East Midlands Ambulance Service NHS
NHS Trust

Information Management and Technology Strategy

Version: 1.7 FINAL

Approved by: EMAS Trust Board

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Information Management and Technology Strategy 2014-2019

Contents

1. Executive Summary

1.1. Purpose of Strategy

This information management and technology (IM&T) strategy sets out how the East Midlands Ambulance Service NHS Trust (EMAS) will develop its information and communications systems, and information management and governance processes to support the trust to achieve its strategic objectives.

1.2. Terminology

The document is written as an IM&T strategy whilst the terms information and communications technology (ICT) strategy or information technology (IT) strategy have often been used in the past. The distinction is deliberate: ICT (and IT) focuses on the strategy for the technology being used ('boxes and wires') whilst IM&T covers the technology and the management of the information.

1.3. Strategic Context

EMAS has agreed an ambitious strategy to play a central role in the urgent and emergency care system in the East Midlands and to become the ambulance provider that sets the benchmark for quality and efficiency. Our strategy will be delivered in two phases: phase one over years one and two will result in EMAS 'getting the basics right' and creating a solid foundation upon which to grow – our focus will be to help the wider system to achieve its goals such as reducing emergency hospital admissions. In years three to five (phase two) we will grow our business by expanding beyond core emergency ambulance services into areas ranging from patient transport to NHS111 and potential tele-health/ tele-care monitoring.

Achieving our aims depends upon transforming the services' operating model to one that is designed to deliver; a single urgent and emergency care platform; a single point of access for 999, NHS 111 and clinicians requiring access to integrated services; an early warning system providing advance notice of system pressures; a 24/7 multi-professional access team; continued delivery and improvement on performance and clinical indicator; and creation of a platform for individual care records, care planning and direct booking of primary and community services. Each element of this 'future operating model' has important implications and requirements for our IM&T.

Our proposed future operating model has been developed in response to a combination of national and local factors which create significant challenges for the whole health (and social care) system, but which also create opportunities for ambulance services, which for too long have been an overlooked element within the NHS, to contribute to the system transformation needed to ensure the entire NHS remains clinically, operationally and financially sustainable in the future.

The future operating model cannot be supported without changes to our existing operational or support systems, our information governance, our information management or our IM&T team. Looking ahead the future operating model will require technology that:

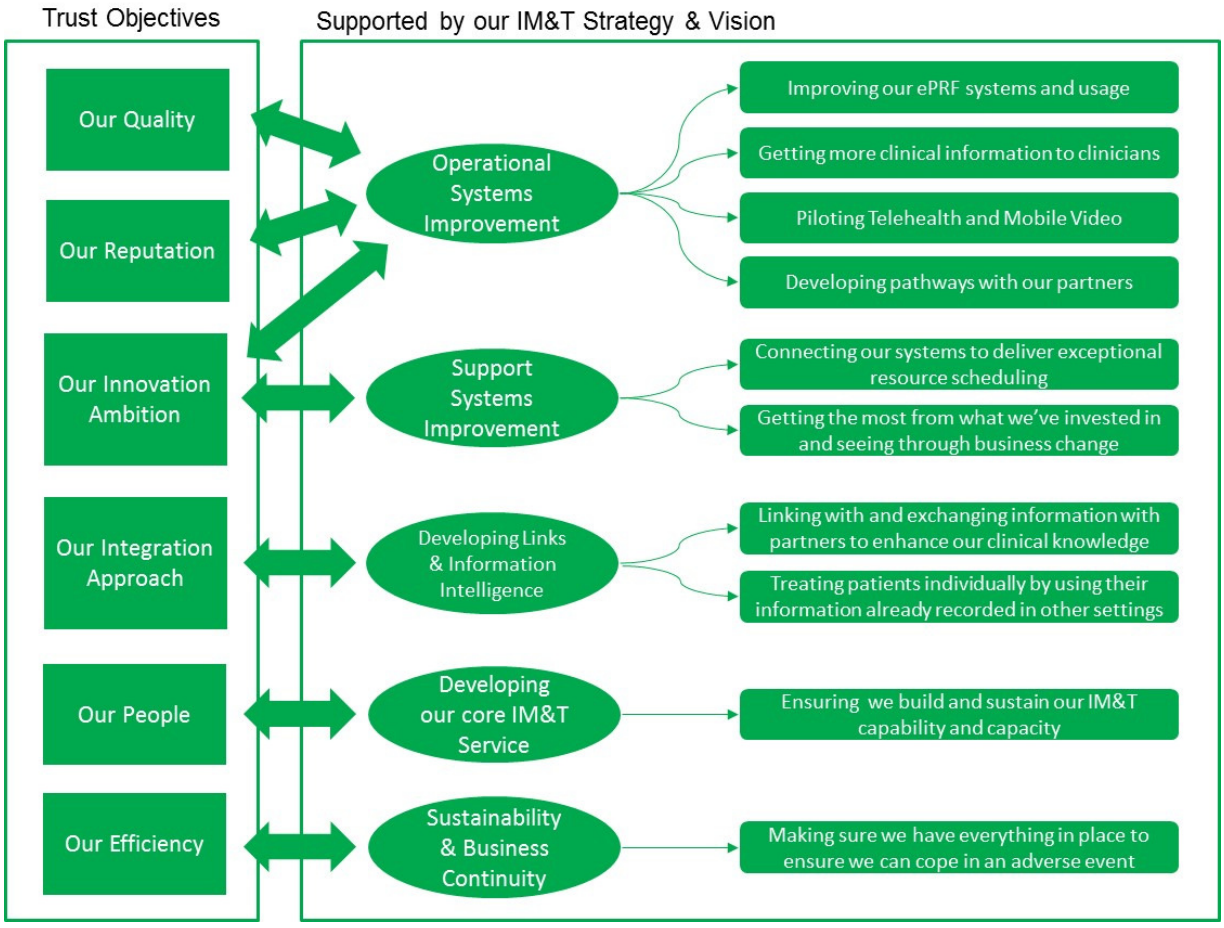
- Provides appropriate decision support to our call handlers and the clinical Assessment team (CAT) i.e. helps reduce variation in decision making;
- Provides real-time information about patients to our front-line crews;
- Allows our clinicians access to summary care records from other parts of the health and care system;
- Enables staff to liaise in real-time with clinicians from other services e.g. GPs;
- Provides an electronic directory of services (eDoS) providing information about alternatives to A&E;

- Supports capacity management within EMAS e.g. optimises the deployment of vehicles;
- Supports capacity management across the whole system e.g. supports the matching of demand to capacity;
- Avoids duplication e.g. of data entry;
- Provides accurate data and robust information to support operational and strategic decision making;
- Guarantees excellent information governance.

1.4. IM&T Strategic Plan

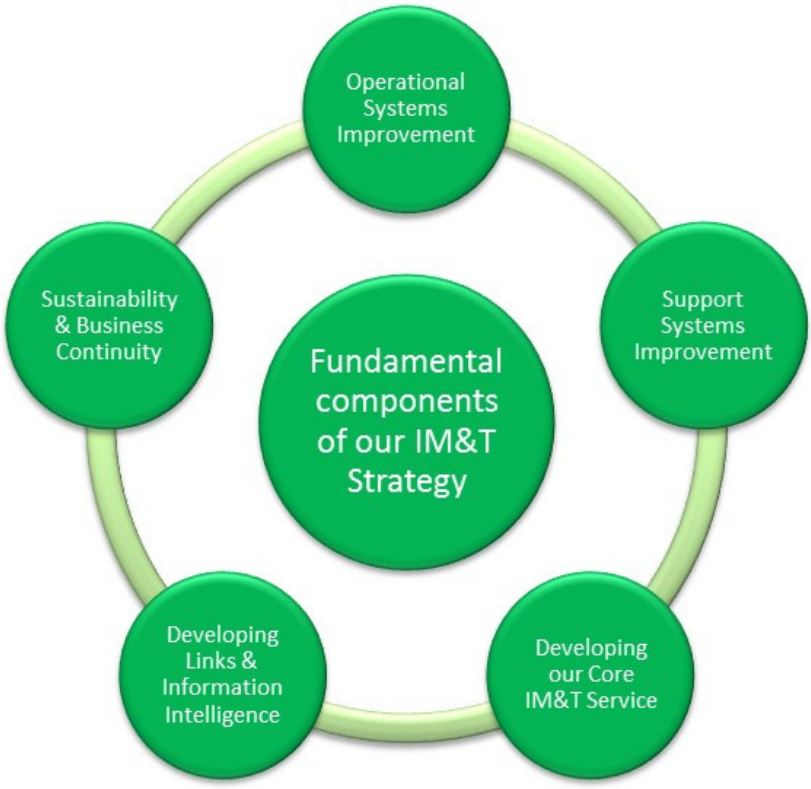
In response to the need for IM&T to get better, we have agreed the following IM&T vision, '*to provide the trust with enhanced information and management technology services that enable the organisation to fulfil its mission to achieve the highest standards in emergency and clinical care'*. The link from the IM&T vision and associated IM&T objectives, to the trust's objectives is illustrated below.

How the IM&T strategy and vision supports delivery of Trust Objectives



There are five key components to our vision for IM&T which are set out in the diagram below.

Our IM&T Strategy – Five key components

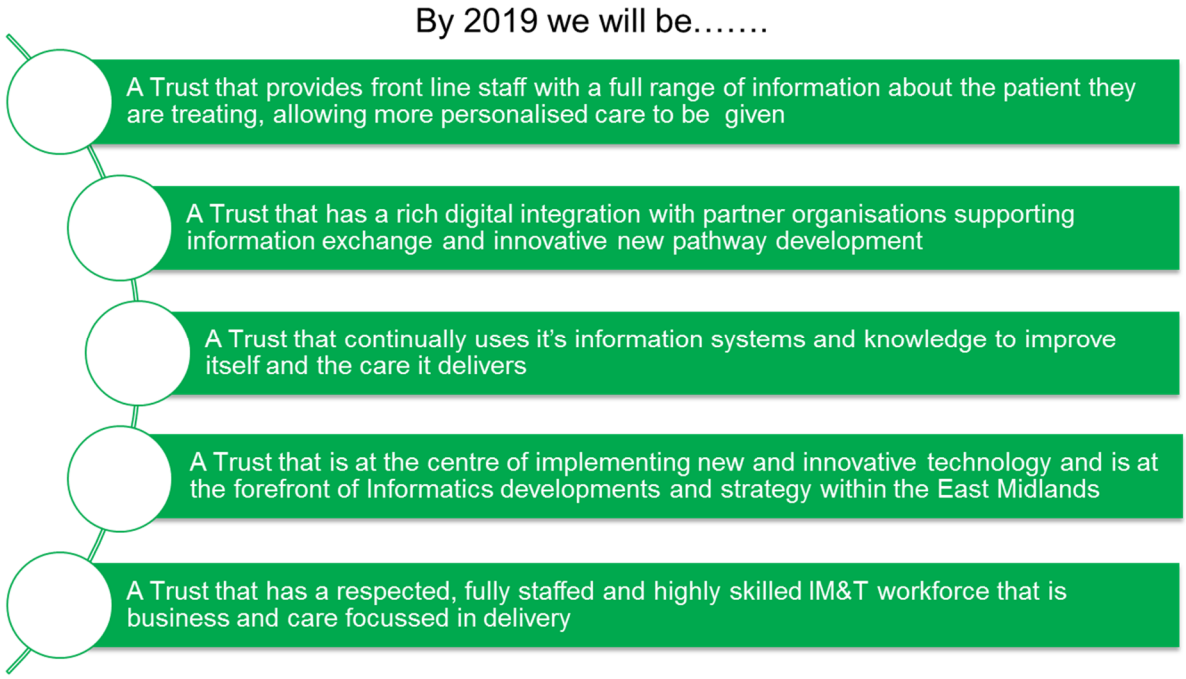


The five components summarise what we will do over the next five years:

- **Operational systems improvement** - we will focus on ensuring our clinical information systems are selected, configured, implemented and supported to ensure that each system supports the delivery of clinically effective care;
- **Support systems improvement** - we will enhance and embed our support systems to ensure we are gaining the full benefits of previous investments. Benefits will include improved unit resource availability ('right people, right equipment, right place, right time') and improved efficiency;
- **Developing links and information intelligence** – we will ensure that our front-line staff have access to as much relevant patient information as possible to help them make the most informed clinical judgement for the patient as possible;
- **Developing our core IM&T service** – we will build upon our current focus on information and communications technology to also focus on information management;
- **Sustainability and business continuity** - we already have excellent business continuity plans in place, so will ensure this remains to be the case against the backdrop of change to our IM&T portfolio.

