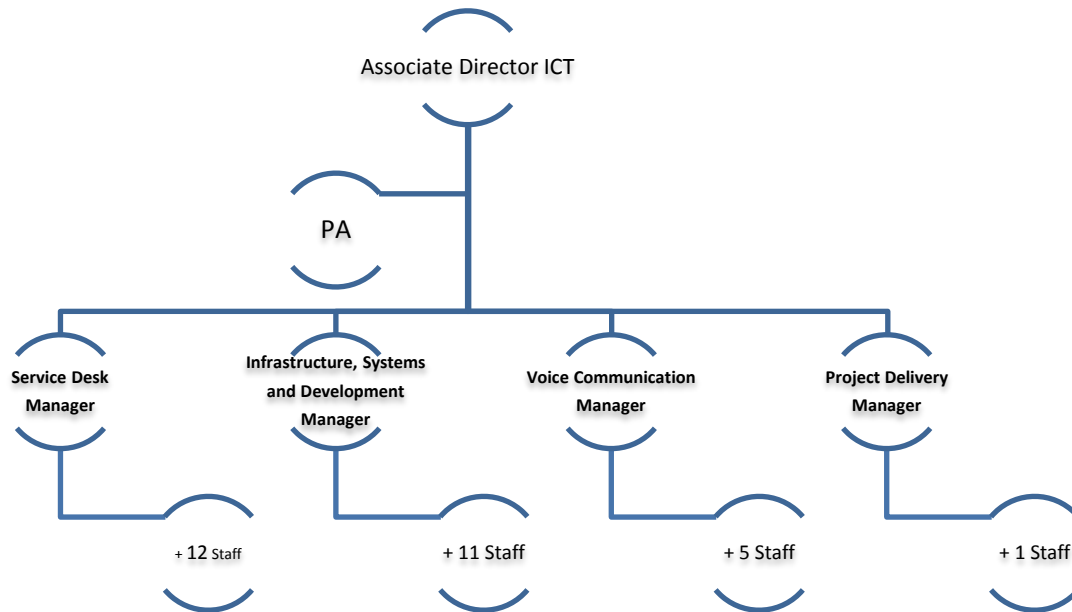
Notwithstanding the Trust and NHS initiatives identified above, the ICT department faces a number of challenges including the delivery of a circa 5% CIP in each of the next five years, increasing internal and external service user expectations, rising service demand, managing network and telephony changes associated with reconfiguration of the Trust's estate and continuing the on-going replenishment of existing ICT infrastructure.

This is an extremely exacting agenda placing increasing demands upon the existing in-house ICT team who face the ever increasing demands of maintaining 'Business As Usual' whilst taking forward tactical and strategic program and project delivery, requiring interaction with a wide variety of internal and external stakeholders.

### **The ICT Team**

The current ICT team operates from the Springfield site in Wakefield and is represented at **figure 3** with a detailed view of the team's skill mix set out in **Appendix 4**. ICT is a support service providing all 1<sup>st</sup> and 2<sup>nd</sup> Line Support for the Trust's Network, Desktops, Servers, Applications, Telephony and Radio. Service provision covers 24 / 7 / 365 with the Service Desk covering 08:00 to 17:00 Monday to Friday. The Team also provides project support, application development and supports third parties with e-learning access and content development.

**Figure 3** – YAS ICT organisation structure



In early 2011, **Deloitte undertook a ‘Review of IM&T Capacity and Capability’**. The report’s findings identified some ICT and Trust shortfalls that challenge the effective delivery of the Trust’s ICT strategy and operational plans. The report noted that the current ICT team had been focused on building a single Trust service and infrastructure following the merger of the three former Ambulance Services and is now well placed to develop its role and service provision. Key findings included need to build on and strengthen the strategic direction of ICT within the Trust, the need to improve the ICT team’s ability to prioritise and deliver projects and change against a moving canvas of competing Trust priorities, the need to introduce SLAs for key systems and services and processes to track the return on investment on projects, focusing on the business value of ICT. The report went on to identify the dependence upon one or two key individuals in senior roles and the need to develop management resources and skills aligned to strategic development, client management and demand and project planning.

The findings contained within the report reflect that the internal mind-set of many of those charged with delivering both BAU and strategic change programmes is driven by the day to day operational delivery and support. This can lead to some gaps in awareness of developments in the outside world and the requirements of the wider NHS and the way it impacts on the Trust’s environment and strategic direction.

The ICT teams and individuals are generally highly skilled in relation to the roles they perform (e.g. the build and deployment of ICT functions and services across the Trust). However further strengthening of the senior tier is required to improve commercial and strategic awareness and support the delivery of Trust’s strategic transformation plans.

## Understanding Technical Developments

The YAS ICT team works closely with business planning, performance management and service improvement processes to plan for future technological developments.

Currently YAS’s ICT management use the following processes of information abstraction in its review of innovative technology development opportunities:

- Trawling – making in-house information explicit, particularly information that is not widely known or understood.
- Mining – extracting explicit intelligence information from internal resources such as local research and the Trust’s data-warehouse, for example the reviewing of emergency call demographics from a Public Health perspective.
- Targeting – focusing on new technologies used in other public and private sector organisations, monitoring their developing use and, if appropriate, piloting the use of these new technologies within the Trust.
- Scanning – for any unforeseen developments beyond YAS that could have an impact on the business. Identifying threats and opportunities for the organisation, such as the fast changing and growing use of social media or the changing trends in virus and hacker attacks.

The outputs from this process are reviewed at the ICT management meetings and a decision to take forward a new idea or technology then gets built into the team’s work plan with a view to promote it for consideration in the Trust’s business plan.

## The ICT SWOT

An analysis of Strengths, Weaknesses Opportunities and Threats (SWOT) has been undertaken of the Trust’s ICT function using findings from the Deloitte review and other sources and is summarised in **table two**.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>▪ Skilled ICT specialists</li> <li>▪ 24x7x365 operational cover</li> <li>▪ Flexible approach</li> <li>▪ Staff focused on delivery</li> <li>▪ Service oriented</li> <li>▪ Appropriate geographic spread and reach across the YAS patch</li> <li>▪ Resilience of infrastructure and design</li> <li>▪ Extensive and established mobile communications technology</li> <li>▪ Call centre technologies</li> </ul>	<ul style="list-style-type: none"> <li>▪ No senior ICT strategic steering group or framework</li> <li>▪ Inconsistent help desk response times and resolution</li> <li>▪ Stakeholder perceptions</li> <li>▪ Inwardly focused</li> <li>▪ Program and Project Management capabilities / visible ROI</li> <li>▪ Reactive (fire fighting mentality)</li> <li>▪ A gap in the management structure across the ICT function/succession planning</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Knowledge/experience gaps relating to GP and other Health Care systems and requirements</li> <li>▪ Knowledge/experience gaps relating to Interoperability</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>▪ Dissolution of PCT's/SHA</li> <li>▪ Provision of ICT services to GP consortia</li> <li>▪ Establishing greater strategic leadership of ICT agenda</li> <li>▪ Increasing user engagement</li> <li>▪ Transition to mobile / agile worker models</li> <li>▪ Community care and assisted living technologies e.g. tele-health</li> <li>▪ Applying lean management skills to improve processes and resource use</li> <li>▪ Changing competitor landscape</li> <li>▪ Integrated data capture through ECS</li> <li>▪ Technology advances e.g. Cloud computing, Software as a Service &amp; Mobile capabilities</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>▪ Dissolution of PCT's/SHA impacting on support for key ICT programmes</li> <li>▪ No funding/confused commissioning</li> <li>▪ Changing performance standards distracting ICT resources</li> <li>▪ Failing to deliver performance targets leads to additional, unplanned, IT developments</li> <li>▪ Unsuccessful delivery of the 111 ICT infrastructure</li> <li>▪ Potential loss of PTS business impacting on ICT staffing and contracts</li> </ul>

