



Yorkshire Ambulance Service



NHS Trust

*An Aspirant Foundation Trust*

# ICT Strategy

## 2014-2018

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# ICT Strategy Document

## Introduction

The pace of refresh and change is unrelenting as today's ICT environments experience ever-increasing pressures and demands across the technology spectrum. Patients expect real-time responses from patient facing staff, commissioners seek governance and assurance around the services they are contracting, and operations management and support staff all have a high requirement for real-time and historic data. These requirements have one thing in common - 'data'. This thirst for data is a massive challenge and will only be effectively met through structured and controlled warehousing of information, as well as the delivery of users' portals that support self-service.

The proliferation of social media smart-phones and tablet computers with ever-increasing capabilities presents a major challenge to health service organisations; with the organisations themselves needing to secure confidentiality of patient data, yet open in terms of information and technology governance.

Technology assisted healthcare or Tele-health is part of this technology revolution and is at the heart of the 'next wave' of service delivery options the NHS must embrace. A recent search of the health/pseudo health applications on iTunes returned over 2,200 results. Smart-phone applications are already available that allow individuals to monitor their vital signs and it will not be long before patients and callers are contacting the Trust with devices that can be interrogated as part of the triage process.

ICT service delivery models are also changing rapidly, and suppliers are looking to exploit this. Already the NHS has seen the removal of central licencing agreements with Microsoft, which now place the emphasis for decision making around computer operating system and application licencing with local Trusts themselves.

Cloud computing and communications service are both real and reliable, and will challenge ICT environments constantly in the near future.

Economic and technical decisions will need to be taken that look to commercially justify ICT spend. Cloud-based services offer flexible and dynamic options, which in many cases can be delivered as 'pay-as-you-consume' entities. More and more ICT offerings will become service-based and may justifiably exist in or around the public internet. This clearly challenges tradition and will present a major security and Information Governance challenge to all concerned.

This document sets out the Yorkshire Ambulance Service NHS Trust's ICT Strategy for the next five years, and is intended to guide business and operational managers in the Trust on the direction of travel of technology initiatives in the short, medium and long term. In the context used in the document title the word 'infrastructure' relates to all of the physical and logical resources the Trust deploys to support its services via its technology capabilities e.g. computer hardware and software, telecommunications assets and the staff/resources that build, manage and support them.



Many of these 'challenges' should also be seen as opportunities which should enable the Trust to change its culture and gain the benefits outlined in '*Digital First*' and '*Paperless by 2018*', as well as deliver its CIP challenge.

Internal and external stakeholders rightly have very high expectations. The stakeholder map for the Trust spans patients, staff, commissioners, legal and political entities; who all have some common and competing requirements. It is clear that access to information through FOI processes means Trusts have to be prepared to react as quickly as possible, as sometimes extremely negative information traverses the public domain very quickly, and as such the ability to react can be a serious challenge

Legacy environments clearly have to be managed effectively whilst the potential of 'parallel transition' to service and cloud-based offerings may be taking place. This shift will happen and it may require specific skill-sets that aren't readily available today. The recruitment and development of staff will be crucial to successfully delivering this complex ICT strategy.

The Trust has an ageing PC/Desktop environment, and the need to support 'Bring Your Own Device' (BYOD) to work in the very near future, will mean the Trust needs to make some significant decisions around the procurement and availability of access devices that fulfil operational, and support staff needs.

It is clearly understood that the Trust's primary objective is the day-to-day management of emergency, urgent and patient transport needs. However as can be seen above there will continue to be short, medium and longer-term challenges that must be addressed alongside this; a key question being how do you manage this very demanding and dynamic environment effectively, in line with both tactical and strategic needs, whilst concentrating on 'getting today's problems solved; today'.

## **Executive Summary**

This ICT strategy presents a short, medium and longer-term directional view of the technology landscape the Trust will need to support over the coming 3-5 years, delivering an ever-changing service environment to all of its stakeholders. By its very nature the Trust's ICT landscape is complex. The current economic and social environment place tremendous expectations on the service delivery capabilities of all organisations who make up the National Health Service. Running ambulance, NHS 111 and non-emergency patient transport services requires a myriad of different service propositions, underpinned by information, systems management, and telecommunications.

Investing in and prioritising technology investments that support and enable business objectives and deliver significant improvements for patients has been a long-standing challenge for healthcare providers and the NHS as a whole.

We operate in a complex and competitive environment, in which there is fragmentation and diversity in provision of care, where social and demographic changes enable patients to live longer but often requiring care for multiple healthcare

conditions. At the same time, limited hospital capacity and tighter budgetary constraints have led to increased policy emphasis on avoiding unnecessary hospital admissions and treating patients closer to home.

Within the ICT arena three key factors offer a powerful catalyst for change; the proliferation of technology within people's own homes, such as smart phones and tablet computers, the growth of embedded technology in vehicles and equipment, more open systems architecture and shared access to information. Focused investment in ICT can radically improve delivery of healthcare services and help organisations reach greater numbers of patients in community and home settings.

The focus for ICT within Yorkshire Ambulance Service in recent years has been maintaining and strengthening infrastructure resilience by investing in renewal of core server hardware and software. This has led to some IT investment projects being made in isolation without the benefit of collaboration across directorates and a level of disconnect between IT strategy and our business ambition.

Going forward our ICT vision is to be recognised as the leading ICT team in the ambulance sector and wider NHS by delivering information and communication technology systems in a simple, cost effective way that support the Trust's ambitious development plans and contributes directly to improved patient care.

In support of our vision this Strategy presents a five-year 'road map' that addresses previous gaps in service delivery and embeds a 'capability-led road map' in which the ICT function works closely and in a focused way with internal customers from functions across the Trust and key external stakeholders.

To facilitate collaboration between business units and the IT team we have set up a governance group called the IT Strategy Group. This group is a vehicle to get teams working together, combining collective knowledge and wisdom from across the service to yield a much more efficient and effective long-term plan for IT investment with patients and service improvement and innovation at its core.

A significant investment in time and effort has also been made in developing the culture and approach within the ICT team to encourage wider engagement with colleagues to help understand the difference between relatively short-term tactical and project-oriented planning, and more long-term strategic Trust-wide planning.

This road map is built around two classes of ICT investment. The first class of investment is 'outcome-driven', things that deliver direct attributable benefit to patient and business outcomes and the wider strategies of Yorkshire Ambulance Service, such as clinical decision support tools and vehicle telematics. The second class of investment is 'foundation investment', those things that underpin our service delivery such as hardware and telephony infrastructure modernisation such as PC virtualisation, which will make PCs much easier to manage, more efficient and cost effective and moving to remote shared infrastructure via the cloud, where appropriate, to share information and resources with partner organisations.

The Strategy sets out specific themes in line with the Trust's corporate and clinical strategy:

- Enhancing frontline decision making capability
- Improve the workforce, patient and stakeholder experience
- Leading regional and national healthcare resilience and planning
- Improving use of resources
- Growing capability and expertise within the ICT team and wider Trust.

This road map is not static and will continue to evolve, as healthcare and our environment change. We will need to respond to these changes and so we will conduct a yearly reappraisal to ensure it continues to respond and deliver the outcomes and benefits that the Trust and our stakeholders are seeking.

## **Mission and Vision for ICT**

*“Our vision over the next five years is to be recognised as the leading ICT team in the ambulance sector and NHS by delivering information and communication technology systems in a simple, cost effective way that supports and the Trust’s ambitious development plans and contributes directly to improved patient care.”*

We seek to be seen as the internal provider of choice for technology solutions and an innovative and collaborative partner to our internal and external customers. Achieving this requires a mind-set change in which we enable colleagues to do more of what they need to do through more shared learning, empathy and collaboration, with less control for control’s sake.

YAS is the fourth largest geographical ambulance service provider within the NHS. It therefore requires a robust, effective and adequately resourced ICT infrastructure. This ICT strategy must ensure that it supports YAS’s business objectives and critical success factors of the Trust. Its key focus is to deliver services and 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, in line with the Trust’s business plan and is balanced by the needs of the organisation as a whole.

The ICT Strategy aims to support the whole Trust and should be aligned with the needs of the organisation, local health communities and the wider NHS. Delivery of the Strategy will be based on good governance, robust project management, adopting best practice and service management (ITIL), coupled with high quality, affordable, innovative, reliable and sustainable ICT services.

## **ICT Objectives**

This document aims to describe the future needs and desires of the organisation in relation to future ICT. Whilst this document is entitled a strategy it also describes some objectives which may be seen as definitive plans for implementation. The document proposes the high level strategic objectives derived from future organisational, service line and national strategies. These are:



## IM&T Strategic Objectives

|    |  |
|----|--|
| 1  | Improve access to technology and information across the Trust  |
| 2  | Develop a single view of Trust-wide data via data warehouse to provide managers and staff with information relevant to their performance |
| 3  | Implement mobile applications to support clinical decision making  |
| 4  | Develop a standard approach to the automation of manual processes  |
| 5  | Contribute to the NHS Paperless Strategy (2018)  |
| 6  | Review, test and implement a future single mobile technology platform  |
| 7  | Develop a future approach to data modelling within the Trust   |
| 8  | Levering technology to support transformation programmes in PTS fleet  |
| 9  | Implementation of ePRF   |
| 10 | Support the Trust's Hub and Spoke estate plans   |
| 11 | Implement the Information Technology Infrastructure Library (ITIL) Service Management methodology to align the service to business needs |
| 12 | Implementation of the digital radio replacement programme (Emergency Services Mobile Communications Program (ESMCP))                     |
| 13 | Evaluate how cloud computing may be adopted within YAS and implement as appropriate  |
| 14 | Support corporate initiatives to improve staff and stakeholder engagement and patient experience   |

## Trust Strategic Objectives and Delivery

This ICT Strategy and the objectives outlined above are designed to support the delivery of the Trust's eight strategic objectives:

1. Improve clinical outcomes for key conditions
2. To deliver timely emergency and urgent care in the most appropriate setting
3. To provide clinically effective services which exceed regulatory and legislative standards
4. To provide services which exceed patient and commissioner expectations
5. To develop culture, systems and processes to support continuous improvement and innovation
6. To create, attract and retain an enhanced and skilled workforce to meet service needs now and in the future
7. To be at the forefront of healthcare resilience and public health improvement
8. To provide cost effective services that contribute to the objectives of the wider health economy.