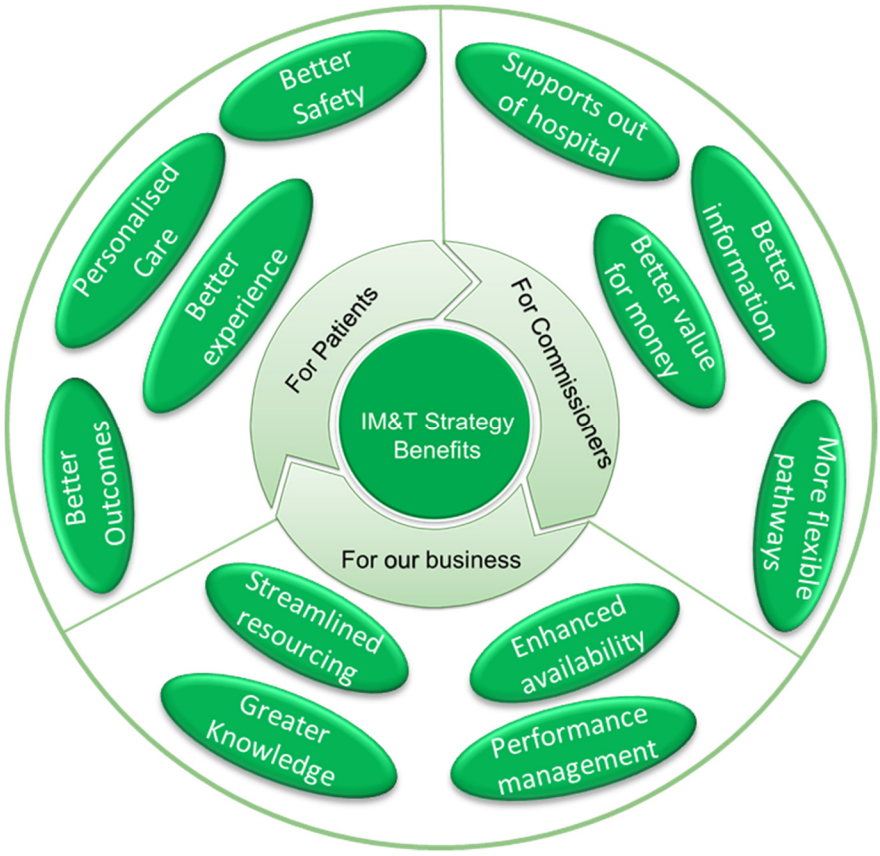
As a result our IM&T will be transformed.

Transformed IM&T capability



Excellent IM&T is not an end itself. Delivering the vision encapsulated in this IM&T strategy will have direct and significant benefits for the patients we serve, the commissioners who are charged with delivering maximum quality and value, and for the commercial and financial performance of EMAS.

Summary of benefits



The projects we will run to deliver the benefits set out above are described below.

IM&T strategy component	Project name	Explanation
Operational systems improvement	Airwave replacement	The replacement of the Airwaves radio system which will enable the development of services that leverage new communications abilities.
	CAD re-procurement	Design, procurement and implementation of a robust and resilient replacement for the CAD system. A more modern CAD platform should facilitate tele-health and will offer efficiency gains in the EOC through innovations such as; text back patient follow-up appointments with providers from eDOS; video pre-ambulance arrival instructions to smart phones for callers requiring guidance on self-help; tele-conferencing between crews on scene and CAT; and the use of video streaming of patient conditions / injuries to better support diagnosis.
	Live video (tele-medicine)	As above – online consultations, advice and support.
	Triage (AMPDS/NHS Pathways)*	EMAS needs to decide on whether to replace the existing EOC system AMPDS with NHS Pathways (which is linked to NHS111) or to use both systems – linked to our ability to win NHS111 contracts
	Mobile WIFI hubs (MDT replacement/ upgrade programme)	Upgrade/ replacement of vehicle-based data terminals needed to take advantage of communication advances enabled by new CAD system. EMAS vehicles will become mobile WIFI hubs.
Business systems improvement	ePRF improvement programme	Upgrade to existing e-PRF system, additional change support and dedicated project leadership. Investigating and resolving reasons for low usage rates for e-PRF
	ePRF re-procurement	The national ePRF contract ends in 2015 – this project will see the tendering and selection of a new backend system and the provision of a refreshed client device and software.
	Capacity management	Project to provide real-time information on whole health system capacity
	Enterprise architecture	The design of a Service Orientated Architecture (SOA) and implementation of an Enterprise Service Bus (ESB) to provide full master data management of trust information.
	Email platform re-provision	Upgrade/ re-provision of email
	Remote working and VPN enhancements	Improvements needed to improve electronic communications in poor signal areas and to enhance ability of staff to work remotely
	Scheduling software*	Needed to assist bidding for patient transport tenders
	Information integration engine	Reduces duplicate data entry and enables provision of integrated information – 'one truth'
	Trust Website and Intranet Platform & Design	Redevelopment of the Trust Intranet and Website Platform giving more dynamic functionality and greater flexibility for different device use
	Digital wallboards	
Developing links and information intelligence	e-Directory of Services (DoS)	An electronic DoS is needed to facilitate increased use of alternatives to A&E by ambulance crews
	Direct booking	Would enable EMAS CAT to directly book callers for urgent GP consultations
	Tele-health/ tele-care hub system*	Would support provision of tele-health/ tele-care monitoring service
	Partnership clinical portal integration (e-record sharing)	Enables EMAS crews to access e-patient records belonging to other services
Developing our core IM&T service	IM&T service development project	OD programme needed to ensure IM&T service makes the transition from being purely a technical support service to a support service that can also provide strategic advice and application management and ownership
	Ownership versus leasing	A project to review the risks and benefits of a leasing instead of ownership model for IM&T equipment
	Strengthening PMIT	Extending the role of PMIT to include information management as well as performance reporting
	Extending self-service reporting	Extending self-service reporting across all support systems
	Review of IM&T support provision model	To ensure the Trust is getting the best quality and value for money possible from its IM&T revenue investments.
Sustainability and business continuity	IM&T elements of the EOC strategy – enhancing the ability of the Lincoln EOC to cover the Nottingham EOC and vice versa	The IM&T infrastructures of the systems that support the EOC are not fully resilient. The current programme of remedial work will improve the situation and enable limited operations to be carried out from Lincoln in the event of a failure at Nottingham.
	Rolling equipment replacement programme	EMAS needs to introduce a rolling equipment and software replacement/ upgrade programme
	Standardisation and centralised support	Need to rationalise the number of systems and range of equipment used across EMAS: related need to ensure that all systems are supported by IM&T i.e. there are no 'departmental systems' supported locally in isolation.

1.5. Implementation and Monitoring

The IM&T programme will be managed by the Director of Information and Performance and monitored through the trust's Better Patient Care Board. The Trust Board will receive assurance via:

- Better Patient Care Board reports to the Trust Board;
- The Information Governance Group that reports to the Finance and Performance Committee.

The proposed timeframe for the key projects within this strategy is set out below.

Project timeline

		Deployment Years				
IM&T strategy component	**Project name**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**
Operational systems improvement	Airwave replacement					
	CAD re-procurement					
	Live video (tele-medicine)		Pilot			
	Triage (AMPDS/NHS Pathways)*					
	Mobile WIFI hubs (MDT replacement/ upgrade programme)		Pilot			
Business systems improvement	ePRF improvement programme					
	ePRF re-procurement					
	Capacity management					
	Enterprise architecture					
	Email platform re-provision					
	Remote working and VPN enhancements					
	Scheduling software*					
	Information integration engine					
	Trust Website and Intranet Platform & Design					
	Digital wallboards	Pilot				
Developing links and information intelligence	e-Directory of Services (DoS)		Pilot			
	Direct booking					
	Tele-health/ tele-care hub system*					
	Partnership clinical portal integration (e-record sharing)					
Developing our core IM&T service	IM&T service development project					
	Ownership versus leasing					
	Strengthening PMIT					
	Extending self-service reporting					
	Review of IM&T support provision model					
Sustainability and business continuity	IM&T elements of the EOC strategy – enhancing the ability of the Lincoln EOC to cover the Nottingham EOC and vice versa					
	Rolling equipment replacement programme					
	Standardisation and centralised support					

1.6. Communications and Links to Other Strategies

Throughout the development and implementation of this strategy we will continuously talk to our stakeholders, particularly those within EMAS. Continuous communications is particularly

important because of the interdependencies between this strategy and our fleet, workforce, clinical and quality, EOC, estates and business development strategies.

1.7. Financial Impact

The estimated costs of the IM&T projects set out above are shown in the table below.

Financial implications

		Funding Capital					Funding Revenue				
IM&T strategy component	**Project name**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**
Operational systems improvement	Airwave replacement				£1,000,000						
	CAD re-procurement			£1,000,000	£1,000,000			£250,000	£250,000	£250,000	£250,000
	Live video (tele-medicine)		£150,000	£150,000	£50,000			£5,000	£25,000	£25,000	£25,000
	Triage (AMPDS/NHS Pathways)*		£1,000,000					£50,000	£50,000	£50,000	£50,000
	Mobile WIFI hubs (MDT replacement/ upgrade programme)				£250,000	£250,000				£50,000	£50,000
Business systems improvement	ePRF improvement programme	£233,000	£150,000								
	ePRF re-procurement		£750,000	£750,000				£100,000	£100,000	£100,000	£100,000
	Capacity management		£50,000	£50,000							
	Enterprise architecture		£500,000					£75,000	£75,000	£75,000	£75,000
	Email platform re-provision		£250,000								
	Remote working and VPN enhancements		£50,000	£50,000				£0	£0	£0	£0
	Scheduling software*	£250,000	£250,000				£50,000	£50,000	£50,000	£50,000	£50,000
	Information integration engine		£75,000	£40,000							
	Trust Website and Intranet Platform & Design		£90,000		£40,000						
	Digital wallboards	£50,000	£250,000								
Developing links and information intelligence	e-Directory of Services (DoS)	£10,000									
	Direct booking										
	Tele-health/ tele-care hub system*										
	Partnership clinical portal integration (e-record sharing)		£100,000	£100,000	£100,000						
Developing our core IM&T service	IM&T service development project	£150,000	£150,000	£150,000	£150,000	£150,000	£0	£0	£0	£0	£0
	Ownership versus leasing		£75,000								
	Strengthening PMIT						£50,000	£50,000	£50,000	£50,000	£50,000
	Extending self-service reporting										
	Review of IM&T support provision model				£75,000						
Sustainability and business continuity	IM&T elements of the EOC strategy – enhancing the ability of the Lincoln EOC to cover the Nottingham EOC and vice versa	£100,000	£150,000					£50,000	£50,000	£50,000	£50,000
	Rolling equipment replacement programme	£150,000	£150,000	£150,000	£150,000	£150,000					
	Standardisation and centralised support	£100,000	£100,000	£100,000	£100,000	£100,000	£50,000	£50,000	£50,000	£50,000	£50,000

This strategy will require approximately £9.86m capital spend over the life of this plan. The three most significant components of this are the replacement CAD, replacement Airwave and replacement ePRF systems.