**Table 2** – A SWOT analysis of YAS's ICT function.

**Day to day operational service drivers**

- Achieving consistent and responsive performance
- Improving resilience and business continuity capabilities
- Operating a commercially and clinically effective Trust
- Provision of services to other customer organisations e.g. Clinical Commissioning Groups (CCGs) and Out of Hours providers

**Short & Medium-term strategic drivers and initiatives**

- Changing service provision
  - National policy drivers
    - Health & Social Care Act
    - QIPP
    - Taking Health Care to the Patient 2
    - NHS IT Strategy
  - Development and delivery of the 'intelligent' vehicle fleet
  - 111 (and the potential need to 'converge' call handling and management operations)
  - ECS

- The provision and support of Tele-health
- Local Health Community (LHC) interoperability
- NHS Pathways
- Trust Estates Strategy

### Long-term strategic drivers and initiatives

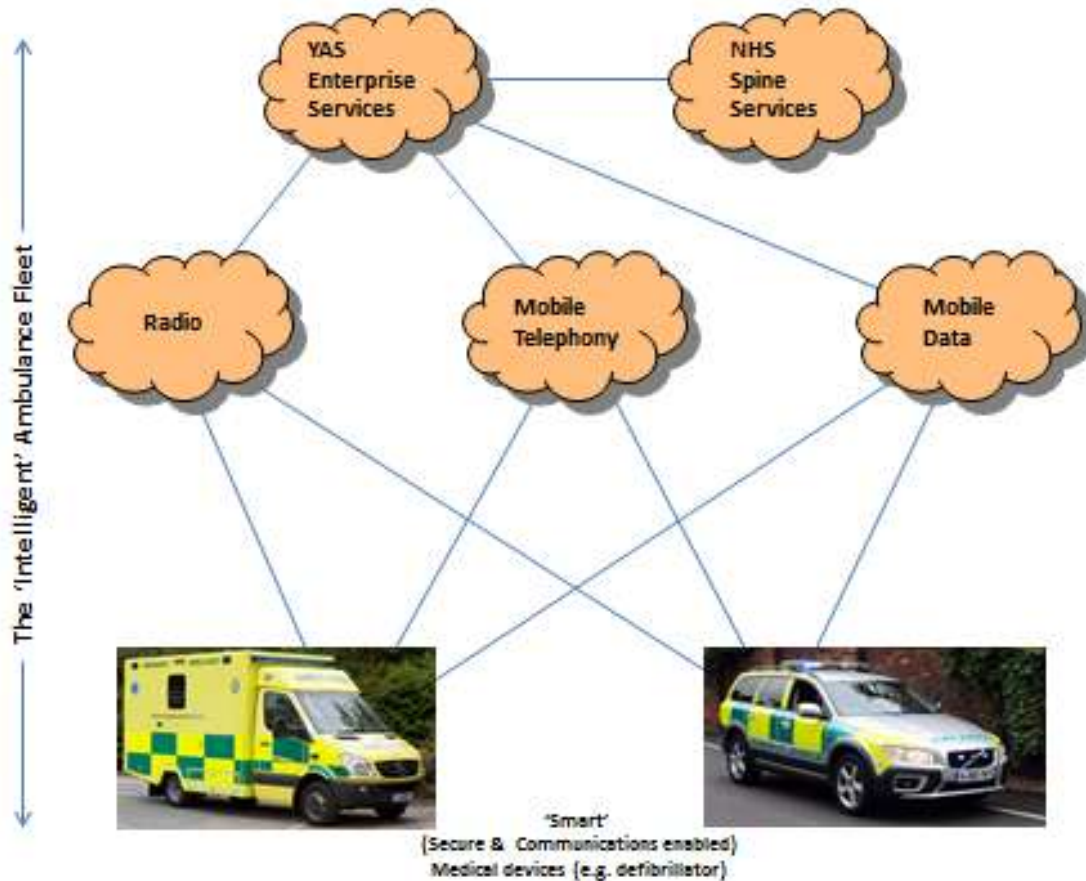
- Addressing the needs of a changing population, social, political and economic landscape
- Conceptual and aspirational service delivery driven by new technologies and the way people interact with the world using technology.

### Delivering the change

Within this context, the ICT strategy must support and help deliver the overall national DH, NHS Commissioning and local NHS operational and clinical plans if it is to succeed, all within the existing heavily regulated information governance and security framework. Please refer to Appendix 3 for details of the national NHS ambulance and YAS strategic relationship model.

The following section highlights the primary strategic technology drivers that the Trust is facing in the coming one to five years, many of which are directly linked to the Trust's wider strategic goals and direction, assisting in the establishment of YAS as the patient access gateway to health and social care.

The development and deployment of the 'intelligent ambulance' (**figure 4**) will be a key facilitator given the changing access and technology landscape being faced. These will directly influence the shape the Trust will take over the coming few years and help it to support patient access to information, appropriate care and the reduction of avoidable admissions. Many of these initiatives will support the delivery of an integrated ambulance service that offers 'first time resolution' of contacts as one of its guiding principles, reducing avoidable admissions and supporting an integrated health service. The integration of ICT and healthcare provision will provide commissioners (CCGs) and public health professionals with information that helps support and drive effective decision-making around future service provision.



**Figure 4:** The 'Intelligent Ambulance'<sup>2</sup>

### Key challenges to delivering the strategy

As outlined, the Trust needs to develop and adopt a 'multi-tiered' strategic approach that addresses:

- Day to day Trust operations
- Short-term strategic needs
- Longer-term strategic needs.

### Day-to-day operations

Running business as usual (BAU) services and supporting business continuity whilst reacting to the requirements of both the Trust and its Commissioners where the political, economic and social demands from public healthcare is clearly and fast changing, brings into sharp relief some of the strengths and weaknesses outlined in the ICT SWOT analysis.

<sup>2</sup> The "Intelligent Ambulance" is a concept that refers to an ambulance vehicle that is able to capture information from all the devices on board and is integrated to all means of communications and ICT applications across the Trust (CAD, ECS, WiFi, Bluetooth, 3G and Radio), facilitating the two way processing of patient and incident data at all times – sharing this with the Trust and its Health Care Professionals (HCPs).



### Short, medium and longer term strategy

The challenge is to deliver the large scale change programmes such as 111 and ECS, whilst delivering the BAU. Delivering large scale programmes requires both structure and discipline if they are to be delivered effectively, on time and to established budgets. The Trust clearly has some good working processes and methodology toolsets to allow such delivery. However, there is a need to strengthen the current structure to support with the work across the organisation and to strengthen the relationships and engagement with the Trust's local health community - supporting process and system interoperability. This additional capacity to support the ICT AD and team during NHS and Trust transformational change can form part of on-going development and succession planning.

As part of this process the ICT AD is reviewing and proposing some targeted ICT outsourcing options, in particular, to support with the roll out and on-going management of the Trust's ECS infrastructure.

Stakeholder engagement and management has to be the priority in the minds of those charged with delivering the strategy.