## Key Themes within the Strategy

### 1. Front Line Decision-making

Enhancing frontline decision-making – providing frontline clinicians with the technology and information through tablet PCs and smart mobile devices to access patient, pathway information and support the right clinical decisions being made at any time in any location.

ICT is currently working to provide the best design and infrastructure that will support frontline clinical and non-clinical decision-making whilst out in the field. This will provide the clinicians and managers with fast access information using any device from anywhere at any time e.g. (Toughbook, smartphone, laptop, tablet).

The following benefits for staff and patients are:

- Improving faster access to accurate, up-to-date information for staff out in the field.
- Improve efficiency by removing the need to contact the EOC crew line for advice.
- Increase consistency and application of clinical best practice.
- Allow near real-time auditing and reporting on how the information is used to drive up the quality of the information provided based on feedback from clinicians on a case-by-case basis.
- Changes to working or clinical practice can be made available in near real-time and stored for reference.
- Smart ambulance and patient telematics can be made available to appropriate teams in operations, fleet and control.
- Patient-specific data can be made available securely to receiving clinicians in advance of arrival at the receiving ED.
- Applications to provide pre-arrival previous history to assist the clinician in care pathway decisions.
- Easy access to primary care records/community care records SCR/DOS, national BNF, DoS, SCR, our PGDs and JRCALC.
- Provide access to secondary care bed management and capacity information.
- Potential to move to a single in-vehicle intelligent ICT device.



ICT Mobile Apps development journey has been piloted successfully and Clinical Apps will be one of the highest priorities in the next 5 years.

## Electronic Patient Report Form (ePRF)

The **ePRF** is a key enabler for YAS to support the service strategy. A desire to move from where we are today (paper-based recording) to an environment where all patient data is available to those who need it in a timely manner where ever they need it to ensure a safe and effective patient experience that our staff would view as an indispensable asset.

The Trust has deployed ePRF into some areas of East Riding and Mid-Yorkshire equivalent to 15% of the total Trust, as a replacement for the PRF system. The system supports the clinical care process through improved access to timely and relevant clinical data both within YAS and through the Summary Care Record which will be shared across NHS organisations. It is recognised that shared records across local health communities will reduce duplicate records, improve the quality of clinical decision making and shorten clinical pathways.

Commissioner support for wider roll-out of ePRF has been agreed as part of the 2014-15 contract settlement with West Yorkshire.

## Intelligent Ambulance

The three-year roadmap of the 'intelligent ambulance' concept will provide vehicle and device network connectivity supporting the ambulance clinician's access to timely patient information and decision support tools (ePRFs) and management information. A Mobile Data Terminal (MDT) Hub will be used as a single hub, providing connectivity to multiple external devices across different operating platforms, for example, ePRF devices, defibrillators, in-vehicle and smart device video capabilities, smartphones and other system capabilities such as vehicle telematics, Radio-Frequency ID (RFID) asset tagging, as well as existing interfaces, communications and telephony.

This will be supported by deploying Mobile Apps, SMS messaging, SCR, DOS Social Media and Tele-Health. (See Appendix E).

Figure 1: Intelligent Ambulance ICT Infrastructure



The five-year vision for in-vehicle technology is for vehicles to be equipped with a high speed, highly resilient connectivity platform. These can switch seamlessly between 3G and 4G networks to obtain the best coverage, and higher speeds than existing platforms. This e-platform can also connect to portable or fixed line WiFi hotspots. This will enable the Trust to create and use innovative solutions, bringing information and data closer to operational staff and patients by making use of a single mobile device connected to this mobile platform.

In time we expect to move to one device providing all the processing power and connectivity to all the equipment and software in the vehicle via the hub platform. (Two-way data, ePRF, intranet, internet, DoS, SCR, email, primary care systems, telephone, radio voice communication and vehicle telematics).

Figure 2: Single in-vehicle mobile device



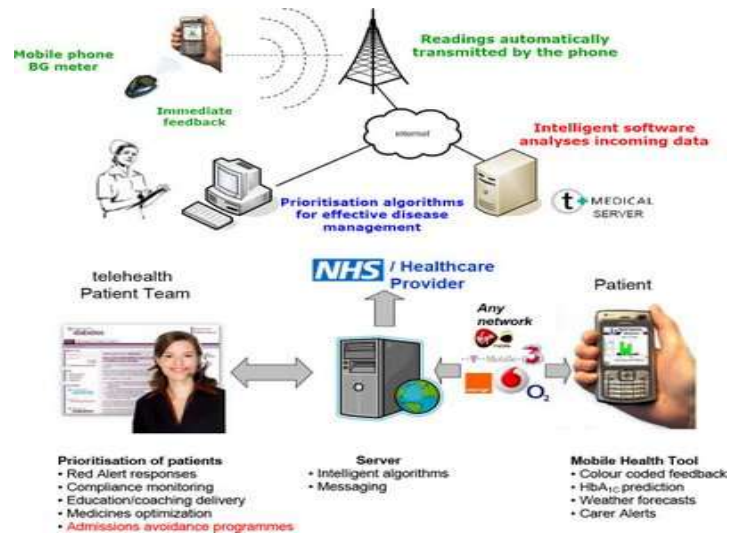
This portable device will be linked to one multi-function screen on the car's dashboard and to the rooftop 'light bar'. It will contain a 360 degree camera, sensors and antennae that support the instant transmission and reception of information, image and video feed data for patient related observations as well as ECG/Vitals.

### **Tele-health and Tele-care**

The DH 3 million lives programme is a key part of national strategy to improve a patient's ability to live independently reduce mortality rates and inappropriate admissions into A&E and acute settings, thereby reducing bed days and costs to the health service.

With key skills in clinical triage, mobile care and 24/7 telephony, the Trust is well placed to play a region-wide role in the adoption of these technologies. The Trust will introduce tele-health which involves the use of electronic information and telecommunication technologies to support long-distance clinical monitoring and healthcare, patient and professional health-related education, public health and health administration.

The NHS itself is looking to embrace tele-health for the benefit of all, and it will not be long before patients and callers are contacting the Trust with devices that can be interrogated as part of the triage process.



Tele-care pendant alarm systems are now widely available through national pharmacy chains and the third sector, increasing demand on 999 ambulance services where clinical triage is not in place. ICT will support the Trust to introduce these technologies and service models.

## 2. Improve Workforce, Patient and Stakeholder Experience

The engagement of the workforce, patients and stakeholders has been identified as one of the challenges for the ICT strategy. Many of these 'challenges' should be seen as opportunities which could enable the Trust to change its culture and gain the benefits outlined in the NHS strategy '*Digital First*' and '*Paperless by 2018*', as well as deliver its CIP challenge.

### Stakeholders

YAS hosts three mission-critical NHS functions; 999, NHS 111 and PTS (Patient Transport Service), and as a result, the Trust is positioned to be a central hub for collaboration with our NHS and social care partners.

Sharing information with our partners and stakeholders is a primary objective within the ICT strategy. The strategy deals with the application of technology to provide selective patient demographic and care plan information to key stakeholders within the health and social service community via NHS N3 network, YAS secure applications or mobile apps.

The Trust can also make use of SMS and notification messaging technologies for one-way communication with patients to enhance the patient experience and their contact with our key services.

### Improve Patient Experience

Improving the patient experience is one of the challenges for the ICT strategy. The strategy will focus on supporting this vision by providing patient with:

- Better information on staying well and tailored service options via web for self-care.

- Using social media to improve patients' perceptions and understanding of our services and enhance the Trust's reputation with the public.
- Support more patient involvement in service planning and commissioning decisions.
- Provide online advice with qualified clinicians to provide fast responses, improve patient experience and reduce pressure on YAS critical services.
- 999-non-urgent call can be treated without visit using video conferencing e.g. (Skype) and social media.
- Using SMS messages for reminders of appointment bookings and arrival times.
- Provide patient and commissioners with information on service developments and improvements in YAS.

### **Staff Engagement**

Over the next five years, the ICT Strategy will focus on providing cost-effective technology to improve staff engagement; the Trust has a well-established cadre of information channels, but has been less effective in face-to-face communication between managers and their teams. Due to the nature of the mainly mobile workforce, and some of the technology limitations, delivering effective staff engagement requires a different approach, more commitment and time and more innovative communications tools.

ICT is working with stakeholders, managers and Corporate Communications on making information available to staff through technologies such as the internet, intranet, mobile apps, YAS TV, video conferencing and social media to deliver key messages and provide invaluable information updates irrespective of the location of the staff. These technologies will help bridge the gap and provide key decision makers, clinicians and HART with instant access to services, information and operational policies.

### **Bright Ideas**

The Trust has introduced the 'Bright Ideas' initiative which allows any member of staff to post any potential 'bright idea'. ICT is monitoring and filtering these ideas, and considering future developments to implement these in consultation with the wider Trust.

## **3. Leading Regional and National Healthcare Resilience and Planning**

ICT is working with the Resilience team on leading region wide healthcare resilience and planning – from maintaining the infrastructure to the state of the art 'Gold Command Infrastructure' and new HART facility, through to development and commercialisation of Trust's internally developed ResWeb application, designed to aid incident planning.

The resilience web portal is the single access point for information and guidance relating to Emergency Preparedness, Response and Recovery (EPRR), enabling NHS Yorkshire, Health Management Teams and Incident/Event Commanders to navigate geographically to attain site specific and generic preparedness and business continuity information, as well as for forthcoming events and exercises. It uses technology to replace previous paper systems to ensure key decision makers have the most up-to-date version of the latest documentation which is also made accessible online or offline.

ICT is looking to commercialise ResWeb for the NHS across the whole UK and social care partners by piloting with Urgent Care Leads and CCGs. The Trust already hosts winter planning information on behalf of external partners and key strategic stakeholders around the Yorkshire and the Humber region. Using technology in this way and reducing the administrative burden of printing and copying multiple documents whilst providing real-time information relating to the current operational incidents.

The approach also provides a transparent way of working together in a consistent way which is imperative when services are under pressure using a single access point through a highly available and secure system. Please see *Appendix F*.

NHS 111 also has a key role to play in overall health system resilience and the ICT team will support further development of the service and its expansion into wider health and social care provision of Single Point Access (SPA) and care coordination services.

YAS is in a unique position to maximise the value and usefulness of our patient information in developing a unified view of patients across organisational boundaries and to assist with regional and local healthcare service planning.