The net revenue cost impact of this strategy will be to increase IM&T costs by around £750k per annum, excluding capital charges.

1.8. Risk management

Risks associated with the delivery of the projects within this strategy will be managed using the trust's risk management structures and processes such as the use of local risk registers and the board assurance framework (BAF) which are reviewed by the executive team and the trust's board.

2. Strategic Context

2.1. EMAS Vision & Strategic objectives

We are a healthcare provider. We provide healthcare on the move and in the community, and our vision is for EMAS to play a leading role in the provision, facilitation and transformation of clinically effective urgent and emergency care delivered by highly skilled, compassionate staff, proud to work at the heart of their local community.

We believe this will support CCGs and other health and social care providers across the East Midlands in the delivery of a long-term, sustainable healthcare system.
The five-year plan maps our transformation journey from a mainly emergency focused service in 2014/15 to a future operating model whereby the organisation sits at the centre of the urgent and emergency care system.

This means it is our ambition for EMAS to act as the co-ordinating NHS organisation at the centre of the system, either providing care directly (e.g. over the phone or on the scene) or signposting/referring patients to the best service to support them in their homes and the community, reducing admissions to hospitals where appropriate.

This model is designed to ensure the most appropriate and effective response to meet the needs of our patients and/or the referring clinicians. Put simply:

"…..supporting delivery of the right care, with the right resource, in the right place and at the right time."

2.2. The Future Operating Model

Our current Integrated Business Plan (IBP), completed in June 2014 and covering the five year period 2014-2019, articulated that, in order to realise we will:

Current Model

The current service model is based upon core clinicians (paramedics) operating on frontline vehicles and the dispatch of the nearest available resource to attend to patient care irrespective of the clinical need.

This model involves the deployment of our most skilled staff in all circumstances, and makes no allowance for case mix. Additionally, the majority of patients are transported to the nearest Accident and Emergency facility with little opportunity for our skilled staff to exercise the full range of their clinical judgement.

Whilst this model is effective at one level, in that patients are seen and treated promptly, we regard it as being unsustainable in the longer term where demand is increasing within a decreasing financial envelope.

In developing options for the future, we (working with our Commissioners) are clear we will want to retain elements of the model that support delivery of consistent operational performance and financial sustainability, whilst operating at the centre of a more integrated urgent and emergency care system.

Years One and Two (2014-2016)

- Focus on continued delivery of performance, delivering at a county level on a sustained basis.
- Further develop our Clinical Assessment Team to increase hear and treat and support our teams in the field in the use of alternative pathways and admission avoidance services (supported by Paramedic Pathfinder), utilising all local health and social care providers.
- Work in partnership with CCGs, acute trusts, community trusts, local authorities, private providers and the voluntary sector to develop and implement integrated admission avoidance services (e.g. Falls, Discharge services, Acute Visiting Services etc.).
- Build our capacity and capability to support future integrated strategic developments (e.g. eDoS, Paramedic Pathfinder and Telehealth & Remote Monitoring).
- Support delivery of the right care, with the right resource, in the right place and at the right time.
- Deliver excellence in patient experience and outcomes.

Years Three to Five (2016-2019)

Our proposed future operating model has, at its core, a whole system approach to urgent and emergency care, with EMAS acting as the co-ordinating entity at the centre of the system, either providing care directly or signposting to other services.

This model ensures the most appropriate and effective response to meet the needs of our patients and/or the referring clinicians. Put simply:

"…..supporting delivery of the right care, with the right resource, in the right place and at the right time."

- Be at the centre of the urgent and emergency care system, generating efficiencies across the healthcare system (e.g. multi-skilled staffing, better use of admission avoidance schemes, reduced conveyance to emergency departments).
- Provide a regional platform for an efficient and sustainable integrated urgent and emergency care system (e.g. integrated care records, coordinated assessment services, care plans, direct booking into services etc.).
- Identify gaps in the system, facilitating improvements, managing demand and pressure regionally.
- Aim to provide a significant portion of the patient transport services in the region, so we will be a provider of transport services across the whole spectrum of urgent, emergency and planned care.
- Aim to be a partner in 111 services, developing strategic partnerships and working more closely with other providers.
- Provide other services and new models of care as opportunities arise.
- Continue to support on going delivery of the right care, with the right resource, in the right place and at the right time.
- Continue to deliver excellence in patient experience and outcomes.

In summary the EMAS strategy over the five years of this plan is to transform ourselves into an organisation that is able to achieve key performance and quality standards, supporting

reductions in emergency admissions, in a consistent and sustainable way (years one and two).

From this position, we seek to expand our service offering, building on our unique position as a regional provider with core skills, infrastructure, capacity and capability in call centre management, clinical assessment and provision of transport, to position ourselves as the platform upon which the urgent and emergency care system in the East Midlands can become sustainable (years three to five).

We recognise that successful delivery of our strategy will be dependent on the achievement of a number of strategic objectives. We recognise that a key objective is the delivery of a quality service, and that we need to build a reputation among stakeholders as an organisation that can deliver a quality service. By quality, we mean delivering consistently within all three domains of quality: patient safety, patient experience and clinical effectiveness. In order to build a strong reputation, we will need to develop innovative service offerings that help to address the current and future challenges in the urgent and emergency care system in the East Midlands, and we will do this through working with partners to provide and facilitate greater integration. This will be delivered through skilled and motivated staff working within an effective and efficient organisation.

We have, therefore, identified six strategic objectives. These elaborate on the vision and strategy overview and provide a more detailed focus on how the vision will be delivered:

Our Quality: We will respond to our patients with a high quality service which consistently meets national ambulance targets quality indicators

Our Reputation: We will be recognised nationally as a reliable provider of high quality out of hospital and community based care across the East Midlands

Our Innovation ambition: We will be recognised nationally as a leading innovator in out of hospital and community based care

Our Integration approach: We will work in partnership with our local health care, social care, and voluntary sector partners to deliver and enable integrated patient services and care pathways across the East Midlands

Our People: We will consistently develop and support our people to be highly skilled, highly motivated, caring and compassionate professionals

Our Efficiency: We will make the most effective use of all our resources, delivering upper quartile performance on our indicators for money, staff, premises, and fleet.

The IBP identified that the development of our strategy would be underpinned by a series of supporting strategies, one of which is this IM&T strategy. The IBP also recognised that each of these supporting strategies would be reviewed to ensure they reflect, are consistent with and support the strategy and future operating model detailed in our plans.

Our IBP includes a future operating model that reflects the fact we know, in years one and two of our plan, we must place significant emphasis on:

- the delivery of core performance at a county level
- the delivery of clinical indicators
- the provision of a sustainable service

2.3. National policy and context

Our future operating model is our response to the national and local context discussed below.

Ambulance services are a frequently overlooked part of the health and social care provider landscape despite their crucial and often high profile role. There are encouraging signs that this is beginning to change with EMAS and our colleagues at least 'having a seat at the table' when health and social care strategic planning is undertaken. The reasons for this change can be seen in a number of national drivers, each reflected more locally throughout the East Midlands.

The development of our plans is taking place at a critical juncture in the history of the NHS. After a decade of investment and reform that has delivered real improvements for patients, the NHS has entered one of the toughest financial climates it has known. The NHS faces an unprecedented set of complex, interconnected challenges for the foreseeable future which will require an unprecedented response framed around QIPP. The key issues for the NHS as we plan the next five years can be summarised as:

- **Improving quality and outcomes** including specifically; reducing the number of years of life lost by the people of England from treatable conditions (e.g. stroke, heart disease, respiratory disease); improving the health related quality of life of the 15 million+ people with one or more long-term conditions; reducing the amount of time people spend avoidably in hospital through better and more integrated care; and increasing the proportion of older people living independently at home following discharge from hospital;
- **Rising demand and expectations**. Demand for almost all health and social care services has increased significantly over the last decade driven by population growth and ageing within the overall population. People's expectations are also rising as we become a more consumerist society and patient's rights are embedded in initiatives such as the Patient's Charter;
- **Financial control**. Rising demand against a backdrop of the post-crash squeeze of public finances led to the 'Nicholson Challenge' to deliver £20bn in efficiency savings by the end of 2014/15. The NHS is almost at the end of this first 'challenge', but is now facing an additional £30bn funding gap in the period to 2020/21. If delivered by 2020/21 the NHS will have delivered £50bn efficiencies from a budget of circa £113bn. These financial pressures are reflected in the annual expectation of circa 4% cost improvements from all providers;
- **Providing care that is better joined-up (integrated care)**. The quality and productivity gains we need to make often lie at the interface between different health services and between health and social care. There is now a much greater focus on working in partnership to integrate services across organisational boundaries: this is of particular resonance to ambulance trust which service large geographical areas and which interface with multiple providers. NHS England has announced the creation of an integration transformation fund of £3.8bn, which will be committed at local level with the agreement of Health and Wellbeing Boards. The fund is ring-fenced for improvements in out of hospital care;
- **Transformation of service delivery**. Expectations are rising and there is a recognition that for the NHS to remain free at the point of need against a backdrop of financial austerity, the way services are delivered must be transformed. The Keogh review, 'Transforming Urgent and Emergency Care Services in England', is important to EMAS in this respect. The review has the vision of a system where patients with urgent but non-life threatening needs have access to services outside of hospital,

whilst those patients with emergency needs have access to treatment in centres with the very best expertise and facilities.

Meeting the national challenges set out above requires a transformational approach to the way services are delivered: a vital enabler of this transformation is better IM&T. The contribution IM&T can make is set out in 'Liberating the NHS: An Information Revolution' (2010) and more recently the national information strategy 'The power of information' (2012). Key themes from these publications and other national strategies are:

- The need to support integrated care in the broadest sense – health and social care, primary, community and acute care, physical and mental health;
- The need to adopt standards for interoperability between different providers' information systems, supported by robust information governance to protect the confidentiality and quality of electronic records and communications;
- More empowerment of patients and public, including online services such as booking and information, to support service user access to their own records; access to information on service quality; and access to advice and support to support self-care;
- New quality indicators and greater transparency, with particular emphasis on equality and effectiveness;
- Support for new models of care such as 'virtual wards' and tele-health.

The NHS Mandate sets out the changes the Government expect NHS England to make over the period to March 2015. These changes include making better use of technology (one of four key areas). The mandate lists six 'expectations', two of which relate to GPs, with the remaining four impacting directly on EMAS:

- That NHS England should promote the implementation of electronic records in all health and care settings and should work with relevant organisations to set national information standards to support integration;
- Clear plans will be in place to enable secure linking of these electronic health and care records wherever they are held, so there is as complete a record as possible of the care someone receives;
- Clear plans will be in place for those records to be able to follow individuals, with their consent, to any part of the NHS or social care system;
- Significant progress will be made towards 3 million people with long-term conditions being able to benefit from tele-health and tele-care by 2017; supporting them to manage and monitor their condition at home, and reducing the need for avoidable visits to their GP practice and hospital.

Investment in informatics systems and services can support delivery against these themes and national expectations.

Finally it is important to recognise that the continuing policy to open the NHS market to greater competition through the use of tendering will lead to greater competition and plurality of provision in the healthcare market. Providers must expect to hold an ever changing portfolio of service contracts and must be able to integrate their own IT systems with that of a changing array of partners.