### Stakeholder Engagement

It is widely accepted that effective stakeholder interactions are the key to successful change delivery. One of the key challenges the ICT function will face will be to prioritise the needs of the various internal and external stakeholders so that they all feel they have the right level of exposure in relation to the ICT strategy deliverables.

The effective delivery of this strategy will be achieved by structured and proactive stakeholder engagement (both internal and external). The establishment of an ICT Strategic Steering Group with appropriate representation from Clinical, Trust Executive and Operational management (as a minimum), should bi-annually review the changing technology landscape against the Trust ICT principles and objectives.

### Technology landscape

The ICT landscape is probably the most rapidly changing environment facing most organisations today, and will present challenges in managing entities such as:

- The speed at which technology platforms and solutions are evolving/changing.
- The need to react to the ever changing landscape involving mobile communications and data platforms.
- Managing aged and legacy applications and interfaces.
- The continuing expectations to support 24x7x365 services and applications.
- Skills and training currency.

The 'Intelligent Ambulance' described above can provide the clinician with the communication and information tools to support them as they provide high quality care and to make the appropriate care pathway decisions linking in with medical devices, other care providers and specialists as appropriate. This will principally be achieved by the 'communications enablement' of devices on the vehicles, which

make them visible and able to share data and information within the Trust and with other healthcare providers and commissioners.

Other changes in technologies are constantly being reviewed, against Trust and ICT overarching objectives (Appendix 1), to see if they can support the way we deliver ICT services to our operational frontline and across the Yorkshire and Humber health and social care providers. Such technologies and themes include; Cloud computing<sup>3</sup>, Bring your own device (BYOD<sup>4</sup>), patient access to their records, patients' own devices, tele-health<sup>5</sup> and digital radio replacement.

Through the appropriate adoption and integration of these technologies ICT can support YAS as a Gateway to the NHS and as an enabler to the delivery of the Health and Social Care Act priorities such as care closer to the patient's home, the patient's access and ownership of their records, the reduction of avoidable admissions, appropriate and cost effective high quality care. Principally this will be achieved through the on-going interoperability initiatives across 111, 999 and PTS as well as the wider service integration being deployed throughout the NHS.

## Staffing

As these areas are addressed; and to support with operational and strategic delivery as well as succession planning, a new ICT management team support structure will be developed to address the issues raised within the Deloitte report, refocus resources to take forward strategic priorities and recognise the need to do more with less given the current financial climate. The appraisal of resource needs will include:

- Development of internal resources (where appropriate) to bridge known gaps.
- Establishment of additional temporary roles to take forward priority projects such as 111 and ECS.
- Strengthening management skills within the function to support the strategy and operational ICT delivery.

## STRATEGIC OBJECTIVES AND DELIVERY

This ICT Strategy is designed to support the delivery of the Trust's eight strategic objectives:

- A. Improve clinical outcomes for key conditions
- B. To deliver timely emergency and urgent care in the most appropriate setting
- C. To provide clinically effective services which exceed regulatory and legislative standards
- D. To provide services which exceed patient and commissioner expectations
- E. To develop culture, systems and processes to support continuous improvement and innovation
- F. To create, attract and retain an enhanced and skilled workforce to meet service needs now and in the future
- G. To be at the forefront of healthcare resilience and public health improvement
- H. To provide cost effective services that contribute to the objectives of the wider health economy.

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<sup>3</sup> Computing and communications facilities that are delivered as software services, thereby reducing the cost and ICT footprint, and allowing much more dynamic placement and support of resources around the Trust estate

<sup>4</sup> Bring Your Own Device (BYOD) is the trend of employees bringing personally-owned mobile devices to their place of work, and using those devices to access privileged company resources such as email file servers and databases as well as their personal applications and data.

<sup>5</sup> The effects of telecommunication and information technology on the efficiency and quality of health care, services, education, public health surveillance, research, administration

The following outlines the key areas of Trust ICT provision and proposed developments to support the delivery of these strategic objectives.

### **Patient Services:**

#### **999 EOC & CAD**

The EOC is the centre of the delivery of the Trust's patient focussed services. ICT applications and their interfaces to each other are critical to the delivery of a high speed, high quality and efficient services.

This technology supports the Trust's demand management, efficient patient triage, speedy response and appropriate response types. It also supports the reduction in A&E admissions using hear and treat clinical support and access to other appropriate care pathways.

Over the next five years developments will continue with the Trust's CAD system, gazetteer, geographic information systems and links to radio and telephony systems in order to improve the call centre's efficiency and effectiveness. Access to other systems across the NHS such as the SPINE, DoS, ECS, 111, primary and secondary care systems will open up options for Trust responses beyond the simple use of an ambulance.

The Trust will review its current triage systems and evaluate NHS Pathways for its 999 service as well as developing it clinical hub as a support for patients requiring non-emergency care, advice for clinicians on scene and as a link to other local care services.

#### **999 Operations**

Emergency response will continue to be seen as and treated as the most high profile service the Trust operates. However, the need to deliver cost effective services at the point of need will continue to place operational and financial strain on the Trust's operating budget.

It is crucial that ambulance clinicians have appropriate access to devices, information and systems that allow them the greatest opportunity to influence the outcomes of the situations they face on a daily basis.

The development and deployment of the 'intelligent ambulance' (a technology and clinical devices connected communications hub to Trust and wider NHS applications) will add real clinical and operational value to the service at the point it is most relevant - at the patient side supporting both 'see and treat' and 'see and transport'.

With the roll out of the ECS solution, access to the SPINE, the DoS and an effective clinical hub in the EOC as well as the use of new technology to "link the patient to the specialist", YAS is uniquely placed to orchestrate the direction of patients to the most appropriate care settings and reduce unnecessary A&E admissions.

### **111 Service – NHS Pathways**

Over the life of this strategy document, YAS will introduce and operate a 111 service across Yorkshire and Humberside. Interoperability across the local NHS economy is vital if this service is to succeed and at this stage it should not be taken for granted that this is a 'given'. YAS will use the Adastra 111 system as its operational 111 call centre application with NHS Pathways as the clinical advice system used by both call advisers and clinical advisers.

A great deal of time and effort needs to be put into ensuring that fit and proper system interoperability exists across care providers. It is therefore critical that the Trust looks for opportunities to open up some of the traditional operational and geographic boundaries that current 999 service provision is bound within to fully collaborate with other NHS and independent sector service providers.

A free and easy to remember number along with access to the SPINE, DoS, Repeat Caller database and clinical information systems will allow the patient to be efficiently directed to the most appropriate care and advice.

### **Patient Transport Services**

A continuing squeeze on the NHS budget will potentially have a big impact on PTS providers. Opportunities may need to be explored to 'share' transport services with both private and other public sector organisations. The Trust already provides access to the LHC users to book patients for transport online.

The Trust will continue to develop system links between PTS and the EOC CAD and investigate options for a 'single' CAD that can support both 999 and PTS operations which could support general rationalisation opportunities across the internal service provision boundaries and improve the quality of patient care and responsiveness.

The continuing development of mobile data and access to applications using the Trust's PTS PDAs opens up a number of opportunities for the development of PTS including:

- Better access to and use of quality information for internal and commissioner service management
- Greater use of e-booking capabilities
- Greater and more efficient contact and communications with PTS staff in the field – including corporate messages and basic training
- Driver behaviour management and fuel usage / cost control
- Better informed and prepared patients using the Trust's transport services
- The ability to support an on-day "unplanned" patient transport service.