## **4. Improving Use of Resources**

Improving use of resources will be achieved by integrating access to information across Trust patient, finance, fleet and workforce systems and by adopting technologies and tools such as data warehouse and telematics to improve understanding of resource utilisation and aid effective decision making.

### **Integration of Systems**

One of the ICT key priorities is to provide Trust-wide system integration (data warehouse). This will provide the Trust with the ability to analyse organisational data from (A&E, PTS, NHS 111, Finance, Workforce, Fleet) and create a single consolidated view of this data. It will aid the delivery of self-service reporting, personal performance reporting, information for all stakeholder groups, real time dashboards, and the delivery of service improvements.

This will help the Trust towards its transformation programme as it will facilitate modelling and strategic forecasting to build complex simulation environments to aid

decision making. This is a great opportunity for the ICT and BI department to be one service. *Appendix E.*

## **Trust Call Handling Operations Integration**

The Trust has multiple call handling, triage and decision support environments which provide the primary entry point to the clinical and non-clinical services e.g. 999, NHS 111 and PTS.

There is an a clear opportunity to investigate the potential of multi-skilled call handling and triage operations. The recent establishment of the Trust's NHS 111 service saw the recruitment of a workforce that is some 500-strong. Additionally, one extra site (Callflex, Rotherham) has been secured on a five- year lease whilst the current Y&H NHS 111 contract is in place.

Much of what the EOC, NHS 111 and PTS do is very similar, in that they support call handling operations; taking calls from the public and Health Service professionals, they triage and evaluate the clinical requirements, and then manage and fulfil the associated needs by responding appropriately; dependent on the needs the patient. This could mean dispatching an Ambulance, booking an appointment with an urgent care provider, or managing the provision of transport. This model could lead the Trust towards deploying NHS Pathways in the EOC.

## **Automation and Standardisation of Processes**

The Trust has developed a number of manual processes which are often not executed in a standard manner. The aim of automation is to control and/or make a process simpler (thus more efficient) for the user. ICT will undertake a gap analysis and work with each department to identify any areas of improvement. ICT will implement a document management system and collaboration hub for each department. These department sites will also host information dashboards, KPI data and department events.

## **Single Mobile Device**

The strategy will also look for opportunities to move towards use of a single front line mobile device to provide clinical and operational staff with access to the intranet, communications, patient and pathway information and vehicle and equipment telematics.

Our objective is to provide frontline staff with one single device which allows the clinician to access relevant and timely patient, location and decision support information.

This device should allow connectivity to clinical apparatus within the vehicle as well as be highly capable in its own right and operate as a communication hub back to HQ so information can be fed back to command and control systems. This will include asset inventory information on the vehicle such as defibrillators, medical

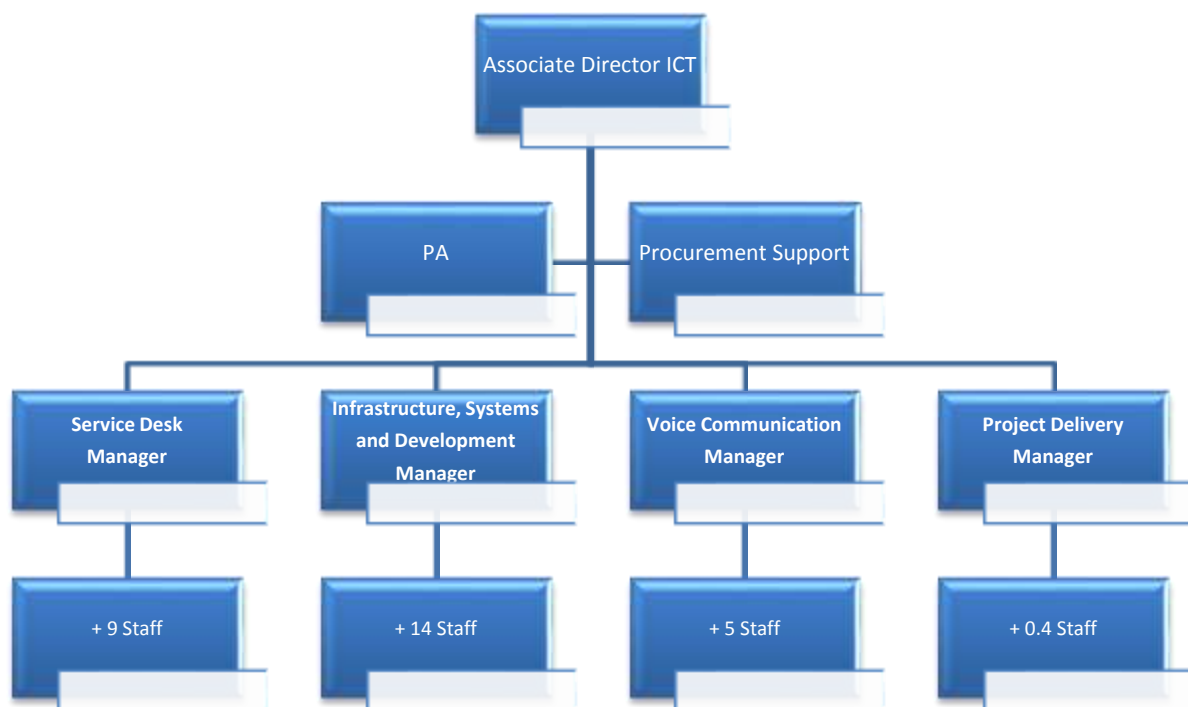


equipment, controlled drugs etc., as well as vehicle telematics data, video streaming, iPhone.

## 5. Growing the Capability and Expertise of the ICT Team

*Growing the capability and expertise of the ICT team* - improving internal customer engagement through adoption of a business partnering staffing model and strengthening our project planning and management processes.

This approach will allow a broader assessment of the impact and implications of any project in a much more effective way and supports gaining the maximum value from ICT investments by building one integrated investment program. Over time this should shift the balance of ICT expenditure from operational costs in favour of longer-term investment.



To support of the ICT vision of being recognised as the best ICT team in the ambulance sector and NHS a number of distinctive and transformational activities need to be undertaken and then embedded within the ICT teams and department so that they become the new 'normal way' of conducting our business activities.

Clustering these activities into related themes will enable previous gaps in service delivery to be identified, addressed and then embedded into the 'capability-led road map'.

The capability and expertise of the ICT teams will be broadened and strengthened to support the strategy with the development and introduction of:

1. The service pipeline that will horizon scan and capture all organisational activities that will require engagement from the ICT department, including

consultation, design, build, test, deployment and support activities. The service pipeline will provide the initial opportunity to review the skill sets required, and to validate the capability and expertise that is currently available.

2. A 'skills audit' will be undertaken with the results documented within a newly-developed 'skills matrix'. The 'skills matrix' will identify not only the skills and qualifications that the members of the ICT teams hold, but also the level to which they can be proved i.e. 'certification' or evidenced within their day-to-day activity. Once completed this will build an ICT 'skills portfolio' to be viewed in support of the service pipeline. This activity should take place with support from the Organisational Effectiveness and Education department.
3. Forward planning of training requirements will be adopted to enable the limited training resources to be focused in support of the 'service pipeline'. Any agreement to provide formal training with an associated financial cost should include a stipulation and commitment that the learning is to be shared with others.
4. The development of a knowledge centre should be central to this strategic theme ensuring that knowledge is available for everyone and not just restricted to a few 'specialists'. Knowledge Champions should be identified in each ICT team and a culture should be created that supports the ethos that 'knowledge is more powerful when it is shared'. KPI's should be introduced to support the dissemination and transfer of knowledge.
5. Using talent management to help attract and select the best people to work in ICT whilst continuing to check that the right people are in the right position will ensure that the capability and expertise are both readily available to be called upon when required. ICT recruitment should focus on 'attitude' core YAS values as well as technical skills the vacancy.

Drawing on the Franklin Covey, Great Leaders, Great Teams, Great Results™ a talent checkup should be undertaken at least twice a year to identify:

- a. Those who are stagnating or are not being stretched or developed.
  - b. People you are worried about losing.
  - c. If your team lacks some critical skills or capability to perform with excellence.
  - d. If there are people who have strengths that complement areas of weakness.
6. Succession planning will provide surety that the 'show will go on' even if a key player is missing. Whilst succession planning can be viewed with suspicion and is often kept outside of the visibility of the majority it is imperative that this one question can be answered and is documented. 'Who could take my place?' This question is as relevant to the newest or most junior member of the ICT department as it is for the long serving, experienced senior member.

## Internal Customer Engagement

A cultural shift driven by transformational activities is needed to move our customers' viewpoint and away from the technological view. The 'voice of the customer must be recognised', and used to capture customers' expectations, preferences and aversions. The mantra of 'seek to understand first and then to be understood' must become the governing principle in all our customer engagements.

If internal customer engagement is not fully realised then the developments identified within the ICT Strategy may not fully realise expected benefits. The following activities should underscore the improvement in internal customer engagement.

1. Identifying the business units that operate within YAS including a business contact.
2. Business Partnering will be adopted as the future model for customer engagement. This model has already been successfully developed within the HR Department and there is benefit to be gained by exploring their experiences. One of the benefits of this model is that it enables the ICT department to become less of a cost centre and more of an 'added-value' centre. In this way, ICT becomes more relevant to the needs of the organisation. This approach will be supported by regular service reviews with each business contact.
3. Partnering an ICT Manager to each business unit. It will be the nominated ICT manager's responsibility to conduct the service review with the business unit contact. Standard templates and formats will be created to enable a consistent approach to the service reviews, supported by customer SLAs with associated KPIs.
4. Where practicable nominated members of the ICT team should be embedded into business units to gain experience of that business unit and to bring back shared knowledge and learning.
5. Marketing skills of the ICT management team will be developed to allow the changes to be presented in a positively to both internal and external stakeholders.
6. Opportunities to extend the use of 'drop-in' sessions and road shows will be explored to reinforce awareness.
7. A simple and effective method of initiating annual and event-driven customer survey/feedback after major changes or developments will be identified with the responses used to guide future activity.

## Project Management

Strengthening project planning and management processes is crucial as we look to deliver the ICT Strategy. A number of internationally-recognised standards are to be adopted to ensure that we can project a standard of professionalism that both internal customers and potential income generating work-streams in the future can have confidence in. This approach will also enable benefits realisation from projects undertaken by the ICT department.