2.4. Local Context

The local context as reflected in commissioning strategies and our existing plans draws on the national context set out above. We have worked extensively with commissioners to

understand the future role that EMAS could play in delivering a transformed emergency and urgent care system (it is important to recognise that as a 'regional provider' we operate across several emergency and urgent care systems). Commissioner's feedback is that:

- EMAS is best placed to support the local care system at a regional and local level - a call centre(s) at the heart of service delivery and the ability to respond with a tiered and appropriate level of resources is key;
- The Keogh report is about managing demand and capacity across the health care system, providing the right care at the right time - EMAS has the foundations to do this, and there is a need to reinforce this position and demonstrate that it has a real presence and capability in the local health care system;
- There needs to be a fundamental shift for the ambulance service from being the health arm of the emergency services towards being the urgent and emergency arm of the health service;
- Where the solution is regional, EMAS is best placed to be the system leader and where the solution is local EMAS is best placed to be the key stakeholder;
- Commissioners are clearly looking to see EMAS make a step change in terms of how it delivers its current services, and once it has rebuilt confidence in its ability to be a credible and reliable provider, for it to take a more central role in the delivery of urgent and emergency care services in the region.

We have agreed the following set of principles that will guide development of our future service model and engagement with the wider system:

- EMAS to act as an enabler of an integrated urgent and emergency care system, generating efficiencies across the healthcare system (e.g. multi-skilled staffing, better use of admission avoidance schemes, reduced conveyances to emergency departments etc.);
- EMAS to be a community-based provider of mobile urgent and emergency healthcare, fully integrated within urgent care networks;
- Utilisation of a single point of access platform to which all services can align (including social care);
- Utilisation of a simple, easy to access "One Number" approach for service users, clinicians and stakeholders – a 'route of least resistance';
- Creation of a platform for individual care records, care planning and direct booking of primary care services where agreed;
- To ensure the right care, with the right resource, in the right place and at the right time.
- Utilisation of all locally specific health and social care providers including prevention services;
- Identification of gaps in the system, facilitating improvements;
- Managing demand and pressure regionally;
- Delivery of a one stop, end-to-end service for patients to deliver the best possible outcomes.

We consider that the vision of the commissioners for the future direction of the ambulance service is aligned with and supportive of our vision which is set out below.

2.5. Current IM&T Position

2.5.1. Information Technology Systems

The current IM&T systems landscape is divided into two areas:

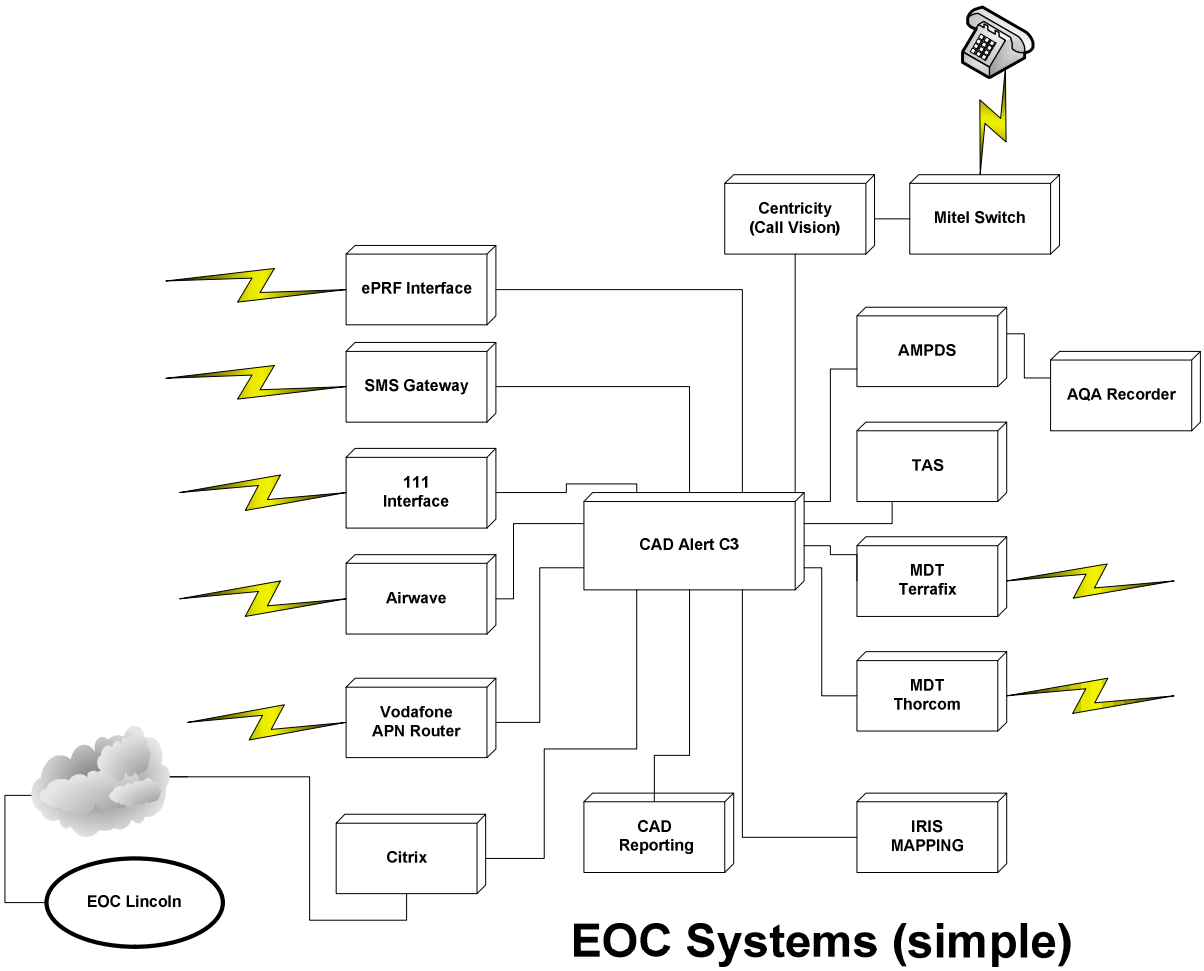
- Operational systems;
- Support systems.

2.5.2. Operational Systems

The main **operational systems** provide the 999 emergency and urgent response services in the Emergency Operation Centres (EOC) at Nottingham and Lincoln. The Lincoln EOC is a satellite centre which uses the systems and functionality sited in Nottingham via a citrix link traversing the wide area network.

The following diagram represents some of the major EOC components involved but it is not an exact technical representation of the systems and their interfaces.

EOC Integration diagram



The infrastructure architecture and applications used in the EOC has evolved over time and is highly complex. Support for the running of EOC systems is split between the ICT team, EOC support and numerous third party suppliers. There is no single person or function that is responsible for the maintenance and development of the end-to-end service creating a fragmented support model and difficulty in determining and agreeing plans which cross

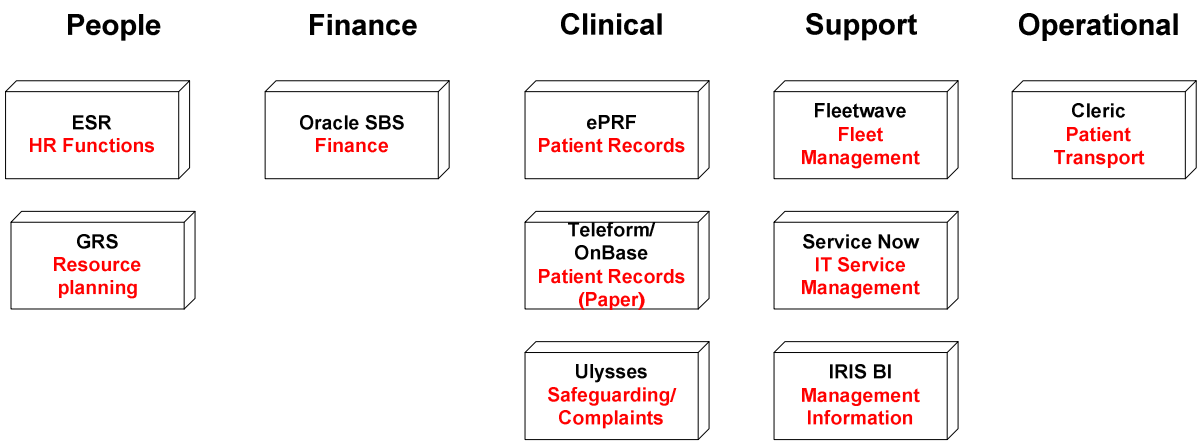
separately managed support functions. There are a number of operational systems which will need upgrading or replacing over the life of this strategy:

- The **Airways radio system** will be replaced as part of the Emergency Services Mobile Communications Programme (ESMCP) which is a cross departmental programme led by the Home Office. ESMCP will deliver a new Emergency Service Network (ESN) featuring voice and data services replacing operational communication services currently supplied by Airwave Solutions Ltd. Airwave is relatively expensive and cannot provide broadband data services.
- Design, procurement and implementation of a robust and resilient replacement for the **Computer Aided Dispatch (CAD)** system. Beyond 2016 the CAD will need to be reviewed for replacement (see EOC strategy). The review will need to review opportunities for a 'step change' in operation for the EOC function through 'cloud hosting' and remote working, whilst not compromising the needs for absolute resilience in the CAD and 999 telephony platform.
- Each vehicle is equipped with a **mobile data terminal (MDT)** which will need to be replaced to ensure front-line crews have the equipment needed to receive enhanced electronic communications from the new CAD. Ambulance vehicles will be fitted with new digital services providing enabling high speed communications using commodity mobile telephony services (e.g. 4G). The vehicle will then be able to function as a **mobile WIFI hub** allowing any type of approved device to connect and benefit from the improved connectivity.

2.5.3. Support Systems

The **core support systems** used within the trust are illustrated in the diagram below.

Support Systems



Core Applications Systems

Support systems are operated both in-house and externally, in part reflecting an unco-ordinated approach to the procurement of IT systems. Issues include their being little integration between systems which leads to data duplication and separate management in turn leading to the risk of information errors.

The national contract for the electronic patient report form (ePRF) comes to an end in July 2016 (there is an option to leave in 2015). We will need to procure and implement a successor system beforehand. At the time of writing there remains uncertainty regarding the

funding of a new system: the national contract is centrally funded meaning our commissioners and therefore, EMAS does not have funding for this contract. There is a risk of a significant cost pressure to EMAS if funding is not transferred from the centre to EMAS / our commissioners.

2.5.4. Information Management Reporting

Information management and reporting support to EMAS is provided by the Performance Management Information Team (PMIT) which provides business information to the Trust Board, our divisions and services using a 'self-service' approach to reporting. Reporting primarily focuses on performance i.e. reporting against key performance indicators and other measures. Our aim is that the focus of PMIT will expand to also include the provision of advice and data/ information interpretation to assist managers manage the business. This change will also include extending the use of self-service reporting to include a wider range of business support systems including complaints, incidents and fleet management systems.

2.5.5. Information Governance

EMAS has established information governance (IG) processes which have unfortunately received some negative publicity recently with the loss of a disk containing patient data. The report into this breach of security will be available in late September i.e. after the submission of this strategy.

Currently the IG function is separate from the teams that deal with Freedom of Information (FOI) requests and records management.