### **Ambulance Radio**

The Trust has a fully integrated Digital Radio Infrastructure provided Airwave and managed through a national DH contract. This supports all field communications across both A&E and PTS. This infrastructure is extremely secure, flexible and highly scalable and supports Emergency Service interoperability to deliver coordination and management of major incidents.

YAS uses this infrastructure to support lone workers in the field with additional functionality which allows users to be monitored remotely by the EOC. This functionality will be developed to allow automatic triggering of monitored status and to support PTS staff using PDA devices.

The re-procurement work for the digital network and services has been started and the project proceeds apace under the Emergency Services Mobile Communication Procurement (ESMCP) banner driven by the Cabinet Office – YAS is involved in the requirements specification stage. The new network and services will need to be ready for a gradual national roll-out from 2016.

### **Voice Recording**

The Trust has invested significant time and money developing and deploying its enterprise voice recording solution from NICE. The solution covers the audio recording requirements across the voice and radio communications networks as well as situational ‘ambient’ recording associated with the handling and management of major incidents and events within the ‘Gold’ control suite.

Active capacity management of the associated local and data centre storage facilities takes place annually and as required (project specific). The design is based on physical device geographic redundancy (voice data is recorded locally initially and then stored to a central server). This centralised data storage provides easy access to recordings to authorised users from any desktop for instant playback and audit purposes.

This infrastructure used by the EOC, PTS, GPOOH and Emergency Planning departments is being extended to support the Trust’s 111 service.

### **Electronic Staff Record (ESR)**

The Trust’s HR and payroll system is the nationally procured ESR system. This system is going out to procurement over the next 12 months.

The ICT team are supporting HR in the introduction of document scanning, workflow management, manager and user self-service.

### **Staff Rostering**

The Trust currently uses the Global Rostering System (GRS) that is able to support both localised and centralised planning. This system currently uses an Oracle Database but will be moved to MS SQL database as part of the Trust’s standardisation.

GRS is able to link to other systems such as ESR and CAD and these interface developments will continue to support a holistic real time management and operational information resource. GRS can also link to time and attendance (T&A) systems and the ICT have reviewed options for the introduction of T&A subject to business requirements.

The introduction of the 111 service will require a significantly different approach to staff scheduling, rostering and monitoring within the 111 call handling centres. The traditional way of organising staff for the service provision associated with EOC provision will be vastly different. A much more flexible and dynamic work-force will be required to support 111, akin to those seen in the private sector call handling

industry. For this reason the Trust will need to implement a workforce planning and optimisation (WFP/O) strategy and deploy a self rostering system capable of providing complex modelling, tracking and monitoring facilities.

### **ICT Infrastructure**

The Trust's infrastructure is standardised on:

- Dell servers, desk-tops and laptops
- Cisco network and security devices
- Avaya (Nortel) telephony,
- Airwave Digital Radio Network and Sepura hand-portable radios
- Terrafix Mobile Data; and,
- Microsoft operating, office and back-office software.

### **Data Centre**

The Trust has a fully resilient Data Centre architecture deployed across Wakefield & York with significant built in redundancy (additional capacity to improve resilience), environmental and power management. The application architecture is based on SAN technology and the hardware estate is currently under rationalisation to VM provision. The ICT data architects and engineers keeps active pace with industry developments, which ensure this environment, is very rarely static, either in the provision of hardware, software or storage facilities.

The advent of SAAS (software as a service), VDI (virtual desktop infrastructure) and Cloud computing will have a major impact into the area throughout the life of this document. These developments, alongside power management across the data centre environment and infrastructure, supports the Trust's carbon reduction strategy.

The Trust is reviewing hosted data centres and outsourced facilities with the Yorkshire and Humber regional procurement hub's support.

### **Back Office information Systems**

Process and information requirements are constantly changing, an effective Business Intelligence (BI) strategy is required to drive the development of information systems.

The Trust is currently rolling out an enterprise Sharepoint system to manage internal workflow processes, document capture, management and access, the intranet and internet.

The Trust's data warehouse project will bring together data from all the Trust's business systems and support the delivery of the BI strategy. It will support the delivery of self-service reporting, personal performance reporting, information for commissioners and the delivery of service improvements.

As part of the data warehouse project the Trust is implementing Qlikview, this is a tool which allows the rapid development and delivery of complex reports and dashboards.

## **Networking**

The Trust has a fully resilient Networking architecture deployed across its main operational and back office enterprise. Huge demands are and will continue to be placed on this infrastructure from the 'bandwidth hungry' services such as 111, document and workflow management, VOiP, e-learning, webinars and video conferencing.

The Trust is currently half way through a major network upgrade across all of its remote station sites with the North and East Yorkshire stations representing the final stage and completing in 2012-13.

Active Capacity Management takes place to ensure the current and any future investment strategy is fully justified. The advent of SAAS (software as a service), Cloud computing, training videos, streaming and video conferencing will increase bandwidth demand throughout the life of this document.

## **Telecommunications**

The enterprise telephony deployed across the Trust is both highly resilient and scalable. It is constructed from industry leading components provided by world class telecommunications equipment and service providers. This infrastructure, provided by Avaya and supported by BT, combines local redundancy with geographically spread infrastructure, service delivery and virtualised call centre management.

The challenge over the next period is to modernise, grow the system's capacity, use its full functionality and integrate with other ICT systems; doing all this while maintaining and protecting the existing live 999, PTS and GPOOH services in preparation for 111.

The telecommunications world is changing with the advent of Cloud and SAAS (software as a service) facilities becoming more mature and more widely available. This shift will provide opportunities to rationalise call handling and management services going forward as 'on-demand' and PAYG services become standard offerings across the industry. The option to use this for disaster recovery and to share services across ambulance service areas in England is being explored with the national ambulance Directors of ICT.

## **Carrier Services & Trunk Bearers**

iSDN services are deployed across all main YAS sites which facilitate the routing (geographic and non-geographic) to the switching infrastructure at the two Data Centre sites (Wakefield Springhill and York Fairfields). Routing plans are in place within the IN (Intelligent Network) clouds that determine which calls are routed to which site and which DN (Delivery Number), these ensure calls arrive at the right site where they can be answered, managed and resolved at the first point of contact.

The carrier services are highly resilient due to nature of the digital architecture deployed. Physical bearers are implemented into each of the principal sites from 3 different telco providers (BT, C&W and Kingston) with each of the bearers capable of carrying 30 simultaneous telephone calls. Where possible and practical, the physical bearers are both geographically and diversely routed at the points of ingress into the physical YAS sites.

Over the coming years this element of the service architecture will change as technological advances, with the delivery of virtual and cloud based services, which are able to offer greater levels of flexibility and resilience in the way this layer is deployed. Additionally service providers will need to seek efficiencies through both rationalisation and convergence strategies (for example the convergence of the 999 and 111 call handling and management services over time).

### **Voice Switching Infrastructure**

A Nortel CS1K telephone switching infrastructure is deployed across the YAS enterprise. The demise of Nortel has seen the transfer of their historic portfolio to Avaya. YAS will be updating the CS1K switching environment to the Avaya Aura (Blue) solution. BCP and DR are provisioned via an SMG (Survivable Media Gateway) and spread across remote independently serviced sites.

As cloud telephony services mature, the requirement to deploy capital intensive CPE (Customer Premises Equipment) will become less prevalent. The Trust will increasingly look to leverage the large scale virtual infrastructures being deployed in the cloud by all of the major telco organisations in particular to provide major disaster recovery and to support bursts of increased activity.