1. Prince2 Project Management Methodology
2. ITIL Service Management Methodology
3. The Service Desk Institute Certification
4. ISO 20000 (Service Management)
5. ISO 21500 (Project Management)
6. ISO 27001/207002 (Information Security Management)

## National Drivers

### Paperless and Digital First

Our ICT strategy is closely aligned with the NHS's national strategy "*Digital First*" and "*Paperless*". The NHS should go paperless by 2018 to save billions of pounds, improve services and help meet the challenges of an ageing population. This means that in the vast majority of cases, whether a patient needs a GP, hospital, care home or ambulance, the professionals involved in their care can see their history at the touch of a button and share crucial information.

- Capturing information digitally – Managing patient records, electronic Patient Report Form (ePRF).
- Sharing information digitally – Online referral systems.
- Using information digitally – Real-time diagnostic services, clinical dashboards.
- Paperless meetings using software tools and YAS tablets.
- YAS TV to provide near real-time information updates to staff in all our stations.
- Fleet paperless across Fleet workshop using touchscreen or Notepad.
- PTS Smartphone deployment, Patient online booking and SMS journey updates.
- NHS 111 assessment and advice online and using social media.
- 999 patient book online for HCP calls and routine journeys.
- Deploy EDMS (Electronic Document Management System) to provide a shared repository for clinical documentation and non-clinical information. It can be linked with scanning solutions to support moving away from paper

records but can also hold electronically-generated documents from the various systems in the organisation.

## NHS Number

**NHS Number** – continuing from former national strategies the latest (“The Power of Information”) publication reinforces the need for organisations to be able to identify patients through their NHS Number. The Trust has made some progress over the last few years in meeting this challenge. Currently both PTS and NHS 111 systems have the facility to capture NHS Numbers for all patient records at source, and with the introduction of ePRF this capability is extended to the EOC area. YAS will need focus in the next two years to be fully compliant with NHS Number.

## Technology Drivers

**Emergency Services Mobile Communications Program (ESMCP)** – the Trust, as will all emergency services, currently utilises the national Airwave mobile communications network and equipment for all critical communications. This system was nationally contracted for a period of ten years and the Trust has been operating on it since 2007. The ESMCP has been established to develop a replacement network and potential associated equipment, services and consists of representatives from all emergency services. YAS, along with all the other ambulance services in England, is presently contributing to the shape of this network based upon the present and future needs of the service. Although 2017 is still several years away, due to the scale complexity and cost of this project, work started back in 2012. Quarterly meetings with peer review and high level requirement formulation are currently well underway with an aim to go out to tender over the coming year.

## Barriers to fulfilling the Strategy

### Funding

The Trust’s long term financial plan has provision for a significant amount of capital already reserved for ICT projects and developments. However, as with each investment the Trust undertakes, robust business cases are required to ensure that the return on investment is viable. When we state a return-on-investment this should not always be understood as a cash-releasing return. As an organisation we need to become better at understanding, evaluating and quantifying non-cash returns such as staff satisfaction and externally-imposed requirements which may not be apparent initially. The plan is laid out in this document in Appendix C and included within the Trust’s Five-Year Plan.

## **Resourcing**

As the needs of the organisation grow within the ICT area we will need to look at a number of ways in which staff resourcing can be achieved. A number of options are available each with their own 'pros and cons'. As each project is developed a means to address the resourcing requirements will also be undertaken. Some projects will be undertaken within the annual workload of existing ICT staff, however depending upon the speed at which elements of this strategy need to be implemented, additional resource may be required.

One particular area of concern is competing with the private sector to attract the appropriate skills required to deliver this strategy. Over recent months several attempts have been made to recruit into this area without success leading to slippage in some tasks. To date, this has been minimised by the use of contractors and the use of recruitment agencies. In order to develop sustainable solutions to this issue, we are exploring development of apprentice roles which will allow us to develop staff to our specific requirements for the future. In addition to this we will work with Procurement and Business development to explore options within the external supply chain to supplement existing internal staff skills.

## **Maintaining Staff Skills**

Another challenge is the rapid advances in technology to which our staff need to have a high level of proficiency and knowledge. We must continue to invest in the development of our existing staff to ensure they are able to embrace new technologies as they mature, and allow the trust to get the most value from our technology investments. ICT should be adaptable, and agile to meet the demands of the Trust

## **Resistance to Change**

As with any change, we must recognise the importance of involving our staff from the outset. This includes listening and understanding the work which they undertake as they are the experts. Often ICT is perceived as an area which threatens existing jobs; however this is rarely the case in the sector in which we operate. In general, with the right levels of involvement, our staff are very receptive to ICT and this should be nurtured and developed in the future.

## **ICT Department**

This section describes the functional strategies within ICT team.

### **Online and Digital Services Strategy 2014 -2018**

In an increasingly connected world, we believe that the future is online. The only way to meet the economic challenges, the expectations of staff and the needs of patients in the future is to deliver timely information and knowledge through efficient online and digital services positioned at the heart of the business. The Government's 'Digital First' and 'Technology Enhanced Learning' strategies support this vision but to meet the challenge requires changes to the way we deliver information through our existing channels.

### **Connected Ambulance Service**

The provision of libraries, intranets, websites, kiosks, clinical systems, eLearning and other knowledge services needs to be unified into a single offering to support clinicians, staff and patients to get the right information to support care at the right place, at the right time.

Key to achieving this is ensuring that access is available to online and digital services from any location, through any device including smartphone, tablet and desktop. Access to services from anywhere supports collaboration and sharing of intelligence and knowledge and the ability to make critical decisions in the field.

A significant increase in the use of mobile applications, responsive web, social media and innovation with online technologies will help to improve engagement with stakeholders, staff and patients and achieve ICT that delivers strategic advantage.

### **Commercial Opportunities**

An online world presents many opportunities for income generation to support patient care and enhance the lives of staff working with the ambulance service. Existing contracts for the provision of eLearning support, online and digital development services at a regional, national and international level have already built a positive reputation for the Trust.

Building on this reputation and these strengths, the future sees the evolution of eLearning into a wide range of technologies including simulation and mobile learning. YAS already delivers a number of leading learning technology contracts around eLearning support and development but needs to continue be at the forefront of these new technologies. We intend to continue to be the market-leading expert in the provision of learning technologies and expand our service provision to the wider health and social care sector and become the strategic partner of choice to support commercial health and social care partners.

## ICT Systems

- Data warehouse development provides a useable framework for line of business reporting that consolidates data from multiple systems, so information can be more easily derived and presented in the form of dashboards.
- Implement SharePoint as a centralised document management system. Allow a searchable centralised document store, which supports self-service permission administration, workflows, version control and document auditing.
- Provide support and enhancement for all YAS mission critical systems and non-critical systems. To provide technical support in developing software and support colleagues with decision-making when requesting changes to these systems.
- Provide ICT related advice, technical insight and software development support to colleagues in all areas of the business.
- Build custom mobile apps to give our staff mobile tools and help them to overcome common challenges. These may include clinical decision tools, data collection or lookup information on a common platform.
- Build public engagement apps to convey specific “awareness” messages. High level events which YAS are involved in present opportunities to engage the public in a positive way. Mobile apps can be vehicle to convey this message.
- Develop bespoke, high availability, tailor-made custom software solutions to best meet the requirements of our customers. The Systems team can develop custom applications to address a specific challenge faced by an area of the business.
- To support our customers to ensure they get the most out of the systems and become the most productive they can be.
- 

## Infrastructure

### On Premise Infrastructure

- Currently there are three Data Centres providing all ICT infrastructures with approximately 80% of the installed servers being virtualised to give the Trust the instant disaster recovery, improve up time and save energy. Integration of the supported services is well underway, and recent years have seen significant investment in the Trust’s network, including the introduction of WiFi.
- Desktops, laptops, tablets and ‘Thin Clients’ (improve security, manageability and save Energy) (IGEL,WYSE) are the current device of choice. We have a volume of around 2,000 ranging in age from new to six years old. The majority of the Trust call/contact handling sites are deployed on digital telephony, with a modicum of IP telephony and some analogue where appropriate.
- To achieve an average device age of no more than 3-4 years by 2014-15 (via a rolling replacement programme), means a significant financial commitment.



This includes BYOD (bring your own device), mobile devices and desktop standardisation.

### **Future Cloud 2016-2018**

- Robust, flexible and resilient ICT infrastructure is a key enabler for all ICT innovation, including the use of virtual and cloud-based service delivery. Consideration must be made for relevant access to information on a variety of devices, from any location by both staff and patients.
- Plans to consolidate core infrastructure every three years (industry best practice) either on premise or cloud (e.g. office 365, NHS Mail refresh due 2016) and maintaining licensing compliance must continue in 2014 and be aligned with future financial forecasts.
- Telephony will continue to merge with the computer network. SIP (converged telephony technology) deployments should be implemented to reduce the financial costs of telephone trunks currently deployed to support the Trust's large call handling and management operations (principally EOC, NHS 111 and PTS).

### **Wide and Local Area Networking (WAN/LAN)**

- During the financial year 2013/2014 the Trust has altered the IPVPN Wide Area Network (WAN) to replace its existing South infrastructure with higher bandwidth links. The upgraded WAN will enable a variety of enhanced services to be deployed, supported by the use of wireless technologies for an improved user experience.
- In the financial year 2015/2016 the Trust will replace its existing LAN infrastructure at Wakefield and York to provide greater capacity for future requirements and to ensure that the Trust is not using equipment that is no longer supported by the manufacturer(s).

### **Desktop Virtualisation**

- The deployment of Thin Client technology is now well underway to enable operational efficiency benefits of desktop virtualisation to remote stations. A Thin Client emulates a PC using a desktop stored on a secure, centrally located server.
- The total cost of ownership of virtualised desktops is lower, as desktop updates are centralised and done at HQ rather than visiting each individual PC. This method will be deployed at main to central devices later.
- Initial set-up costs for virtualised desktops are high, but over time the investment offers a significant reduction in costs related to visiting failed devices at remote locations. This also enables a realistic future transition to cloud technology.

### **Wireless Network Deployment 2014-2016**

- Wireless technology is the strategic platform of the future. It can overcome traditional bottlenecks and supports solutions designed more closely to the

needs of the user. This can drive initiatives that lead to improved patient care and overall Trust efficiency.