2.5.6. The IM&T Function

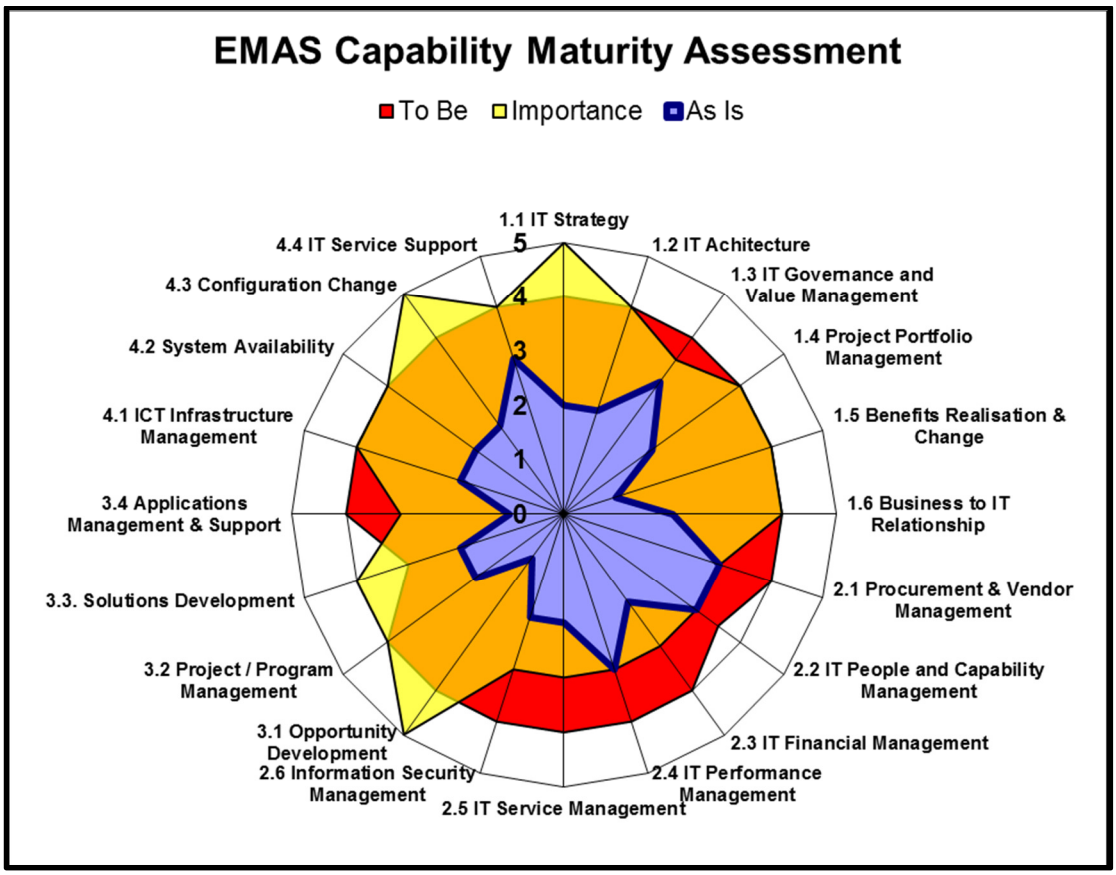
An important enabler of the successful implementation of our plans is the IM&T service itself. We have carried out a capability maturity modelling exercise. The maturity model contains four areas - business alignment, IT management, system development and service delivery.

Each capability is scored one to five as per the following scale:

1. Reactive;
2. Basic control;
3. Service/ product focus;
4. Customer focus;
5. Business led.

The results for EMAS IM&T service are illustrated below – these set out the 'as is' assessment and the 'to be' rating which assumes the changes set out in this strategy are implemented.

EMAS IM&T maturity assessment results



The model clearly indicates areas where improvements are required and where they are most urgent. There are weaknesses in many areas but the most pressing needs are seen to be in project management, benefits realisation, business relationship, opportunity development, service management and delivery.

The IM&T service's maturity assessment 'as is' scores in part reflect issues with resourcing and skill mix e.g. the service does not currently have enough of the appropriate skills to be able to support implementation of this strategy. The service's staffing profile will need to be developed and augmented to provide the necessary skills and expertise that will be required for successful delivery. For example, currently there is a high ratio of contractors to permanent staff which is leading to a cost pressure and which prevents us developing teams with the required skill sets. There is therefore, an imperative to strengthen the skills of number of permanent staff.

This strategy has been written assuming that the IM&T service remains in-house, but the potential to outsource all or part of the function has not been ignored. Appraising the outsourcing option is not an immediate priority, although it should be noted that outsourcing could be a risk mitigation strategy – see discussion of risks below.

2.6. Summary Case for Change

The external and internal context descried in the sections above is summarised below as the 'case for change'.

Driver	Link to IM&T
Need to Improve quality and outcomes	EMAS staff need appropriate IM&T systems, equipment and skills to help them provide individualised high quality, safe and effective services.
	Need for systems to promote improved quality for example through reducing variation in treatments and care pathways; improving diagnostic accuracy; providing decision support as part of clinician workflow; improving communication between professionals; and providing more timely data sharing.
	Need to report against new quality indicators and greater transparency, with particular emphasis on equality and effectiveness, and related CQUIN reporting.
Rising demand and changing expectations	More empowerment of service users and public, including online services such as booking and information to support service user access to information on service quality; and access to advice and support to support self-care.
	The trust needs operational systems that actively support the digitalisation of the service user's care record and promote improved access to healthcare services and information.
	Need for systems that allow easy patient feedback.
	Systems that enable direct booking by EMAS Clinical Assessment Team into GP urgent appointment slots.
	IM&T that supports real-time access to information e.g. A&E waiting times.
£30bn financial challenge	The need for IM&T to support and enable the transformation of service delivery. For example, systems must actively support the mobile nature of service provision, support for new models of care such as 'hear and treat' and 'see and treat' and the use of alternatives to A&E.
Integrated care	The need to adopt standards for interoperability between different providers' information systems, supported by robust information governance to protect the confidentiality and quality of electronic records and communications.
Need to transform service delivery	The need for systems which support new service models such as access to alternatives to A&E as envisaged in Keogh, for example electronic directory of services (eDoS).
Support The delivery of our 2019 future state	The need for technology that:
	• Provides appropriate decision support to our call handlers and the CAT i.e. helps reduce variation in decision making.
	• Provides real-time information about patients to our front-line crews.
	• Allows our clinicians access to summary care records from other parts of the health and care system.
	• Enables staff to liaise in real-time with clinicians from other services e.g. GPs.
	• Provides an eDoS providing information about alternatives to A&E.

	• Supports capacity management within EMAS e.g. optimises the deployment of vehicles.
	• Supports capacity management across the whole system e.g. supports the matching of demand to capacity.
	• Avoids duplication e.g. of data entry.
	• Provides accurate data and robust information to support operational and strategic decision making.
	• Guarantees excellent information governance.
	• Is supported by a well-resourced, but efficient and effective IM&T service.
Support to EMAS' growth ambitions	The need to make a decision about what EOC system to use (AMPDS or NHS Pathways).
	The need to purchase a dynamic real-time scheduling tool to support the trust's patient transport offer.
	Review potential to offer a capacity management service underpinned by real-time view of system capacity (e.g. waiting times and bed availability).
	Need to invest in IM&T to support tele-health offer – this may be a mix of video conferencing type technology to enable the provision of real-time senior clinical advice to ambulance crews and hub-based tele-health monitoring technology.
	The need for IM&T to be embedded in service developments and business case development to ensure that the potential benefits of technological advances are built into EMAS' future TOM.
Current operational system issues	Need to replace the Airways radio system.
	Need to procure a replacement for the CAD system and use the re-procurement as an opportunity to make a step-change in the EOC service without compromising resilience.
	Need for a MDT replacement programme and transformation of vehicles into mobile WIFI hubs.
	Need for support for all operational systems to be brought under the control of the IM&T service.
Current support systems	Need to replace the nationally funded ePRF by July 2016 – uncertainty around funding of the replacement.
	Need for more integration between systems to avoid data duplication.
	Need for support for all systems to be brought under the control of the IM&T service.
Information Management	Need to extend role beyond performance reporting to include provision of advice and management information, interpretation and analysis.
Information Governance	Need to appraise options for extending the remit of IG to include FOI and records management.
Improving Education	Need to provide technological solutions to assist in delivery of education to staff in an efficient, new and modernised manner.

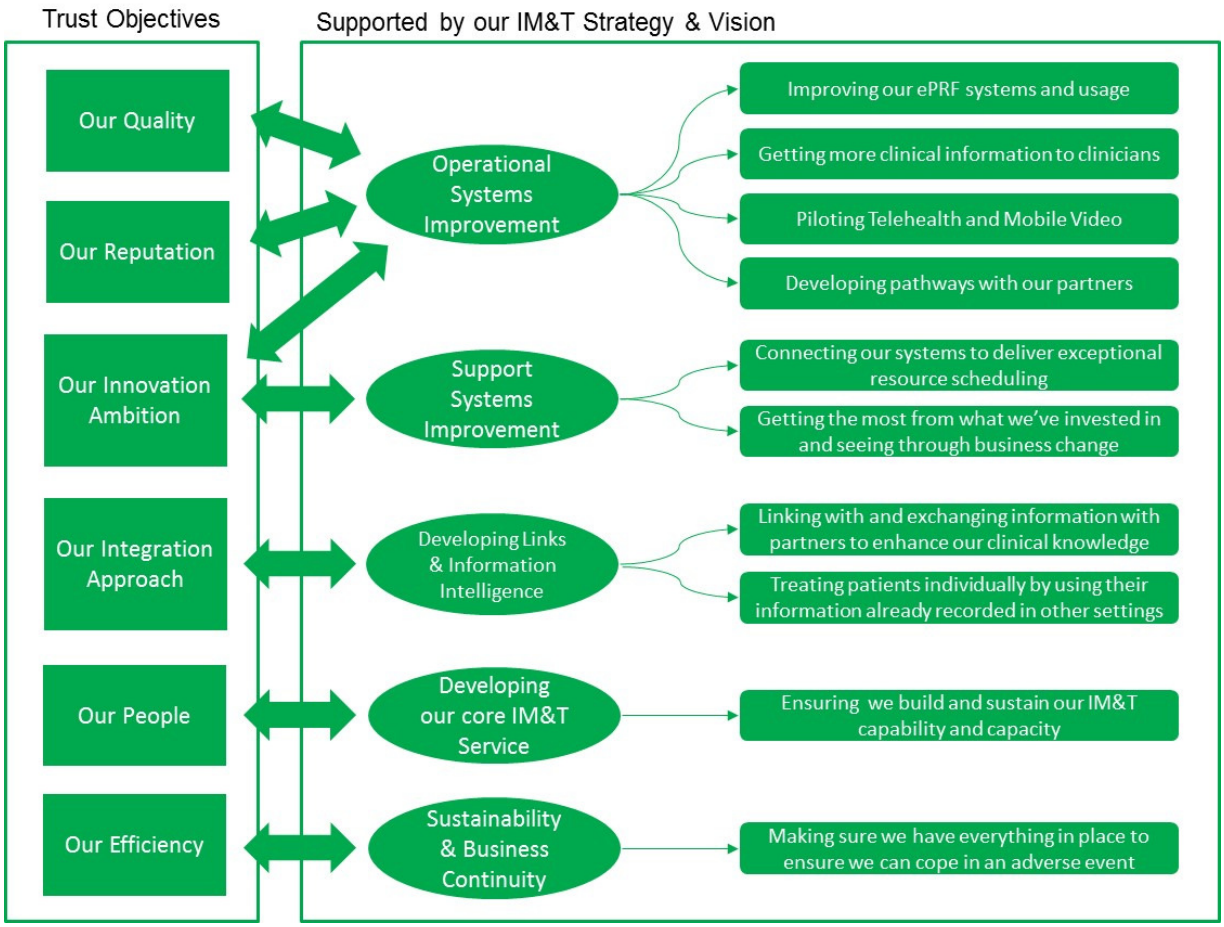
3. Strategic Plan

3.1. IM&T Strategic Vision and Objectives

This chapter sets out our vision for IM&T at EMAS which is designed to directly respond to the context described in the previous chapter and to support the trust's vision and delivery of its key strategic objectives.