### **Telephony Middleware**

A CTi middleware service layer is implemented across the voice enterprise from Call-Vision Technologies. Centricity servers are deployed as the ‘event capture and storage’ facility supporting call-connect, with Pilot Desktop GUI’s and ACCD real-time displays showing status events relating telephony infrastructure and resources.

This infrastructure is being extended to support the 111 service and to support warm transfers between call handlers and clinical advisers and, uniquely, to support the Trust’s partnership in urgent care with “warm, warm transfers”.

### **Telephony Instrumentation**

A combination of Digital and VoIP Handsets are deployed across the Trust call handling and management enterprise. Digital handsets are primarily deployed in the EOC’s with iP telephones deployed at remote sites and as a resilient fall back where there are localised telephone issues.

### **Mobile Technologies**

The Trust has rolled out mobile devices using Blackberries, PDAs, laptops, tablets and toughbooks as appropriate for the operational and environmental requirements. This continues apace as devices develop and applications become mobile enabled.

The intelligent ambulance requires a network of communication devices that can capture information from clinical devices, the vehicle itself and other environmental information as well as providing more sophisticated links to the clinical hub and other specialist services. The implementation of ECS will support this.



The Trust's ECS is able to link 12 lead ECGs and other clinical devices as well as receive information from the Trust's CAD and the national SPINE. The Trust's MDT can be used to track assets, connect to engine management systems and support corporate messaging to staff working remotely.

### **Security and Network**

The ICT team continue to monitor and enhance the security of the Trust's network and the access to systems and sensitive information. The Trust's network and firewalls are built using Cisco infrastructure (firewalls, switches and routers) with internet access controls, email protection, restrictions to read/write to attached devices and encryption.

### **Finance**

The Trust uses the shared services system provided by North East Patches (NEP). ICT working with NEP and finance have interfaced this system to other Trust systems such as PTS and Fleet.

Work continues to implement a finance invoice scanning, document management and sophisticated workflow management system to link to the NEP shared services system.

### **Hardware Standardisation**

Server, storage and desktop devices are provided by Dell. The ICT team are currently pushing out server virtualisation, virtual desktop infrastructure (VDI), a new storage attached network (SAN) and full replication across remote sites. Printer types, usage and efficiency are under constant review as is the efficiency of data centre, server and PC power usage.

### **Service Desk**

The Trusts ICT Service Desk acts as the Single Point of Contact (SPOC) for all ICT related Incidents and Service Requests as well as the entry point for Change Management. The success and professionalism of the ICT Service Desk has been acknowledged through the Connecting for Health (CfH) Service Desk Accreditation Scheme which enables those who provide front line ICT service desk services to NHS Trusts, to accredit their provision against a set of performance standards and fitness to practice criteria. In practical terms this enables the Trust's ICT Service Desk to log Incidents and Service Requests directly with suppliers without the requirement to go through the CfH National Service Desk. YAS is now able to offer this service to our partners such as LCD.

Working within the ITIL V3 framework and with strong ties to the Service Desk Institute (SDI) the Trust's ICT Service Desk Analysts have all obtained ITIL and SDI accreditation through the related examination boards.

The Trust's ICT Service Desk is committed to listening to "the voice of the customer" and proactively seeks feedback and suggestions which are fed into the Service Improvement Plan enabling the delivery of the service to meet the business expectations. Fundamental to this are the Service Level Agreements tailored to and signed off by the customer.

The future of the ICT Service Desk is both bright and exciting, as we explore how emerging media formats and Lean Methodologies will allow us to strengthen our customer connections and enhance the delivery of the 111 Service.

### ICT Strategy components

**Appendix 2** sets out the key ICT short to medium term strategy components with a simple analysis of their relationship to the Trust's core business priorities and the ICT team's capacity and capability. Highlighted in RED are the key areas of challenge identified within this document's SWOT review and that carried out by *Deloitte - "IM&T Capacity and Capability Review"*.

ICT plans and current developments for 2012-13 are detailed in **Appendix 4**. The benefits to the Trust priorities of these changes are clearly set out in the table. These particular implementations will be completed by the end of 2012-13 and form part of the regular maintenance and upgrade procedures whilst also ensuring some of the challenges detailed in **Appendix 1** are suitably mitigated.

The costed high level five year ICT Capital plan is provided at **Appendix 5**.

### Managing and Monitoring Delivery

The Trust's ICT Strategy and Operational delivery group will oversee the delivery of this strategy including the implementation of ICT operational plans, the on-going strategy review, horizon scanning and strategic alignment to DH, NHS and local priorities, strategic direction and operational delivery.

The Trust's Capital Monitoring Group provides overview and scrutiny of ICT capital spend and the Programme Management Office (PMO) provides project structure, governance and business benefits analysis and delivery support.

Monitoring the success of ICT delivery will be through the monthly ICT KPIs covering systems' and service delivery reviewed by the group and in summary in the IPR.

### Conclusion

The Trust's ICT Strategy for the next five years has been developed to support its Integrated Business Plan following detailed internal engagement and the business planning process.

This Strategy has taken a view of the Trust's ICT capability and capacity in the light of its strategic delivery challenges and within the context of the Government's Health and Social Care Act 2008, the proposals being considered in the Health and Social Care Bill Act 2012 and the DH information strategy – The Power of Information 2012.

The Trust's ICT team have delivered a lot of changes over the last few years including a single YAS voice, server, application and network infrastructure as well as a virtual communication centre (VCC) infrastructure across 999, PTS and GPOOH services, mobile data improvements and a digital radio environment.

There is a significant work plan already underway for 2012-13 to improve and replace the existing infrastructure as appropriate, and to further enhance the Trust's data, system and application resilience and ICT's ability to contribute to the Trust's business continuity capability.

The size of the challenge for the next five years is significant and set out across this document. The plans for the next few years are outlined along with the consideration of additional support requirements.

This Strategy will be reviewed across the period as the Trust's strategic plans are reviewed, developed and implemented.