- The flexibility of a wireless network infrastructure can liberate users from the physical restrictions of network cables. Staff can connect to the Trust network securely via WiFi using an appropriate device and can send and receive data to perform their duties. This can transform the user's experience of technology, especially on remote sites where crews need to be efficient in their use of ICT. WiFi will also help massively in updating the Mobile Data Terminal in all types of ambulance and not relying on over air update.
- Modern software is targeted at mobile devices that run over wireless networks, and this will become fundamental in delivering the Trust's business. It will allow users to work freely, flexibly and efficiently. The Trust's ICT Department is planning to launch various apps (applications) that run on hand held devices with a wireless network in order to support relevant business units.

### **Mobile Working and Mobile Device Management**

A high proportion of the Trust's workforce operates across the Yorkshire area on a mobile basis. These staff requires access to services in the field and this offers opportunities for a regional collaborative approach to procurement and support. The Trust has rolled out mobile devices using BlackBerrys, PDAs, laptops, tablets and toughbooks as appropriate for the operational and environmental requirements.

YAS is considering new and innovative ways of deploying technology to raise the efficiency levels of our core business (999/NHS 111/PTS/GRS) systems. ICT at the early stage of the MDM/BYOD the initial scope will be to support the Trust's critical functions at phase one and to expand this to the general public as appropriate in later phases.

#### **Benefits:**

- Improve effectiveness in planning, deployment and evaluation of systems.
- Improve access to relevant information by staff, patients and carers and the general public.
- Improve diagnostic services and access to the results of those services.
- Contribute to the Trust's carbon management plans.
- Ensure the Trust delivers against national targets.

As well as generally improving information flows and availability to the organisation and patients, real-time information will improve accountability, safety, effectiveness and patient experience.

### **Telecommunications**

The enterprise telephony deployed across the Trust is both highly resilient and scalable and fully supports both virtualised and remote operations. It is constructed from industry leading components provided by world class telecommunications equipment and service providers.

## Telecommunication Infrastructure

- Carrier circuits and trunks (iSDN's from major Telcos)
- Switching platform (Avaya)
- Call Recorder (NICE)
- Workforce Planning & Optimisation (NICE)
- Middleware (Call Vision Technologies)
- Desktop Instruments (Digital and VoIP Handsets)

The telecommunications world is changing as 'Cloud and SAAS' (software as a service) facilities become mature and more widely available. This shift will provide opportunities to rationalise call handling and management services going forward as 'on-demand' and PAYC (consumption based pricing) 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 by the national ambulance Directors of ICT in its work plan for 2013-14 as part of CAD Interoperability. A recent discussion document circulated within the Trust has published options for call handling and management rationalisation through multi-skilling.

The voice recording infrastructure covers the audio recording requirements across the telephone and radio communications networks as well as situational 'ambient' recording associated with the handling and management of major incidents and events within the Gold Command suite. This infrastructure is utilised by the EOC, NHS 111, PTS, GPOOH and Emergency Planning departments.

The latest hardware and software provide quality monitoring, speech analytics and scenario reconstruction and performance management allowing managers and users to have a central source from which insight and impact can be provided and acted upon.

## Ambulance Radio and Two-Way Data (TWD)

The Trust has a fully integrated digital radio infrastructure provided by Airwave and managed through a national DoH contract. This supports all field communications within YAS. 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 has been developed to allow automatic triggering of monitored alert to support YAS operational staff.

The re-procurement work for the digital network and services has been started under the Emergency Services Mobile Communication Programme (ESMCP) banner driven by the Cabinet Office. YAS has been and will continue to be involved in this national project involving all emergency services. The new Emergency Services Network (ESN) will need to be ready for a gradual national roll-out from 2016. The YAS replacement programme is currently scheduled for 2019.

## Security and Network

There is an increasing focus on IT Security, Information Governance and associated issues across the public sector, and whilst the Trust has policies and processes in place, these need to be continually reviewed and kept up-to-date, with defences put in place against the latest threats. Security must be appropriate, in that it ensures the safekeeping of our data and staff, but is also designed to allow staff to gain appropriate access to information in line with their role/needs.

At present within ICT the security area is managed and maintained by the Infrastructure team but the Trust should look at recruiting an ICT security specialist or work closely with one of the security specialist suppliers when the Trust starts deploying mobile devices, mobile apps and shares data with other organisations to make sure we meet legal obligations. Additionally, ICT should adopt a structured approach to information security and it is recommended that the Trust adopts the ISO IEC 27002/ISO 27032 security standards.

The Trust performs regular penetration testing, and it is recommended that all new systems or services are subject to continued testing before going live. The overall approach to information security should be strategic as well as operational...

### Service Management (ICT Service Desk)

The Trust's 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.

To build on this success, and to further demonstrate the value added by the ICT Service Desk in delivering the ICT Strategy. The Service Desk Institute (SDI), acting as independent advisors, will be engaged as an enabler of the 4 star (Business-led) Service Desk Certification by 2016.

SDI is responsible for setting global industry standards, delivering thought-leadership, knowledge and influencing service improvement for individuals and organisations. The Standards are based on the European Foundation for Quality Management (EFQM) model of service excellence which provides a clear and measurable set of benchmarks for a Service Desk/delivery operation.

There are nine certification concepts as listed below.

1. Leadership
2. Policy and Strategy
3. People and Management
4. Partnerships and Resources
5. Processes
6. People Satisfaction
7. Customer Satisfaction
8. Social Responsibility
9. Performance Results

The level of Service Desk Certification that an organisation achieves depends upon the level of excellence and maturity that the service and support operation has reached according to SDI's maturity model.


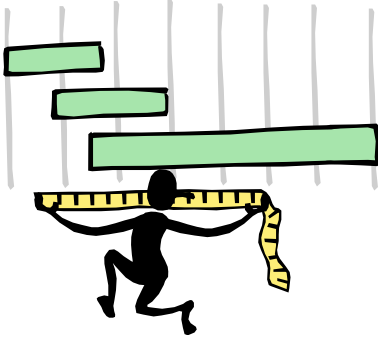



## ICT Project Strategy

### ICT Projects Vision

“To provide our customers and stakeholders with world class business-led solutions by continually improving our project management, stakeholder engagement and benefits realisation effectiveness.”

*Delivering Vision ...*

| Enablers  | Description   |
|---|---|
|  | <ul style="list-style-type: none"> <li>• Portfolio Management</li> <li>• Stakeholder Engagement</li> <li>• Project Management</li> <li>• Budget Management</li> <li>• Benefits Management</li> <li>• Risk\Issue Management</li> <li>• Project Document Management</li> <li>• Pipeline Management</li> <li>• Quality Management</li> </ul>                               |
| Improvements  |   |
|  | <ul style="list-style-type: none"> <li>• Project Categorisation</li> <li>• Product Cataloguing</li> <li>• Shared Learning</li> <li>• Identifying Good Practice</li> <li>• Improved Planning</li> <li>• Information Presentation</li> <li>• Communications</li> <li>• Budget Forecasting</li> <li>• Benefits Tracking</li> <li>• Additional Project Resources</li> </ul> |

|   |  |
|---|--|
|   | <ul style="list-style-type: none"> <li>• Quality Criteria and Acceptance</li> </ul>  |
| <b>Transformations</b>  |  |
|  | <ul style="list-style-type: none"> <li>• Real-Time Logging</li> <li>• Benefits Realisation</li> <li>• Stakeholder Portal</li> <li>• Centralised Reports</li> <li>• Paper Light</li> <li>• Programme and Project Office</li> <li>• Implement Good Practice</li> </ul> |

## Conclusions and Recommendations

The Trust's ICT Strategy for the five years 2014-18 has been developed to support delivery the ambitions contained within its Integrated Business Plan. It has reviewed the organisations ICT capability and capacity in the light of its strategic delivery challenges and within, the DH's information strategy – *Digital First and Paperless by 2018*.

The Trust's ICT team has delivered many changes over the last few years including a single YAS voice recorder, server and desktop virtualisation, the creation of a virtual communication centre (VCC) infrastructure across 999, NHS 111, PTS and GPOOH services, mobile data improvements and the roll out of the digital radio environment. In the last year significant projects improving and replacing the existing infrastructure have been delivered 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 five years are outlined along with the consideration of additional support requirements aim to ensure that ICT investment makes practical and positive contribution to the delivery of clinical and operational strategies across the Trust's service lines. The key priority of this strategy is to act as enabler to improve access to information for staff, stakeholders and patients in order to make a direct impact to improvements in patient care.

The Strategy seeks to ensure all key internal and external stakeholders engage with and support its key themes:

- Developing a new culture across the organisation where ICT is not seen as an entity that 'does' things to the organisation, but more one that is in harmony with stakeholders' requirements and needs and more closely works alongside Trust departments to achieve common benefit.
- Ensuring adequate financial provision is made for the new innovation and development.

- Investigating potential development or deployment new technologies such as cloud-based service offerings, tele-health and smart technology decision support tools.
- The development of the ICT security function to improve security auditing and look to adopt the ISO IEC 27002 security standard.
- Exploiting commercial opportunities where these are aligned to core strategic aims and provide the trust with both income and class leading information systems.
- Investing in and prioritising technology investments that support and enable business objectives and deliver significant improvements for patients has been a long-standing challenge for healthcare organisations and the NHS as a whole.

Implementation of this Strategy will be overseen by the cross functional ICT Strategy Group, the Trusts Senior Management Group and Executive. It will be reviewed annually as the Trust's strategic plans are refined and developed.