Our vision is '*to provide the trust with enhanced information and management technology services that enable the organisation to fulfil its mission to achieve the highest standards in emergency and clinical care'*.

How the IM&T strategy and vision supports delivery of Trust Objectives



There are five key components to our vision for IM&T which are set out in the diagram below.

Our IM&T Strategy – Five key components

The five components summarise what we will do over the next five years:

- **Operational systems improvement** - we will focus on ensuring our clinical information systems are selected, configured, implemented and supported to ensure that each system supports the delivery of clinically effective care by:
    - Ensuring our front line staff have immediate access to the information and knowledge they need when they need it.
    - Improving data quality and clinical information knowledge to enable clinical research and care pathway planning.
    - Providing more granular data to support clinical audit and benchmarking of outcomes.
- **Support systems improvement** - we will enhance and embed our support systems to ensure we are gaining the full benefits of previous investments. Benefits will be wide-ranging and will include improved unit resource availability ('right people, right equipment, right place, right time') and improved efficiency. Better data quality and better information across all of our core business functions will ensure we manage and monitor our services more effectively.
- **Developing links and information intelligence** - it is essential that our front-line staff have access to as much relevant patient information as possible to ensure they can make the most informed clinical judgement for the patient as possible. This means we must develop our ability to exchange information securely with our partners to ensure we can access information about patients they hold and vice versa. Information exchange can also benefit the whole system: for example we believe that we are uniquely placed to have a system-wide view of real-time demand and capacity (waiting times, bed state etc), so can develop a system-wide capacity management role which would assist the matching of demand to available capacity.
- **Developing our core IM&T service** – we want to build upon our current focus on information and communications technology to also focus on information management. By doing so we have the capability and capacity to be central in the future business planning for the trust, ensuring EMAS seizes the opportunities

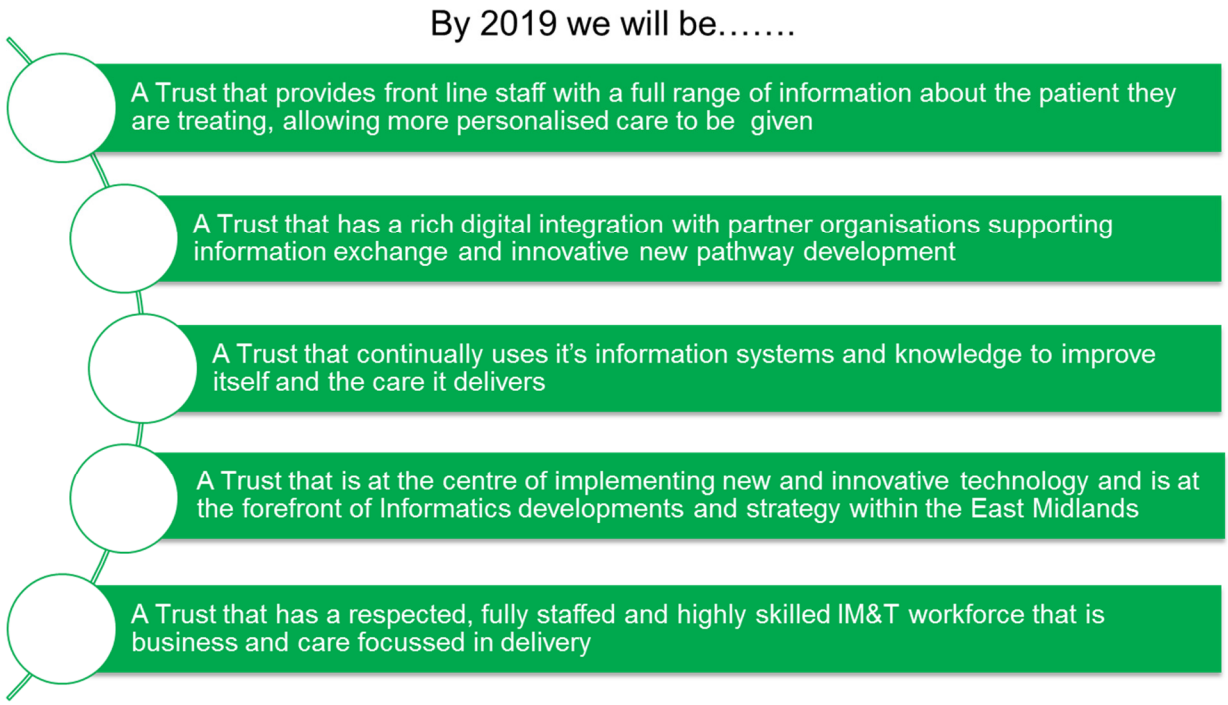
afforded by rapidly changing technology, to transform services. We also want to reduce staff stability and retention in the IM&T team.

- **Sustainability and business continuity** - it is imperative that we have robust appropriate business continuity plans in place for all of our operational and support systems. We already have excellent business continuity plans in place, so will ensure this remains to be the case against the backdrop of change to our IM&T portfolio.

3.2. Benefits

Each component of our IM&T strategy includes a number of key changes and projects, for example improving uptake of the e-PRF. By delivering these projects we will transform IM&T in EMAS and deliver the 'future state' vision for 2019 set out in the diagram below.

Transformed IM&T capability



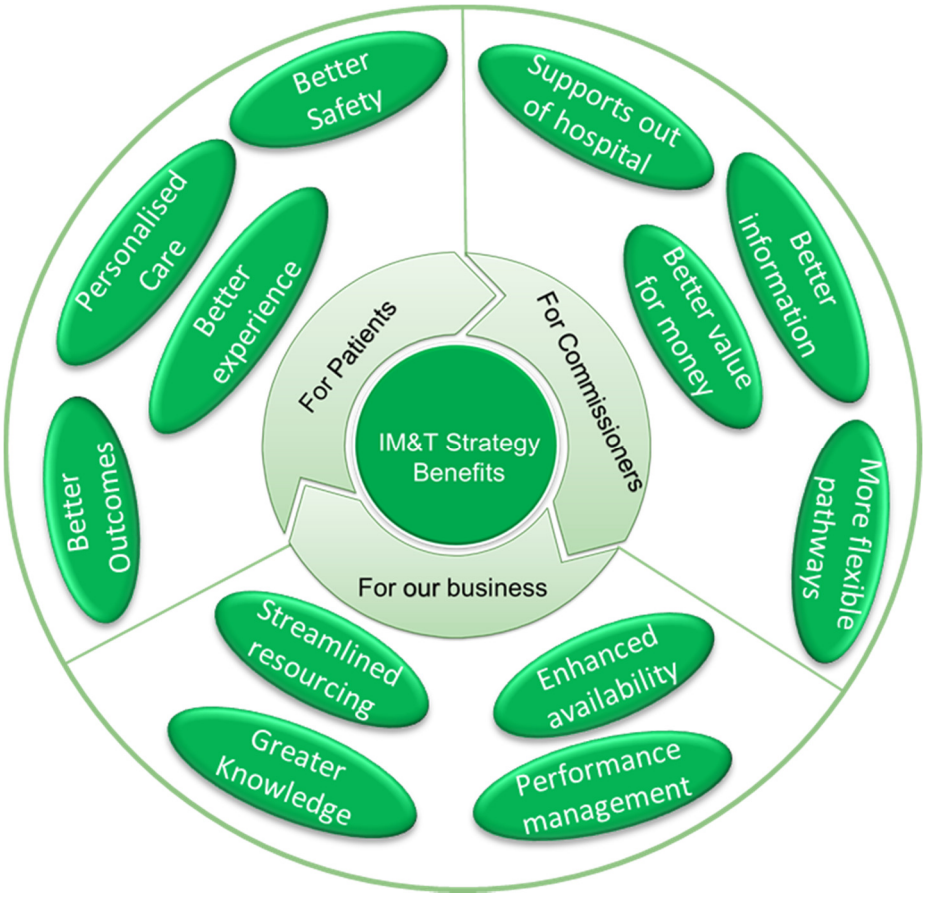
In practice delivery of this strategy means that by 2019 a better IM&T service will:

- **Assist the delivery of better quality and safety:**
  - Staff will have access to all the information they need, when they need it, where they need it (e.g. at the point of care) to ensure they can provide the best possible personalised care for the patient.
  - Information systems will support patient safety – for example through the availability of personal medical information regarding the patient (medications, allergies, current care plans etc.)
  - Integrated information within the Trust and with other providers of healthcare, so that patients experience holistic care. We will have automated links with our partners ensuring the ability to view the whole patient health record where consent is given
- **Enable stronger engagement of patients and service users in service redesign**. We will use a whole range of technologies to enable patients to feedback on the quality of the experience they have had and on their outcomes. This will feed directly into the planning of improved services focussed on the best possible patient experience.

- **Lead to higher productivity** – reducing our costs while still delivering better care for patients:
    - Staff will be able to spend an increasing amount of time directly with patients – we will have redesigned our data entry screens and processes for our electronic patient report forms and we will have minimised any duplicate entry requirement.
    - Ensuring we have linked all of our systems to ensure our vehicle and equipment scheduling is supportive to our front line staff, minimising unavailability and downtime.
- **Provide our leaders with better information to support our business:**
    - The Trust will have a much better record of the work it has actually done – supporting its negotiations with commissioners, and allowing us to provide those commissioners with the information they are looking for to demonstrate the quality and value of our care.
    - Information will be more accurate because clinicians will see it is directly useful for the delivery of their care and will own its accuracy.
    - We will have much stronger information to enable us to understand trends in activity, outcomes, quality, and performance in key areas. Our systems will routinely provide the information we need to support benchmarking of our performance – both within the organisation, and with our peers and competitors.
    - We will have a much stronger capability to 'triangulate' our information, drawing on financial, quality and activity data to ensure a much richer understanding of our business and its performance.
- **Provide our staff with the information they needs** to support them in operating flexibly and effectively to meet the needs of patients - our staff will have the right "information tools" for the job, and will be trained to use them to maximum effect.

Excellent IM&T is not an end itself. Delivering the vision encapsulated in this IM&T strategy will have direct and significant benefits for the patients we serve, the commissioners who are charged with delivering maximum quality and value, and for the commercial and financial performance of EMAS.

Summary of benefits



3.3. Guiding principles

Rapid change brings risk. We have agreed a set of key principles guiding our approach to IM&T which help to mitigate risk. These are:

- A major emphasis on data protection and the security and safety of individual patient data.
- An even greater emphasis in business continuity and disaster recovery – as we become increasingly dependent on IM&T for the operation of our core business it is vital that we have the appropriate safeguards in place to secure our operations.
- 100% data quality – we will have a constant focus on ensuring that our information is accurate, and that its quality is fully owned by the staff who enter it.
- A consistent focus on value for money – recognising that the organisation needs to increase its overall spend on IM&T.
- Deploying IM&T to support service redesign and cultural change to transform the service, rather than simply to automate an existing inefficient system.
- Maximising our capability to integrate our business services within the organisation so we can provide the most efficient internal resourcing.

3.4. Key projects within the strategy

The projects we will run to deliver the benefits set out above are described below.