**Appendix 1** – The primary strategic drivers and objectives that the Trust is facing over the coming five years:

Strategic ICT Driver/Objective	Potential Impact and benefits for the Trust & Commissioners	Potential Impact and benefits for Patients	Priority	Action(s)
#1- Delivery of 5.5% CIP	<ul style="list-style-type: none"> <li>Internal efficiency drivers</li> <li>More effective supplier management</li> </ul>	<ul style="list-style-type: none"> <li>Better use of systems and technology to improve the quality of patient experience</li> </ul>	High	<ul style="list-style-type: none"> <li>-Internal efficiencies</li> <li>-Contract &amp; Supplier Management</li> <li>-Lean 6 Sigma projects.</li> </ul>
#2- The changing and ageing population is placing higher and higher demands on the service	<ul style="list-style-type: none"> <li>Increasing costs</li> <li>More difficult choices</li> <li>Change can drive efficiencies.</li> <li>New approaches to delivery and patient care.</li> <li>Health and social care integration.</li> </ul>	<ul style="list-style-type: none"> <li>Technology can help to ensure all patients are directed to the most appropriate care</li> <li>A more localised approach to service delivery at the point of care</li> <li>Care focused on the point of need</li> <li>The informed patient.</li> </ul>	Medium	<ul style="list-style-type: none"> <li>-The intelligent ambulance</li> <li>-111 and YAS as Gateway</li> <li>-Capacity Management Systems (CMS)</li> <li>-Directory of Services (DoS)</li> <li>-Emergency Care Solution (ECS)</li> <li>-Access to Personal Demographics Service (PDS) for NHS</li> <li>Number and access to the Summary Care Record (SCR)</li> </ul>
#3- Demands from major change initiatives (e.g. 111)	<ul style="list-style-type: none"> <li>Initiatives are both costly and time consuming</li> <li>Puts the Trust at the centre of the public's access to urgent and emergency care</li> </ul>	<ul style="list-style-type: none"> <li>An easy to remember single point of access.</li> <li>A 'one-stop-shop' to the most appropriate care options</li> </ul>	High	<ul style="list-style-type: none"> <li>-Programme Management Office (PMO)</li> <li>-111 and NHS Pathways</li> <li>-Additional Call Centres</li> <li>-New Technologies</li> </ul>
#4- Increasing Public and Commissioner Expectations - Business continuity	<ul style="list-style-type: none"> <li>There is a constant need to review and refine Business Continuity Planning (BCP) capability (much of it driven from a technical perspective)</li> </ul>	<ul style="list-style-type: none"> <li>A modern and reliable service to the public and patients of Yorkshire</li> <li>Building public confidence</li> </ul>	High	<ul style="list-style-type: none"> <li>-protection from utility outages</li> <li>-highly resilient servers and network</li> <li>-additional sites</li> </ul>
#5- The need to improve the performance and efficiency of PTS	<ul style="list-style-type: none"> <li>Any loss / reduction would have an immediate impact on the Trust revenue streams</li> <li>There could be a potential to look at 'service</li> </ul>	<ul style="list-style-type: none"> <li>A mixed environment that could confuse.</li> <li>Possibly less joined up.</li> </ul>	Medium	<ul style="list-style-type: none"> <li>-PDAs and Data Capture</li> <li>-Easy access to information and reports</li> <li>-Integration to other services.</li> </ul>

convergence'				
#6- Avoiding unnecessary admissions and supporting care at home	<ul style="list-style-type: none"> <li>A better use of resources</li> <li>Information to support care at the patient's side.</li> <li>Access to information about appropriate health and social care services.</li> <li>Access to specialist advice.</li> </ul>	<ul style="list-style-type: none"> <li>A more localised approach to service delivery at the point of care</li> <li>Better for the patient's care and family.</li> </ul>	Medium	<ul style="list-style-type: none"> <li>-The intelligent ambulance</li> <li>-Access to PDS, SCR, primary care and social care systems</li> <li>-CMS &amp; DoS</li> </ul>
#7- The deployment of ECS (ePR)	<ul style="list-style-type: none"> <li>Smartcard deployments (ECS / ESR) – Employee Self-Serve</li> <li>Better and easier access to information for analysis</li> <li>Focus on improving clinical care and staff skills</li> </ul>	<ul style="list-style-type: none"> <li>Better quality information</li> <li>Information to hand to support the clinician</li> <li>The use of information to support improvements in care</li> </ul>	High	<ul style="list-style-type: none"> <li>-Upgrade to ECS 5b</li> <li>-Roll-out of new toughbooks</li> <li>-staff training</li> <li>-clinical outcome reporting and audits.</li> </ul>
#8- Clinical Hub	<ul style="list-style-type: none"> <li>Tele-Health</li> <li>CMS-DOS</li> <li>Interoperability</li> </ul>	<ul style="list-style-type: none"> <li>Supporting the most appropriate care and advice to patients</li> <li>Providing access to other NHS services</li> </ul>	Medium	<ul style="list-style-type: none"> <li>-Access to NHS Numbers</li> <li>-Access to specialist advice</li> <li>-System integration</li> </ul>
#9- Signposting the most appropriate care for patients	<ul style="list-style-type: none"> <li>Health providers are becoming increasingly targeted in the provision of one-stop shops for callers / patients</li> <li>Pathways and CMS-DOS are great enablers</li> </ul>	<ul style="list-style-type: none"> <li>Quick identification of the most appropriate care.</li> <li>Easy access to other NHS services</li> </ul>	High	<ul style="list-style-type: none"> <li>-NHS Pathways and CMS-DOS integration / deployment - 111 call centres</li> <li>-Access to pathways</li> <li>-Integration to 999 and Urgent Care</li> <li>-Access to Primary Care and Secondary care systems</li> </ul>
#10- Estates reconfiguration and rationalisation	<ul style="list-style-type: none"> <li>EOC's and other big-ticket services will always require the solid brick and mortar environments in order to be effectively delivered</li> <li>Mobile and disparate workers require greater levels of flexibility in the places which they work from, the key will be to offer a 'standard / model' office build that can facilitate their needs, whilst at the same time offering secure remote worker environment as</li> </ul>	<ul style="list-style-type: none"> <li>Improved Efficiency and better value for money.</li> <li>An approach focused on a fast ambulance response.</li> <li>A modern approach to working for the NHS</li> </ul>	High	<ul style="list-style-type: none"> <li>-fit out with IT and integrate</li> <li>-build in resilience and BC</li> <li>-support service redesign</li> </ul>

appropriate

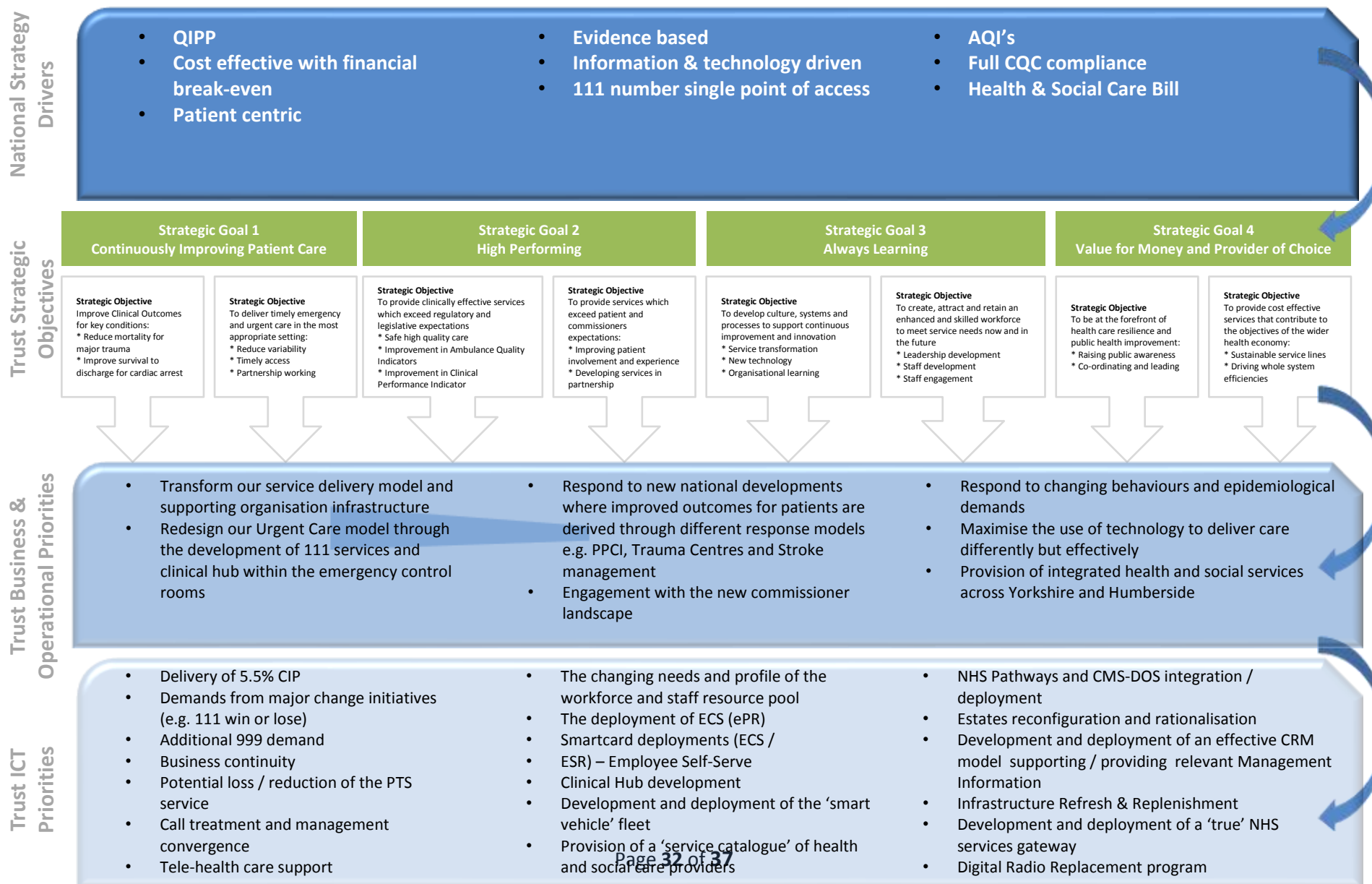
#11- Changing Commissioner Environment and Public Information Requirements	<ul style="list-style-type: none"> <li>▪ Data Warehouse (intra and inter agency information sharing)</li> <li>▪ Individual Performance Reporting</li> <li>▪ CPI's</li> </ul>	<ul style="list-style-type: none"> <li>▪ Better information to drive the QIPP agenda, transformation and better patient care</li> </ul>	<b>High</b>	<ul style="list-style-type: none"> <li>-data warehouse</li> <li>-BI dashboards</li> <li>-access to information that links services and healthcare devices</li> <li>-service provision catalogue to support: service redesign and public health messages</li> </ul>
#12- The reduction in carbon footprint, Green Agenda.	<ul style="list-style-type: none"> <li>▪ Government Targets</li> <li>▪ Cost Reduction</li> <li>▪ More efficient services</li> </ul>	<ul style="list-style-type: none"> <li>▪ Protecting the environment</li> </ul>	<b>High</b>	<ul style="list-style-type: none"> <li>-more efficient technologies and infrastructure design</li> </ul>