## Appendix A – SWOT Analysis

The matrix below is a current summary of the ICT Department’s strengths and weaknesses and a view of the opportunities and threats it faces.

| 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>▪ Resilience of infrastructure and design</li> <li>▪ Extensive and established mobile communications technology</li> <li>▪ Call centre technologies</li> <li>▪ Online and Income Generation</li> <li>▪ Successful delivery of the NHS 111 ICT infrastructure</li> <li>▪ Successful Airwave contract management and change management</li> <li>• People</li> <li>• Technology</li> <li>• Legacy Knowledge</li> <li>• <b>Methodologies (Prince, MSCP etc.)</b></li> </ul> | <ul style="list-style-type: none"> <li>▪ Trust’s ICT strategic steering group requires strengthening</li> <li>▪ Not enough focus on ICT business benefits and the ROI on technology</li> <li>▪ Reactive</li> <li>▪ A gap in the management structure across the ICT function/succession planning</li> <li>▪ Knowledge/experience gaps relating to GP and other healthcare systems and requirements</li> <li>▪ Lack of commercial management skills</li> <li>▪ Lack of business analysis function</li> <li>▪ Supplier and Relationship Management</li> <li>▪ Management Structure</li> <li>▪ Skills to support the new health economy</li> <li>▪ Lack of capacity planning</li> </ul> |
| Opportunities   | Threats  |
| <ul style="list-style-type: none"> <li>▪ Commercial opportunity</li> <li>▪ Service Model Re-design (the Multi Skilled Call Handling Workforce)</li> <li>▪ Community care and assisted living technologies e.g. tele-health</li> <li>▪ Transition to mobile worker models</li> <li>▪ Real time reporting Model</li> <li>▪ Mobile Apps deployment</li> <li>▪ Smart Ambulance</li> <li>▪ 4G Convergence</li> <li>▪ National Relationships</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Disjointed and unclear commissioning priorities</li> <li>▪ Changing Ambulance 999 performance standards distracting ICT resources</li> <li>▪ Failing to deliver Ambulance performance targets leads to additional, unplanned, IT developments</li> <li>▪ Potential loss of PTS or NHS 111 business impacting on ICT staffing and contracts</li> <li>▪ The challenge from other ICT Service providers</li> </ul>   |



- Compliance & Regulation
- Integrated data capture through ECS
- Technology advances e.g. Cloud
- Bring your own device
- Bring your own solution
- Opportunities to embrace the 'internet of things'
- Outsource Service Offerings
- Funding Challenges
- Pace of refresh in the Technology arena
- Enough Staff to support Systems and amount of change



## Appendix B - High Level ICT Strategy Timescales

- The tables below set out the high level timescales for each element of the ICT strategy.
- All of these elements are being managed through the ICT portfolio process and progress will be reported at weekly accountability meetings.

| Priority | General Projects  | Timescale |
|----------|---|-----------|
| 1        | Management information/Data warehouse deployment  | 2014-2018 |
| 1        | ECS/ePRF Deployment – Data integration and reports  | 2014-2016 |
| 1        | Telematics deployment in PTS and A&E area   | 2014-2017 |
| 2        | YAS new intranet  | 2014-2015 |
| 1        | Resilience Web deployment across Y&H  | 2014-2016 |
| 2        | Adopt ITIL best practice  | 2014-2017 |
| 3        | Extend the capacity of YAS data centres   | 2015      |
| 3        | <b>Move to Agile methodologies.</b> Working from anywhere to allow staff to have an easy access to YAS applications from anywhere (Office application , emails, SharePoint, Storage, Lync, video conferencing, telephony) | 2014-2016 |
| 2        | Deploy wireless network across YAS sites  | 2014-2016 |
| 1        | PTS Transformation Systems support (SMS, Geo-fencing , Patient E-booking, Book Ready Kiosk  | 2015-2016 |
| 3        | YAS support centre of expertise in SharePoint/Network Design/software deployment/mobile.  | 2015      |
| 2        | Provide secure public connectivity to YAS services  | 2014-2015 |
| 2        | Apps deployment.  | 2014-2018 |

|   | <b>Commission YAS SharePoint Infrastructure 2010</b>   | <b>July 2014</b> |
|---|--|------------------|
| 1 | Development of a clinical web portal, decision-making and mobile app   | 2014-2016        |
| 2 | YAS paperless deployments <ul style="list-style-type: none"> <li>1. Electronic document management system</li> <li>2. YAS TV deployment</li> <li>3. Workforce mobile approaches</li> <li>4. Board and Trust Committees become paper-light</li> <li>5. Smartphones with greater functionality and flexibility</li> <li>6. Provide YAS infrastructure and information outside the normal trust boundaries e.g. (BYOD)</li> </ul> | 2014-2018        |
| 3 | <b>ICT ISO Accreditation</b> (Service Desk, Information and Network Security)  | 2014-2018        |
| 4 | Department website development – SharePoint  | 2014-2016        |
| 5 | Increase ICT Commercial Opportunity (e.g. eLearning – development-Resweb, Pathfinder)  | 2014-2018        |
| 6 | <b>Emergency Services Mobile Communications Program (ESMCP)</b>  | 2017-2019        |
|   |  |                  |

## Appendix C - Five Year Capital Plan

### ICT Capital 5 Year Plan - 2014 to 2019 Updated

| CAPITAL EXPENDITURE |  |                         |                       |          |            |                         |
|---------------------|--|-------------------------|-----------------------|----------|------------|-------------------------|
| PLAN 2014-15        |  |                         |                       | ICT      |            |                         |
| Scheme No           | Capital Scheme Name                            | Capital Cost (incl VAT) | Capital Spend in year | Priority | Risk Score | Notes/Details of scheme |
| 1                   | Network/Server refresh                         | 122.4                   | 122.4                 |          |            |                         |
| 2                   | EOC CAD Development                            | 216                     | 216                   |          |            |                         |
| 3                   | PTS Developments                               | 132                     | 132                   |          |            |                         |
| 4                   | Station Security                               | 168                     | 168                   |          |            |                         |
| 5                   | Station Moves and Changes                      | 96                      | 96                    |          |            |                         |
| 6                   | NHS 111 development                            | 156                     | 156                   |          |            |                         |
| 7                   | Mobile Device Management                       | 249.6                   | 249.6                 |          |            |                         |
| 8                   | GRS Development                                | 103.2                   | 103.2                 |          |            |                         |
| 9                   | Alternate Sat Nav for RRV & DCA to replace VDO | 124.8                   | 124.8                 |          |            |                         |
| 10                  | Mobile Data refresh                            | 330                     | 330                   |          |            |                         |
| 11                  | Airwave expansion                              | 92.5                    | 92.5                  |          |            |                         |
| 12                  | Telephony                                      | 96                      | 96                    |          |            |                         |
| 13                  | Assure Development                             | 36                      | 36                    |          |            |                         |
| 14                  | Electronic Document Management System          | 204                     | 204                   |          |            |                         |
| 15                  | Desktop/Laptop/Printer refresh                 | 249.777                 | 249.777               |          |            |                         |
| 16                  | Vehicle telematics                             | 265                     | 265                   |          |            |                         |
| 17                  | Wireless                                       | 227                     | 222,467               |          |            |                         |
| 18                  | Voice Recorder                                 | 318                     | 318                   |          |            |                         |
| 19                  | EOC Wallboard refresh                          | 96                      | 96                    |          |            |                         |
| 20                  | GPOOH Development and upgrade                  | 180                     | 180                   |          |            |                         |

|    |        |                 |                   |
|----|--------|-----------------|-------------------|
| 21 | YAS TV | 36              | 36                |
| 22 | ECS    | 420             | 420               |
|    |        | <b>3918.744</b> | <b>226158.277</b> |

| CAPITAL EXPENDITURE |  |                         |                       |          |            |                         |
|---------------------|--|-------------------------|-----------------------|----------|------------|-------------------------|
| PLAN 2015- 2016     |  |                         |                       | ICT      |            |                         |
| Scheme No           | Capital Scheme Name                            | Capital Cost (incl VAT) | Capital Spend in year | Priority | Risk Score | Notes/Details of scheme |
| 1                   | Network/Server refresh                         | 250                     | 250                   |          |            |                         |
| 2                   | EOC CAD Development                            | 150                     | 150                   |          |            |                         |
| 3                   | PTS Developments                               | 120                     | 120                   |          |            |                         |
| 4                   | Station Security                               | 168                     | 168                   |          |            |                         |
| 5                   | Station Moves and Changes                      | 96                      | 96                    |          |            |                         |
| 6                   | NHS 111 development                            | 120                     | 120                   |          |            |                         |
| 7                   | Mobile Device Management                       | 250                     | 250                   |          |            |                         |
| 8                   | GRS Development                                | 80                      | 80                    |          |            |                         |
| 9                   | Alternate Sat Nav for RRV & DCA to replace VDO | 50                      | 50                    |          |            |                         |
| 10                  | Mobile Data refresh                            | 330                     | 330                   |          |            |                         |
| 11                  | Airwave expansion                              | 30                      | 30                    |          |            |                         |
| 12                  | Telephony                                      | 150                     | 150                   |          |            |                         |
| 13                  | Assure Development                             | 36                      | 36                    |          |            |                         |
| 15                  | Desktop/Laptop/Printer refresh                 | 200                     | 200                   |          |            |                         |
| 16                  | Vehicle telematics                             | 150                     | 150                   |          |            |                         |
| 20                  | GPOOH Development and upgrade                  | 80                      | 80                    |          |            |                         |
| 22                  | ECS  | 500                     | 500                   |          |            |                         |
|                     |  | <b>2760</b>             | <b>2760</b>           |          |            |                         |

| CAPITAL EXPENDITURE |  |                         |                       |          |            |                           |
|---------------------|--|-------------------------|-----------------------|----------|------------|---------------------------|
| PLAN 2017-18        |  |                         |                       | ICT      |            |                           |
| Scheme No           | Capital Scheme Name                            | Capital Cost (incl VAT) | Capital Spend in year | Priority | Risk Score | Notes / Details of scheme |
| 1                   | Network/Server refresh                         | 80                      | 80                    |          |            |                           |
| 2                   | EOC CAD Development                            | 150                     | 150                   |          |            |                           |
| 3                   | PTS Developments                               | 120                     | 120                   |          |            |                           |
| 4                   | Station Security                               | 168                     | 168                   |          |            |                           |
| 5                   | Station Moves and Changes                      | 96                      | 96                    |          |            |                           |
| 6                   | NHS 111 development                            | 80                      | 80                    |          |            |                           |
| 7                   | Mobile Device Management                       | 80                      | 80                    |          |            |                           |
| 8                   | GRS Development                                | 80                      | 80                    |          |            |                           |
| 9                   | Alternate Sat Nav for RRV & DCA to replace VDO | 10                      | 10                    |          |            |                           |
| 10                  | Mobile Data refresh                            | 150                     | 150                   |          |            |                           |
| 11                  | Telephony                                      | 80                      | 80                    |          |            |                           |
| 12                  | Desktop/Laptop/Printer refresh                 | 80                      | 80                    |          |            |                           |
| 13                  | GPOOH Development and upgrade                  | 80                      | 80                    |          |            |                           |
| 14                  | ESN  | 150                     | 159                   |          |            |                           |
| 15                  | ECS  | 80                      | 80                    |          |            |                           |
|                     |  | <b>1484</b>             | <b>1493</b>           |          |            |                           |