IM&T strategy component	Project name	Explanation
Operational systems improvement	Airwave replacement	The replacement of the Airwaves radio system which will enable the development of services that leverage new communications abilities.
	CAD re-procurement	Design, procurement and implementation of a robust and resilient replacement for the CAD system. A more modern CAD platform should facilitate tele-health and will offer efficiency gains in the EOC through innovations such as; text back patient follow-up appointments with providers from eDOS; video pre-ambulance arrival instructions to smart phones for callers requiring guidance on self-help; tele-conferencing between crews on scene and CAT; and the use of video streaming of patient conditions / injuries to better support diagnosis.
	Live video (tele-medicine)	As above – online consultations, advice and support.
	Triage (AMPDS/NHS Pathways)*	EMAS needs to decide on whether to replace the existing EOC system AMPDS with NHS Pathways (which is linked to NHS111) or to use both systems – linked to our ability to win NHS111 contracts
	Mobile WIFI hubs (MDT replacement/ upgrade programme)	Upgrade/ replacement of vehicle-based data terminals needed to take advantage of communication advances enabled by new CAD system. EMAS vehicles will become mobile WIFI hubs.
Business systems improvement	ePRF improvement programme	Upgrade to existing e-PRF system, additional change support and dedicated project leadership. Investigating and resolving reasons for low usage rates for e-PRF
	ePRF re-procurement	The national ePRF contract ends in 2015 – this project will see the tendering and selection of a new backend system and the provision of a refreshed client device and software.
	Capacity management	Project to provide real-time information on whole health system capacity
	Enterprise architecture	The design of a Service Orientated Architecture (SOA) and implementation of an Enterprise Service Bus (ESB) to provide full master data management of trust information.
	Email platform re-provision	Upgrade/ re-provision of email
	Remote working and VPN enhancements	Improvements needed to improve electronic communications in poor signal areas and to enhance ability of staff to work remotely
	Scheduling software*	Needed to assist bidding for patient transport tenders
	Information integration engine	Reduces duplicate data entry and enables provision of integrated information – 'one truth'
	Trust Website and Intranet Platform & Design	Redevelopment of the Trust Intranet and Website Platform giving more dynamic functionality and greater flexibility for different device use
	Digital wallboards	
Developing links and information intelligence	e-Directory of Services (DoS)	An electronic DoS is needed to facilitate increased use of alternatives to A&E by ambulance crews
	Direct booking	Would enable EMAS CAT to directly book callers for urgent GP consultations
	Tele-health/ tele-care hub system*	Would support provision of tele-health/ tele-care monitoring service
	Partnership clinical portal integration (e-record sharing)	Enables EMAS crews to access e-patient records belonging to other services
Developing our core IM&T service	IM&T service development project	OD programme needed to ensure IM&T service makes the transition from being purely a technical support service to a support service that can also provide strategic advice and application management and ownership
	Ownership versus leasing	A project to review the risks and benefits of a leasing instead of ownership model for IM&T equipment
	Strengthening PMIT	Extending the role of PMIT to include information management as well as performance reporting
	Extending self-service reporting	Extending self-service reporting across all support systems
	Review of IM&T support provision model	To ensure the Trust is getting the best quality and value for money possible from its IM&T revenue investments.
Sustainability and business continuity	IM&T elements of the EOC strategy – enhancing the ability of the Lincoln EOC to cover the Nottingham EOC and vice versa	The IM&T infrastructures of the systems that support the EOC are not fully resilient. The current programme of remedial work will improve the situation and enable limited operations to be carried out from Lincoln in the event of a failure at Nottingham.
	Rolling equipment replacement programme	EMAS needs to introduce a rolling equipment and software replacement/ upgrade programme
	Standardisation and centralised support	Need to rationalise the number of systems and range of equipment used across EMAS: related need to ensure that all systems are supported by IM&T i.e. there are no 'departmental systems' supported locally in isolation.

*Those items marked with * indicate their support for new Trust business development activity*

3.5. Future state IM&T

As with the trust's overall five year strategic plan the phasing of our IM&T projects means that change will happen in stages.

By the end of **2014/15** all EMAS staff will have anywhere access to core services such as email, roster services and document management. Automated, electronic workflow will become available in high transaction areas to start making paper flow a thing of the past, and where electronic documents are used, it will become significantly easier to locate information quickly, first time, through the use of collaboration services. Some staff, not typically issued with EMAS IT devices, will be able to gain access to basic services, such as email and calendar, via their personal smartphones ('Bring Your Own Device' concept). Staff will have the ability to video link from any place where internet access is available.

Information security will be stronger for sensitive information, but more appropriate levels will be applied for more general information in order to give open access where beneficial. Public networks, such as those offered on trains and in coffee shops will start to play a larger part in access to services such as email and document storage providing greater flexibility as to where staff can work with the right information to hand.

EMAS will continue to be a top performer in IG and at the same time clinicians will have easy but secure access to patient data and clinical protocols allowing them to make the best decisions and offer the best care to our patients.

Our EOC will have the flexibility to deploy staff across at least two IT enabled locations with appropriate business continuity arrangements in place.

Business intelligence systems will offer real time support and guidance to all staff, delivering effective self-service, driving efficiency, and allowing the delivery of performance information (the scorecard) from 'floor to board'. Business intelligence systems will not stop at our boundaries and through health community data sharing this additional knowledge will support our partners improve their own processes. This health community approach will support initiatives such as developing emergency department 'arrival screens' to improve the visibility of resource.

An integrated system to collect and analyse data across incidents, complaints, PALS and claims will be introduced to support a reduction in patient safety incidents.

A number of innovative 'Proof of Concept' pilots will be established, specifically, a pilot for an 'intelligent vehicle' will be underway. Use of the vehicle based IM&T, such as the Toughbook, will continue to be leveraged as a platform to deliver further applications, such as GRS Web, email and e-learning, and at the same time IM&T will review the next generation of vehicle based IM&T to improve the overall experience.

The estate will be transforming and new sites will have additional services including video conferencing, remote training facilities, and digital noticeboards providing dynamic trust information. IM&T provision in these sites will be far greater and options for 'mini-operations-centres' will be available through Smart board and other audio visual technology.

Support arrangements for all IM&T Services will be extended with a new service level agreement agreed and training will ensure greater benefit is realised from the use of technology. Access will be simpler through the developments such as IT self-service, single sign-on, and extended service hours whilst security can remain secure through the use of smartcards and pin numbers.

During **2015/16** and **2017/18** data will be patient centred - anyone delivering care to the patient will have access to their data in the most secure and quickest method possible. Our information will flow with the patient across care boundaries to support the best pathway for that patient. Data will be shared with the patient.

Conveyance rates will reduce through better integration with Primary Care pathways, accessed via the eDoS, and the use of technology to support the remote care of patients in the home. Tele-health advice and Tele-monitoring will become a mainstream service.

Patients contacting 999 will have an improved experience as the flow information between the patient and the EOC is improved. For example patients could receive pre-ambulance arrival instructions direct to their smartphone, and the use of video could better support diagnosis allowing for a more informed choice of care pathway.

The national contract for ePRF will have come to an end in July 2016 and the trust will have by this time procured and implemented the successor to this system. The replacement ePRF will become the computing hub of the intelligent vehicle and provide ancillary systems such as satellite navigation and mobile communications with EOC. The ePRF will also fully integrate across all care sectors providing access to patient history supporting the patient across the full pathway of care.

The Emergency Services Mobile Communications Programme (ESMCP) will already part way through the delivery of the replacement national emergency services network (ESN), replacing Airwave, based on enhanced mobile networks. EMAS will be preparing to migrate to ESN, and to support this, the CAD system will have been updated to provide a unified system for dispatchers. At the same time, the Mobile Data Terminals (MDTs) within the vehicles will be replaced and MDT functionality will be provided within the vehicles new computing system which will incorporate the replacement ePRF.

Handheld radios will also be replaced with commercial smartphone type devices which will interface to ePRF, and other supporting information systems such as Clinical Pathways.

New vehicles will become communications hubs offering access to all EMAS services and, video and data sharing consultation with other professionals. Vehicles will be intelligent with telemetry and real-time monitoring of all vehicle systems to increase efficiency and productivity of the fleet. Through the use of RFID, vehicles will be ‘aware’ of the equipment that is on-board and be able to track and monitor this to ensure compliance with regulation and improve asset management, a significant improvement upon the current ‘passive’ system which requires staff to find and scan items with limited success.

By the end of **2018/19** a significant quantity of IM&T systems will all be remotely hosted by ‘Cloud’ service providers.

EMAS will truly act as mobile urgent treatment service capable of treating more patients at scene so they do not need to be conveyed to hospital. Integrated care and treatment will be possible allowing in the vehicle through very high speed links negating the need to travel. Remote monitoring will allow patients with a greater spectrum of complaints to remain at home reducing the impact to the urgent and emergency care system.

All corporate services will be available anywhere and working mobile or from home with have become the norm.

The number of back office staff travelling to work will be small with many working remotely. EOC staff will have the ability to access the CAD and telephony from home and work flexible shift patterns, including micro-shifts, to cover short term peaks in demand. Our patients will have the ability to elevate a traditional 999 call to video to enable a visual assessment to support determination of the most appropriate response and a series of preparatory

information will automatically be pushed to the patient via SMS or Smartphone Push Messages.

4. Implementation of the Strategy and Monitoring

4.1. Implementation

The IM&T programme will be managed by the Director of Information and Performance, who has responsibility for ensuring the IM&T programme is implemented correctly and with the appropriate resources and services. It is also their role to ensure correct 'end to end' implementations of the new projects, linking clinical change with the requirements of EMAS from an information and performance perspective. The trust will utilise its own internal resource to lead clinical change management, however each project will include additional training and change resource to ensure successful project delivery.

The IM&T programme will be monitored through the trust Better Patient Care Board, ensuring a strict focus on delivery, quality and risk management. We will ensure projects are run to strict PRINCE2 project management principals with appropriate risk, issue and benefit control.

All IM&T developments, procurements and implementations will adhere to information governance requirements and those demanded by the Data Protection Act and Caldicott principals.

Trust and EU procurement methods will be employed when identifying solutions to the IM&T developments contained within this document, and different procurement models will be explored with each development. We will include in each business case the options for procuring through a joint venture, standard purchase (and delivery with incumbent IM&T supplier), outsourced and partnered models.

The trust's board will be assured on delivery of our IM&T strategy and information governance through two routes;

- The Better Patient Care Board reports to the Trust Board;
- The Information Governance Group that reports to the Finance and Performance Committee.

4.2. Implementation timescale

The proposed timeframe for the key projects within this strategy is set out below.

Project timeline

		Deployment Years				
IM&T strategy component	**Project name**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**
Operational systems improvement	Airwave replacement					
	CAD re-procurement					
	Live video (tele-medicine)		Pilot			
	Triage (AMPDS/NHS Pathways)*					
	Mobile WIFI hubs (MDT replacement/ upgrade programme)		Pilot			
Business systems improvement	ePRF improvement programme					
	ePRF re-procurement					
	Capacity management					
	Enterprise architecture					
	Email platform re-provision					
	Remote working and VPN enhancements					
	Scheduling software*					
	Information integration engine					
	Trust Website and Intranet Platform & Design					
	Digital wallboards	Pilot				
Developing links and information intelligence	e-Directory of Services (DoS)		Pilot			
	Direct booking					
	Tele-health/ tele-care hub system*					
	Partnership clinical portal integration (e-record sharing)					
Developing our core IM&T service	IM&T service development project					
	Ownership versus leasing					
	Strengthening PMIT					
	Extending self-service reporting					
	Review of IM&T support provision model					
Sustainability and business continuity	IM&T elements of the EOC strategy – enhancing the ability of the Lincoln EOC to cover the Nottingham EOC and vice versa					
	Rolling equipment replacement programme					
	Standardisation and centralised support					

*Those items marked with * indicate their support for new Trust business development activity*

5. Strategy Stakeholder Engagement

5.1. Engagement undertaken during development and planned future engagement

During the course of writing this strategy we have engaged with the following groups of colleagues within the trust: IM&T staff; the trust executive team; and EOC management. Following Trust Board approval of the direction of travel shown within the strategy we will extend engagement to clinical commissioning groups, all local providers, Health Watch, suitable local clinical fora and EMAS staff.