## Appendix 2 – ICT Strategy Components

ICT Strategy Component	Operational Benefits	Clinical Benefits	Technical Benefits	Technical Complexity (H-M-L)	Strategic Complexity (H-M-L)	Technical Capability (H-M-L)	Strategic Capability (H-M-L)	ROI Potential
<i>Delivery of 5.5% CIP</i>	✓	✓	✓	Medium	Low	Medium	Low	Medium
<i>Demands from major change initiatives (e.g. 111 win or lose) would include Trust Call Treatment and Management convergence</i>	✓	✓	✗	High	High	High	Low	High
<i>Additional 999 demand</i>	✓	✗	✗	Medium	Low	Low	Medium	Low
<i>Business continuity</i>	✓	✓	✓	Medium	Medium	Medium	Medium	Low
<i>Potential loss / reduction of the PTS service</i>	✗	✗	✗	Medium	Medium	High	Medium	Low
<i>The changing needs and profile of the workforce and staff resource pool</i>	✓	✓	✓	Medium	High	Medium	Low	Medium
<i>The deployment of ECS (ePR)</i>	✓	✓	✓	High	High	Medium	Low	Medium
<i>Smartcard deployments (ECS / ESR) – Employee Self-Serve</i>	✓	✗	✓	High	High	Medium	Medium	Medium
<i>Clinical Hub</i>	✓	✓	✗	Medium	Low	High	Medium	Medium
<i>NHS Pathways and CMS-DOS integration / deployment</i>	✓	✓	✗	Medium	High	Medium	Low	Medium
<i>Estates reconfiguration and rationalisation</i>	✓	✗	✓	Low	Low	High	Medium	High
<i>Management Information</i>	✓	✓	✓	High	High	Medium	Medium	Medium
<i>Infrastructure Refresh &amp; Replenishment</i>	✓	✓	✓	High	High	High	High	High
<i>ICT Capacity and Capability Review and Management development and Succession Planning</i>	✗	✗	✓	Low	High	High	Low	Medium
<i>Digital Radio Replacement Planning</i>	✓	✗	✓	Medium	High	High	Medium	Medium
<i>Carbon Footprint Reduction</i>	✓	✗	✓	Low	Medium	High	Medium	High

Appendix 1 – ICT strategy component characterisation matrix

**Appendix 3 – The National Ambulance and YAS strategic Relationship Model:**





**Appendix 4** – ICT infrastructure and technical plans and projects for 2012-13.

<b>ICT operational implementations 2012-13</b>	<b>Operational Benefits</b>	<b>Clinical Benefits</b>	<b>Technical Benefits</b>	<b>Resilience &amp; BC Benefits</b>	<b>Detail</b>
New Highly Resilient CAD Servers	✓	✓	✓	✓	Providing significant additional resilience – complete May 2012.
Create new CAD environment	✓	✓	✓	✓	Additional ring-fencing and protection of the Trust's 999 environment.
Install new MDT servers in Wakefield and York	✓	✓	✓	✓	Improving performance and resilience.
Migrate PTS to 2008 R2 with 2008 SQL	✓		✓	✓	Upgrade to latest software on new servers in prep for VM and new SAN.
Migrate Fleet to VM 2008 R2 with 2008 SQL	✓		✓	✓	Upgrade to latest software on new servers in prep for VM and new SAN.
Migrate GRS to VM 2008 SQL	✓		✓	✓	Upgrade to latest software on new servers in prep for VM and new SAN.
Migrate YAS general SQL to VM SQL 2008	✓		✓	✓	Upgrade to latest software on new servers in prep for VM and new SAN.
Commission and implement new VM environment in Wakefield and York			✓	✓	Final phase of server virtualisation providing increased resilience and speed of recovery from failure.
Set up / implement YAS VM Disaster Recovery solution	✓	✓	✓	✓	Final phase of server virtualisation providing increased resilience and speed of recovery from failure.
Set up / implement YAS DMZ	✓		✓		Increasing access to YAS services to users outside the Trust's network.
Build-up YAS Extranet environment	✓		✓		Improving the access to YAS information to Commissioners, CCGs etc.
Migrate Exchange from 2007 to 2010	✓		✓	✓	Latest version and functionality improvements.
VDI project deployment	✓		✓		Better access and control of the corporate desktop and information.
Second phase Trust wide SharePoint Department site deployment 2010	✓		✓		Improving group work, work flow processes and document management.
Upgrade YAS York WAN infrastructure	✓		✓	✓	Bigger bandwidth and better station access to YAS

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					information, applications and e-learning.
Build-up external facing YAS SharePoint	✓		✓		Link to Extranet to support sharing of information with partner agencies and commissioners.
Setup new (state of the art) Emergency Preparedness room	✓	✓	✓	✓	Gold cell ready for early July.
Digital Radio ICCS Upgrade to 21.x	✓	✓	✓	✓	Improved functionality and resilience across the two YAS Airwave sites.
Digital Radios Software upgrade to 10.5	✓	✓	✓		Improved functionality on the hand-portables and fixed mobiles.
Telephone System upgrade to the latest Avaya version	✓	✓	✓	✓	Brings the YAS switch up to date and fixes some of the existing issues – due June 2012.
Voice Recording storage, archiving and VoIP capacity upgrade	✓	✓	✓	✓	New Storage servers and additional licenses to record VoIP attached devices.