**CAPITAL EXPENDITURE**

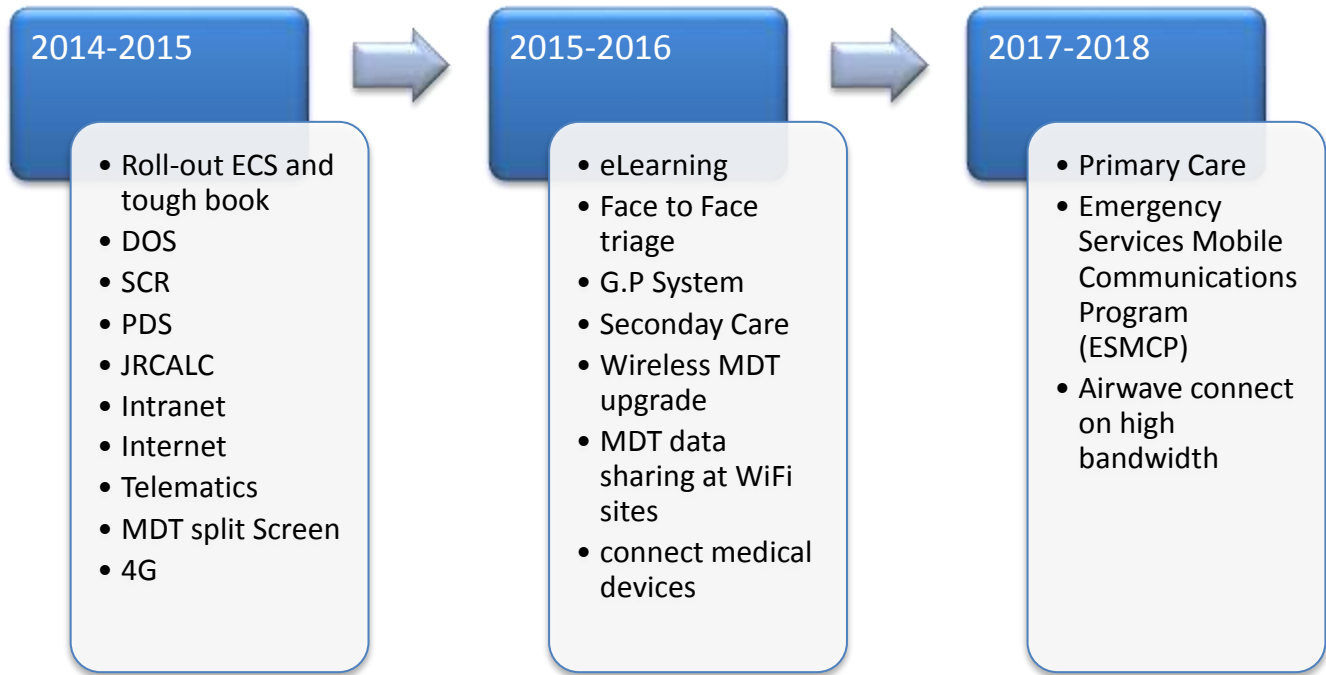
**PLAN 2018-19**

**ICT**

| <b>Scheme No</b> | <b>Capital Scheme Name</b>                     | <b>Capital Cost (incl VAT)</b> | <b>Capital Spend in year</b> | <b>Priority</b> | <b>Risk Score</b> | <b>Notes / Details of scheme</b> |
|------------------|--|--------------------------------|------------------------------|-----------------|-------------------|----------------------------------|
| 1                | Network/Server refresh                         | 80                             | 80                           |                 |                   |                                  |
| 2                | EOC CAD Development                            | 150                            | 150                          |                 |                   |                                  |
| 3                | PTS Developments                               | 120                            | 120                          |                 |                   |                                  |
| 4                | Station Security                               | 168                            | 168                          |                 |                   |                                  |
| 5                | Station Moves and Changes                      | 96                             | 96                           |                 |                   |                                  |
| 6                | NHS 111 development                            | 80                             | 80                           |                 |                   |                                  |
| 7                | Mobile Device Management                       | 150                            | 150                          |                 |                   |                                  |
| 8                | GRS Development                                | 80                             | 80                           |                 |                   |                                  |
| 9                | Alternate Sat Nav for RRV & DCA to replace VDO | 10                             | 10                           |                 |                   |                                  |
| 10               | Mobile Data refresh                            | 150                            | 150                          |                 |                   |                                  |
| 11               | Telephony                                      | 80                             | 80                           |                 |                   |                                  |
| 12               | Desktop/Laptop/Printer refresh                 | 80                             | 80                           |                 |                   |                                  |
| 13               | ESN  | 500                            | 500                          |                 |                   |                                  |
| 14               | ECS  | 80                             | 80                           |                 |                   |                                  |
|                  |  | <b>1824</b>                    | <b>1824</b>                  |                 |                   |                                  |



# Appendix D - High Level ECS/ ESMCP Delivery Plan (Based on Full Roll-out)



# Appendix E- ResWeb

**Yorkshire Ambulance Service Resilience and Special Operations**

The Yorkshire Ambulance Service (YAS) forms a key part of the NHS response to major incidents such as flooding; public transport incidents; pandemic flu; and chemical, biological, radiological or nuclear (CBRN) incidents.

At YAS we have the resources and effective, well-practiced plans in place to provide a comprehensive and highly-skilled ambulance service response to any emergency.

During a large-scale incident, we work closely with other emergency services and organisations in the four areas we serve – North Yorkshire, West Yorkshire, East Yorkshire and South Yorkshire. Under the Civil Contingencies Act 2004 the trust has a number statutory duties that have to be fulfilled.

Locate key strategic and tactical points of interest along with associated documentation using the categories below:

**Tactical and Strategic Points of Interest:**

- Airports and Airfields
- CDMAN sites
- Prisons
- Resources
- Stadiums
- Power Stations
- Business Continuity
- NHS
- Special Operations

| Date       | Start Date | Primary NDO Advisor | Secondary NDO Advisor |
|------------|------------|---------------------|-----------------------|
| 03/12/2013 | 03/12/2013 | Jim Richardson      | Neil Kirk             |
| 03/12/2013 | 03/12/2013 | Jim Richardson      | Neil Kirk             |
| 04/12/2013 | 04/12/2013 | Jim Richardson      | Neil Kirk             |
| 05/12/2013 | 05/12/2013 | Jim Richardson      | Neil Kirk             |
| 06/12/2013 | 06/12/2013 | Jim Richardson      | Neil Kirk             |
| 07/12/2013 | 07/12/2013 | Jim Richardson      | Neil Kirk             |
| 08/12/2013 | 08/12/2013 | Jim Richardson      | Neil Kirk             |

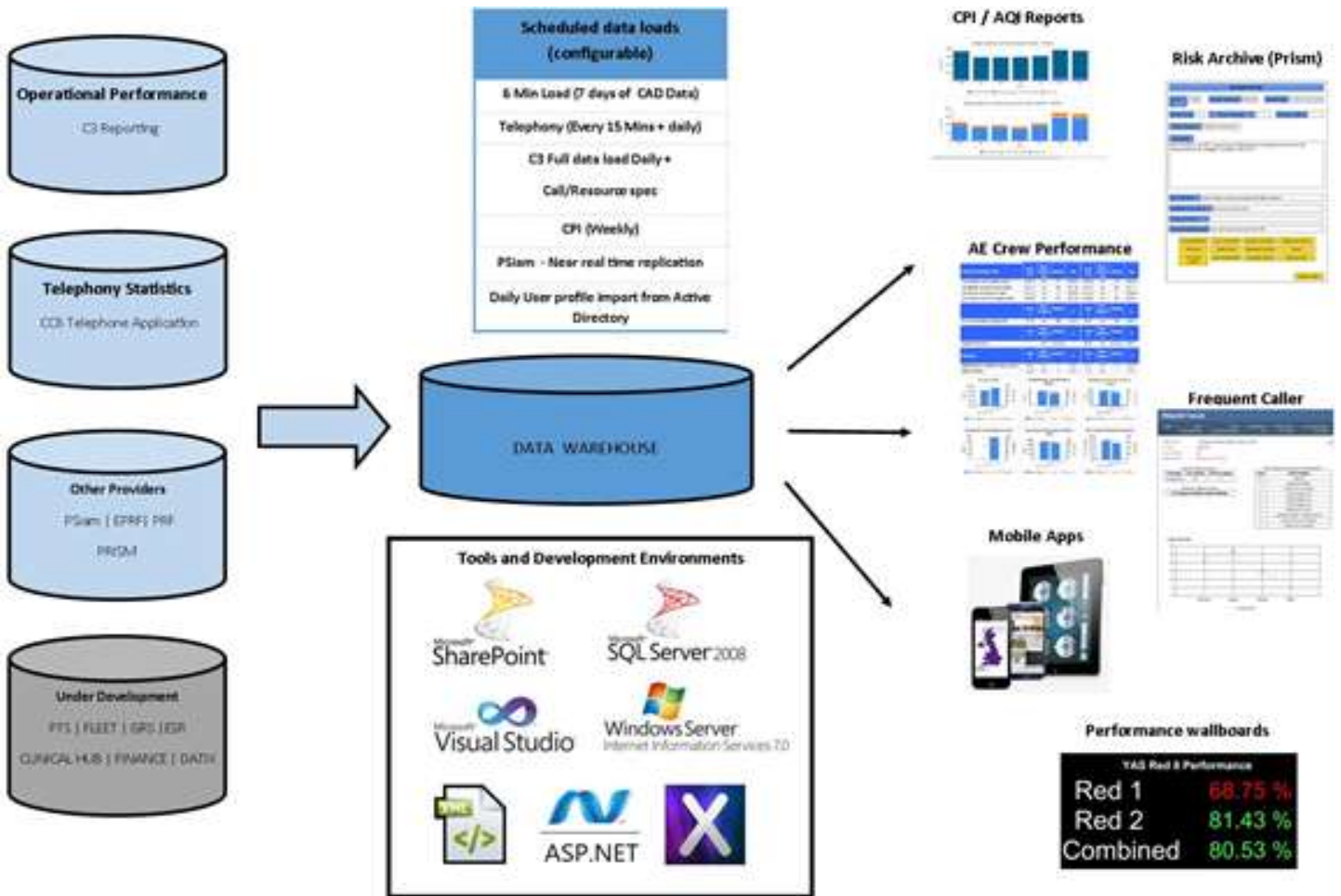
**YAS Events Red Risks**

There are no items to show in the view of the "Events Calendar" list. To add a new item, click "New".