5.2. Patient and Public engagement

Engagement with the public and patient representatives will be carried out as necessary for each key IM&T project. This strategy document will be published on the EMAS website.

5.3. Communication of the Strategy

The strategy will be communicated to all appropriate stakeholders through the standard Trust communication channels and an appropriate communication strategy will be devised with the Trust Communications department. The communication strategy for each of the projects contained within the strategy will be devised and executed through the individual PRINCE2 project management boards setup to deliver the required outcomes.

6. Enablers/interdependencies of the strategy

The implementation of this IM&T strategy is dependent on or impacts on a number of other plans and strategies across EMAS. IM&T is dependent upon:

- The Trust IBP and LTFM (Long Term Financial Model)
- The fleet strategy delivering new vehicles which can be equipped with new technologies such as new MDTs;
- The workforce and education strategy providing EMAS staff with the skills needed to effectively use new technology ad with the rights and permissions needed to work more flexibly (e.g. remote working, 'micro shifts' etc).

The IM&T strategy will enable EMAS to:

- Improve quality as set out in our clinical and quality strategy;
- Deliver the EOC strategy;
- Transform the way we use buildings as set out in the estate strategy;
- Win new business as set out in the business development plans and the integrated business plan.
- Educate our staff using the latest technological solutions

7. Quality and Governance

All IM&T projects set out in this strategy will be approved through the trust's business case approvals process which includes consideration of the impact on quality, outcomes etc.

For each of the projects listed within this strategy, a quality impact assessment and patient outcomes assessment will be undertaken as part of the development of the appropriate business case and will be scrutinised as part of the approvals process.

The project initiation document for each of the projects will clearly define the appropriate metrics and key performance indicators to be used to assess both the implementation of the project and the impact of the desired outcomes resulting from it.

The overall impact of the strategy to the trust and to patient outcomes will be measured by through the strategy oversight governance, the Better Patient Care Board.

8. Finance

The key headline financials of the IM&T Strategy are:

- Total capital investment over 5 years totalling £9.86m;
- Total additional revenue requirement over 5 years totalling £2.58m.

Existing financial assumptions/previous assumptions:

- Through the creation of the IM&T strategy, the capital investments shown within the finance profiles are the proposed new capital programme requirements (replacing existing assumptions);
- The revenue implications shown are in addition to the existing IM&T / system cost envelope, however national sources of funding for the replacement ePRF system may enable these costs to be reduced, dependent on national agreement to disseminate centrally held funds currently funding the nationally provided solution;
- All costs provided within the IM&T Strategy are best-effort estimations, with full and final costs only becoming available on production of the individual business cases required for each of the key projects.

The estimated costs of the IM&T projects set out above are shown in the table below.

Financial implications

		Funding Capital					Funding Revenue				
IM&T strategy component	**Project name**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**
Operational systems improvement	Airwave replacement				£1,000,000						
	CAD re-procurement			£1,000,000	£1,000,000			£250,000	£250,000	£250,000	£250,000
	Live video (tele-medicine)		£150,000	£150,000	£50,000			£5,000	£25,000	£25,000	£25,000
	Triage (AMPDS/NHS Pathways)*		£1,000,000					£50,000	£50,000	£50,000	£50,000
	Mobile WIFI hubs (MDT replacement/ upgrade programme)				£250,000	£250,000				£50,000	£50,000
Business systems improvement	ePRF improvement programme	£233,000	£150,000								
	ePRF re-procurement		£750,000	£750,000				£100,000	£100,000	£100,000	£100,000
	Capacity management		£50,000	£50,000							
	Enterprise architecture		£500,000					£75,000	£75,000	£75,000	£75,000
	Email platform re-provision		£250,000								
	Remote working and VPN enhancements		£50,000	£50,000				£0	£0	£0	£0
	Scheduling software*	£250,000	£250,000				£50,000	£50,000	£50,000	£50,000	£50,000
	Information integration engine		£75,000	£40,000							
	Trust Website and Intranet Platform & Design		£90,000		£40,000						
	Digital wallboards	£50,000	£250,000								
Developing links and information intelligence	e-Directory of Services (DoS)	£10,000									
	Direct booking										
	Tele-health/ tele-care hub system*										
	Partnership clinical portal integration (e-record sharing)		£100,000	£100,000	£100,000						
Developing our core IM&T service	IM&T service development project	£150,000	£150,000	£150,000	£150,000	£150,000	£0	£0	£0	£0	£0
	Ownership versus leasing		£75,000								
	Strengthening PMIT						£50,000	£50,000	£50,000	£50,000	£50,000
	Extending self-service reporting										
	Review of IM&T support provision model				£75,000						
Sustainability and business continuity	IM&T elements of the EOC strategy – enhancing the ability of the Lincoln EOC to cover the Nottingham EOC and vice versa	£100,000	£150,000					£50,000	£50,000	£50,000	£50,000
	Rolling equipment replacement programme	£150,000	£150,000	£150,000	£150,000	£150,000					
	Standardisation and centralised support	£100,000	£100,000	£100,000	£100,000	£100,000	£50,000	£50,000	£50,000	£50,000	£50,000

This strategy will require approximately £9.86m capital spend over the life of this plan. The three most significant components of this are the replacement CAD, replacement Airwave and replacement ePRF systems.

The net revenue cost impact of this strategy will be to increase IM&T costs by £2.58m over the lifetime of the strategy.

Transforming our IM&T capabilities will inevitably add to the overall costs of the organisation. This strategy will lead to IM&T becoming a central component of most clinicians' working lives, core to the delivery of our patient pathways and to the business of the trust. By 2018/19 we will have far more users, using many more systems, much more of the time. Systems, technology and support costs will all need to change to reflect this. We will also potentially lose the benefit we currently have of receiving some systems as a nationally funded 'free good' (although we may receive additional funding to reflect this cost pressure). However, the productivity benefits resulting from these new IM&T systems will be high, and have the potential to outweigh additional costs. Those benefits could be realised through the cost improvement and service development plans of the divisions – the trust board will need to decide what proportion of productivity gains to take as 'cash releasing' savings and what proportion to reinvest in the service .

It is essential that productivity benefits are not 'double counted' – and for this reason, this strategy does not set out specific savings outside the IM&T budget. Specific savings and financial cost benefit analysis will be developed as part of the business case process for each IM&T project.

It is important to note that the financial position discussed within this IM&T strategy has been undertaken within the bounds of the current ICT budget arrangements and does not include all other ICT/IM&T dispersed support staff and budgets.

9. Risk Analysis

9.1. IM&T strategy risks and management

Risks associated with the delivery of the projects within this strategy will be managed using the trust's risk management structures and processes such as the use of local risk registers and the board assurance framework (BAF) which are reviewed by the executive team and the trust's board.

The main risks in relation to the delivery of this strategy and how we will mitigate these risks are set out in the table below.

IM&T strategy implementation risks and risk mitigation

Risk	Risk mitigation
Securing appropriate funding to deliver the IM&T Strategy (capital Investment and ongoing revenue)	Tight programme management of implementation, and ensuring project management approach is robust, with direct front-line clinical engagement at an early stage.
Market risks in relation to the availability of suitably skilled IM&T and information staff to deliver our plans	Engagement with recruitment agencies. Training of existing staff.
Potential for cost over-runs and potential double counting of savings	The strategy has used conservative assumptions on costs. Each individual development of significance within this strategy will have its own full business case carefully exploring the detailed costs and benefits. This strategy has excluded any assumptions on divisional savings in order to avoid any double counting.
Procurement risk, following business case generation there is a risk that the procurement process is unmanaged or does not follow EU regulations	We will ensure all procurement requirements are handled by the EMAS procurement team, following strictly the Trust and EU regulations in line with due tendering process. The trust will form 'tender groups' for all appropriate tenders, ensuring wide engagement and a substantial cross-section of skills and views are incorporated.
Lack of clinical/staff ownership of the strategy – and cultural resistance to change	The strategy is firmly based on providing staff with tools which will support them to provide better care. There is a wide acceptance within the trust of the need to redesign services and use IM&T to support productivity and quality.

There is a risk that the implementation of the IM&T strategy is not correctly resourced, resulting in failed implementation of one or many projects	The Director of Information and Performance has strategic and operational posts within their structure to ensure effective programme delivery
Projects failing to deliver the benefits identified	Each project will be developed into a full business case that includes a focus on benefits realisation planning.
Risk that the pace of change is too great for the organisation to accept culturally, leading to projects failing to deliver the benefits identified	Continued alignment with interdependent strategies and the Trust IBP, working with a proactive communications programme to ensure key stakeholder engagement
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 and also performing a full requirements gathering exercise to scope each project accurately.

9.2. Financial Downside Mitigations

To ensure long-term viability of the investments contained within this strategy it is important to identify the process to be enacted should reduction in the financial envelope for delivery be necessary. This strategy contains two elements of funding, which undertake specifically different tasks.

- Capital investments – used to implement new projects and enhance existing systems;
- Revenue investments – used to support the existing infrastructure both with contracts and staff resources.

In a potential downside scenario where (for example) a 10% reduction in both capital and revenue be sought, the following process would be enacted.

- Capital investments – an assessment of the contractual commitments (legally binding) would initially be undertaken to ascertain the minimum financial and contractual commitments at that moment in time of the programme, then the remainder of the programme would be re-prioritised within the available cash envelope, working within the principal that investments are primarily to support the realisation of our vision and strategic objectives. Following re-prioritisation, the re-worked plan would be proposed through the re-drafting of the capital programme and this IM&T strategy. In addition, the revenue consequences of the re-profiling would be required to be identified and implemented within the annual review of our financial plans;
- Revenue investments – in the scenario where (for example) a 10% reduction of IM&T revenue funding was sought, the existing IM&T support infrastructure would be reviewed. Market testing of IM&T functions could be undertaken to ascertain potential savings and viability in addition to the aforementioned activity.

9.3. Sensitivity Analysis

In order to ensure long term sustainability of the implementation of the IM&T Strategy within the Trust, initial analysis of the impact to the IM&T Strategy of future potential business downside events should be undertaken. Three potential business downside events have been included below;

- Failure to secure new business in line with IBP – the strategy contains several key projects that support the new business growth. These key projects are identified in this document by means of a *, highlighting their relationship to new business. In each business case development for those specific projects risk analysis should be undertaken prior to commencement to ensure that the business developments are secured.

- Potential loss of core 999 and urgent care services for one county - throughout the duration of this IM&T strategy there are significant organisational investments in systems and technology that will be made available Trust-wide. In each procurement and implementation there should be flexibility built-in to each contract award and financial agreement to ensure that downsizing as well as upsizing our Trust requirement is able to be undertaken.

- Change in national performance standards - any potential future change in performance standards at a local or national level have significant consequences for the systems and services implemented throughout the duration of this strategy. All system procurements and support services must be designed in a way that enables flexibility in software setup and design, allowing future changes to be implemented and monitored easily. Appropriate support contracts should be put in place to ensure that any system-specific updates are available from the system suppliers in a timely manner also.

9.4. Risk log management

The individual project risks will be managed in line with PRINCE2 project management principals, escalating their levels when required through regular review, and transferring them onto the appropriate departmental, corporate or BAF risk registers as required.

9.5. How risks will be monitored and implementation of mitigating actions

All risks related to the IM&T strategy will be monitored by the Better Patient Care Board as the oversight group for the implementation of the strategy, however each individual PRINCE2 project board that is setup to manage the implementations contained within, will review, manage and scrutinise all project-level risks.