Appendix 5 - Five Year Capital Plan

<b>ICT Capital 5 Year Plan - 2012 to 2017</b>							v1.0
<b>CAPITAL EXPENDITURE PLAN 2012-13</b>							<b>ICT</b>
Scheme No	Capital Scheme Name	Capital Cost (incl vat)	Capital Spend in year	Priority	Risk Score	Notes / Details of scheme	
1	Desktop / Laptop / Printer refresh	102	102	3	L	3 year IT refresh cycle	
2	network / server refresh	100	100	2	M	3 year IT refresh cycle	
3	ECS	500	500	1	H	ECS roll-out	
4	Mobile Data refresh	150	150	1	M	Upgrade / replace old MDTs	
5	CAD Developments	100	100	2	M	New developments	
6	PTS Developments	100	100	1	M	New developments & PDA replacement	
7	Airwave expansion	70	70	2	M	Expansion of use of Airwave kit	
8	Station moves & Changes	80	80	2	M	estates changes	
9	Station Security	250	250	2	M	ref CD / staff-stn security	
10	111 / Urgent Care developments	280	280	1	H	111 service telephony developments	
		<b>1732</b>	<b>1732</b>				
<b>CAPITAL EXPENDITURE PLAN 2013-14</b>							<b>ICT</b>
Scheme No	Capital Scheme Name	Capital Cost (incl vat)	Capital Spend in year	Priority	Risk Score	Notes / Details of scheme	
1	Desktop / Laptop / Printer refresh	98	98	3	L	3 year IT refresh cycle	
2	network / server refresh	90	90	2	M	3 year IT refresh cycle	
3	ECS	500	500	1	H	ECS roll-out	
4	Mobile Data refresh	150	150	2	M	Upgrade / replace old MDTs	
5	CAD Developments	100	100	2	M	New developments	
6	PTS Developments	80	80	2	M	New developments & PDA replacement	
7	Airwave expansion	50	50	2	M	Expansion of use of Airwave kit	
8	Station moves & Changes	80	80	2	M	estates changes	
9	Station Security	150	150	2	M	ref CD / staff-stn security	
10	111 / Urgent Care developments	300	300	3	H	111 service telephony developments	
		<b>1598</b>	<b>1598</b>				
<b>CAPITAL EXPENDITURE PLAN 2014-15</b>							<b>ICT</b>
Scheme No	Capital Scheme Name	Capital Cost (incl vat)	Capital Spend in year	Priority	Risk Score	Notes / Details of scheme	
1	Desktop / Laptop / Printer refresh	72	72	3	L	3 year IT refresh cycle	
2	network / server refresh	200	200	2	M	3 year IT refresh cycle	
3	ECS	200	200	1	H	ECS roll-out	
4	Mobile Data refresh	200	200	2	M	Upgrade / replace old MDTs	
5	CAD Developments	110	110	2	M	New developments	
6	PTS Developments	50	50	2	M	New developments	
7	Airwave expansion	50	50	2	M	Expansion of use of Airwave kit	
8	Station moves & Changes	80	80	2	M	estates changes	
9	Station Security	100	100	2	M	ref CD / staff-stn security	
10	111 / Urgent Care developments	240	240	2	M	111 service telephony developments	
		<b>1302</b>	<b>1302</b>				
<b>CAPITAL EXPENDITURE PLAN 2015-16</b>							<b>ICT</b>
Scheme No	Capital Scheme Name	Capital Cost (incl vat)	Capital Spend in year	Priority	Risk Score	Notes / Details of scheme	
1	Desktop / Laptop / Printer refresh	70	70	3	L	3 year IT refresh cycle	
2	network / server refresh	100	100	2	M	3 year IT refresh cycle	
3	ECS	200	200	1	H	ECS roll-out	
4	Mobile Data refresh	150	150	2	M	Upgrade / replace old MDTs	
5	CAD Developments	100	100	2	M	New developments	
6	PTS Developments	300	300	2	M	New developments	
7	Airwave expansion	70	70	2	M	Expansion of use of Airwave kit	
8	Station moves & Changes	80	80	2	M	estates changes	
9	Station Security	100	100	2	M	ref CD / staff-stn security	
10	111 / Urgent Care developments	114	114	2	M	111 service telephony developments	
		<b>1284</b>	<b>1284</b>				
<b>CAPITAL EXPENDITURE PLAN 2016-17</b>							<b>ICT</b>
Scheme No	Capital Scheme Name	Capital Cost (incl vat)	Capital Spend in year	Priority	Risk Score	Notes / Details of scheme	
1	Desktop / Laptop / Printer refresh	60	60	3	L	3 year IT refresh cycle	
2	network / server refresh	70	70	2	M	3 year IT refresh cycle	
3	ECS	80	80	1	H	ECS roll-out	
4	Mobile Data refresh	200	200	2	M	Upgrade / replace old MDTs	
5	CAD Developments	808	808	1	H	New developments	
6	PTS Developments	50	50	2	M	New developments	
7	Airwave expansion	50	50	2	M	Expansion of use of Airwave kit	
8	Station moves & Changes	50	50	2	M	estates changes	
9	Station Security	75	75	2	M	ref CD / staff-stn security	
10	111 / Urgent Care developments	80	80	2	M	111 service telephony developments	
		<b>1523</b>	<b>1523</b>				

**Appendix 6 – ICT Activity, Budget and Staff Profile****Forecast Activity 2012/13 to 2014/15**

	<b>Actual 2011/12</b>	<b>Forecast 2012/13</b>	<b>Forecast 2013/14</b>	<b>Forecast 2014/15</b>
Annual Activity (SD & Portal)	36,600	43920	49419	51240
Change in Activity (%)	100%	120%	135%	140%

**Financial Forecasts 2012/13 to 2016/17**

	Year to Date (Nov)			Current Year			Estimated 2012/13 £000	Estimated 2013/14 £000	Estimated 2014/15 £000
	Actual YTD £000	Budget YTD £000	Variance YTD £000	Forecast Actual £000	Forecast Budget £000	Forecast Variance £000			
Pay	871	912	(41)	1,361	1,399	(38)	1,415	1,358	1,400
Non Pay	2530	2606	(76)	3,840	3,871	(31)	3,833	3,680	3,700
Income									
Net Position	3400	3518	(118)	5,201	5,270	(69)	5,248	5,038	5,100

**Staffing Profile**

Agenda for Change Band	11/12		12/13 Pre Developments and CIP		12/13 Post Developments and CIP	
	Total Heads	Total WTE	Total Heads	Total WTE	Total Heads	Total WTE
1	2	2	2	2	2	2
2	0	0	0	0	0	0
3	3	3	3	3	3	3
4	8	8	8	8	8	8
5	10	9	10	9	10	9
6	8	8	8	8	8	8
7	8	8	8	8	8	8
8A	1	1	1	1	1	1
8B	0	0	0	0	0	0
8C	1	1	1	1	1	1
8D	0	0	0	0	0	0
9+	0	0	0	0	0	0
<i>Agency/ Consultant</i>	1	1	0	0	0	0
<b>Total</b>	42	41	41	40	41	40
<b>Avg. Cost per person / WTE</b>	£33,310	£34,122	£34,511	£35,373	£34,511	£35,373



# Appendix 7 - Service Delivery & Interoperability Architecture

999 & Non-999 Telephone Traffic