**Links**

- Home (BBC)
- Sky News (News Corp)
- i3 Web
- Delta
- Emergency Agency
- Met Office - Hazard Manager
- EA - Flood Mapping
- Highways Agency
- Highways Agency CCTV
- County Times
- Internet Useful Pages
- Hospital Bed Status Report
- River C&P Map (i3)
- STUPP Site

# Appendix F - Overview of the Trust's Data Warehouse



## Appendix G - Glossary of Terms

| Term / Acronym  | Description                                   | Term / Acronym | Description  |
|-----------------|---|----------------|--|
| <b>ACD</b>      | Automatic Call Distribution                   | <b>LHC</b>     | Local Health Community   |
| <b>ACCD</b>     | Real-time status display                      | <b>MDT</b>     | Mobile Data Terminal   |
| <b>AD</b>       | Associate Director                            | <b>M2M</b>     | Machine to Machine communications  |
| <b>A&amp;E</b>  | Accident & Emergency                          | <b>MI</b>      | Management Information   |
| <b>BAU</b>      | Business as Usual                             | <b>MIU</b>     | Minor Injuries Unit  |
| <b>BCP</b>      | Business Continuity Planning                  | <b>N3</b>      | National Health Service Internet Network                                   |
| <b>BI</b>       | Business Intelligence                         | <b>NHS</b>     | National Health Service  |
| <b>BT</b>       | British Telecom                               | <b>NHS WIC</b> | NHS Walk-in Centre   |
| <b>BYOD</b>     | Bring Your Own Device                         | <b>PAYG</b>    | Pay As You Go  |
| <b>CAD</b>      | Computer Aided Dispatch                       |                |  |
| <b>CCG</b>      | Clinical Commissioning Group                  | <b>PDA</b>     | Personal Digital Assistant   |
| <b>CIP</b>      | Cost Improvement Plan                         | <b>PDS</b>     | Personal Demographic Services  |
| <b>CMS</b>      | Capacity Management System                    | <b>PESTLE</b>  | Political, Economic, Social, Technological, Legal & Environmental analysis |
| <b>CS1K</b>     | CS1000 Avaya Telephone Switch                 | <b>PMO</b>     | Program Management Office  |
| <b>C&amp;W</b>  | Cable & Wireless                              | <b>PPCI</b>    | Primary Percutaneous Coronary Intervention                                 |
| <b>DH</b>       | Department of Health                          | <b>PSTN</b>    | Public Switched Telephone Network  |
| <b>DMZ</b>      | De-militarised Zone                           | <b>PTS</b>     | Patient Transport Service  |
| <b>DoS</b>      | Directory of Services                         | <b>QIPP</b>    | Quality, Innovation, Productivity, Prevention                              |
| <b>DR</b>       | Disaster Recovery                             | <b>RTC</b>     | Road Traffic Collision   |
| <b>ECS</b>      | Emergency Care Solution                       | <b>SAN</b>     | Secure Area Network  |
| <b>EOC</b>      | Emergency Operations Centre                   | <b>SAAS</b>    | Software As A Service  |
| <b>e-PRF</b>    | Electronic Patient Report Form                | <b>SCR</b>     | Summary Care Record  |
| <b>ESR</b>      | Electronic Staff Record                       |                |  |
| <b>GP</b>       | General Practitioner                          | <b>SQL</b>     | Structured Query Language  |
| <b>GPOOH</b>    | GP Out of Hours                               | <b>SWOT</b>    | Strengths, Weaknesses, Opportunities & Threats                             |
| <b>GUI</b>      | Graphical User Interface                      | <b>UCC</b>     | Urgent Care Centre   |
| <b>HCP</b>      | Health Care Professional                      | <b>VCC</b>     | Virtual Communications Centre  |
| <b>ICCS</b>     | Integrated Communication Control System       | <b>VDI</b>     | Virtual Desktop Infrastructure   |
| <b>ICT</b>      | Information Communications Technology         | <b>VM</b>      | Virtual Machine  |
| <b>ITIL</b>     | Information Technology Infrastructure Library | <b>VoIP</b>    | Voice over Internet Protocol   |
| <b>ITK</b>      | NHS Interoperability Toolkit                  | <b>WAN</b>     | Wide Area Network  |
| <b>IM&amp;T</b> | Information Management & Technology           | <b>WFP/O</b>   | Workforce Planning & Optimisation  |
| <b>iSDN</b>     | Integrated Services Digital                   | <b>WIC</b>     | Walk-in Centre   |

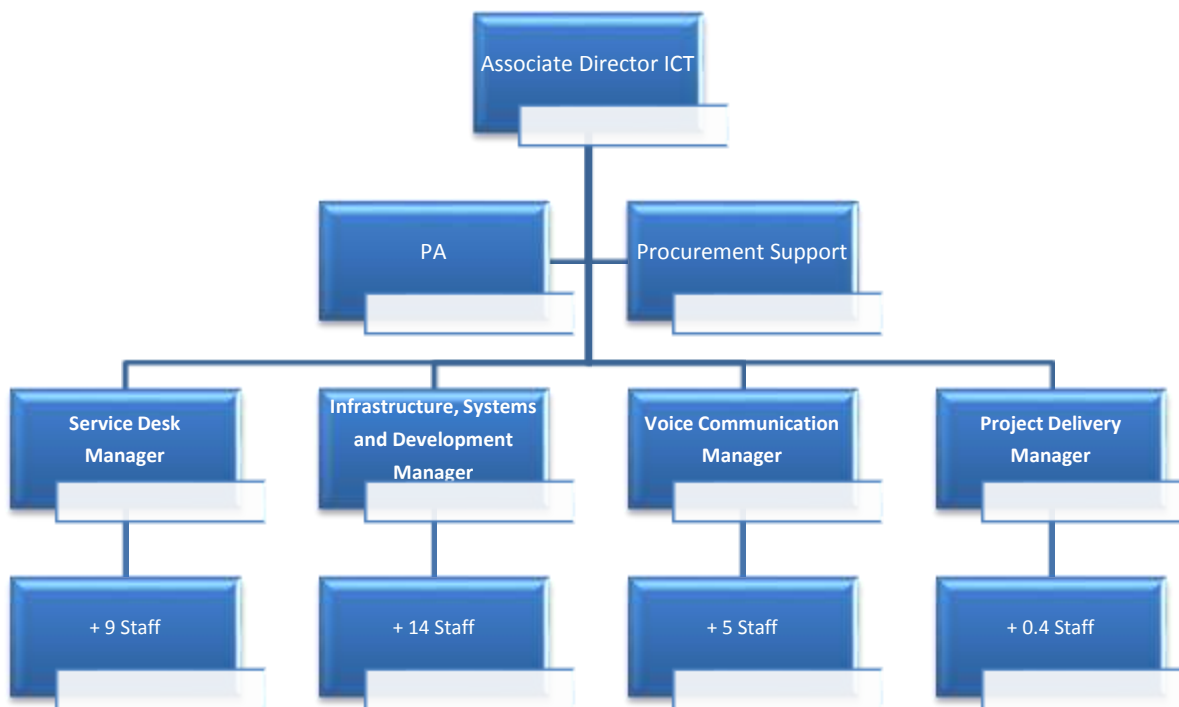
|            |                           |            |                                       |
|------------|---------------------------|------------|---------------------------------------|
|            | Network                   |            |                                       |
| <b>KPI</b> | Key Performance Indicator | <b>YAS</b> | Yorkshire Ambulance Service NHS Trust |

## Appendix H - ICT Team

### The ICT Team

The ICT team operates from Wakefield, York and Hull as represented at *figure 3*. 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, eLearning access and content development and income generation.

**Figure 3** – YAS ICT organisation structure



Following the *Deloitte 'Review of ICT Capacity and Capability'* (2011), ICT has engaged additional senior management support to develop the Trust's ICT service transformation strategy. The support has also included leadership development, process improvements as well as investigating new approaches to strategy and innovation.

ICT's focus over 2012-13 has been to address the Deloitte report's key findings, which include:

- Building and strengthening the strategic direction of ICT within the Trust
- Improving the team's ability to prioritise and deliver projects and change in line with the Trust's priorities
- The introduction of SLAs and processes to track the return on investment on projects, focusing on the business value of ICT.

The report also highlighted the need to develop management resources and skills aligned to strategic development, client management and demand and project planning.

The ICT management team is supported by technical specialists, support technicians and customer service desk and portal. Additionally, the department has taken on and developed apprentices providing them with a career start.

Staff development is currently focused on technical, management and leadership skills.

## **Understanding Technical Developments**

The ICT team works closely with clinical business units, operational delivery and other service departments to understand their service priorities and developments in order to advise and implement technology that supports their service improvements.

ICT meets regularly with existing key and new suppliers as well as embracing national NHS ICT developments and other ambulance services' developments by way of reviewing technologies that could support service improvements and innovation across the Trust.

In 2013 ICT implemented a formal 'pipeline and portfolio process' to improve capacity and demand management, align resources to strategic imperatives and start the process of measuring and managing the benefits of all the work we do. These processes are being embedded into how we do things (our culture) and linked to management and team meetings

## **ICT Staff Training and 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 through this strategy to:

- Provide on-going ICT training for staff
- Establish an ICT skills matrix for all staff
- Conduct an ICT training needs analysis across the ICT Operations team
- Further develop ICT training plans
- Provide a solution to address the gaps in skills required versus training needed
- Ensure that all ICT staff will have received an individual performance reviews on an on-going and structured process
- 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
- Asses the skill level of all existing ICT operations staff and where needed implement training for any identified shortfalls

## ICT People and Structure

The key elements to delivering the recommendations within this strategy will be to ensure that the capability and capacity exists within the Trust to meet the strategic developments, projects and day to day demands. This has already been highlighted in the approach to portfolio and pipeline management. The need to produce an overall ICT Department resources plan remains. This plan should include not only projects and day-to-day activities but also the delivery of the recommendations within this strategy and be based on providing sufficient resources to deliver a realistic annual programme of work.

## Staff Development

The Trust ICT support teams are constantly challenged by new developments; it is therefore intent of this document to:

- Update and improve ICT 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 for ICT support personnel

## Staff Recruitment

The recruitment of Trust's ICT staff needs to match the requirements of Yorkshire 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.