

DIGITAL STRATEGY

2018 to 2023

Setting the Standard: Technology to
Transform the Business of Healthcare

Remarkable people.
Extraordinary place.



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1. EXECUTIVE SUMMARY

NHS policy recognises that technology has the potential to fundamentally transform the way the NHS delivers healthcare, driving out waste and inefficiency, improving clinical effectiveness and productivity, reducing variation and risk, improving outcomes, enabling new care models and empowering patients to play an active role in managing their own health and wellbeing. We know that technology plays a huge role in supporting our people to deliver even better care and is therefore a core enabler that runs through each of our strategic goals. We believe by putting the patients at the heart of our digital strategy we can continue to deliver enhanced, ever-more safer services for patients, better job satisfaction for our people and greater value for the taxpayer by increasing efficiency and effectiveness, and also by avoiding costly mistakes.

This new Digital Strategy represents the second phase of the Trust's technology modernisation programme. Sections 4 to 8 describe how it builds upon the significant achievements since the 2011 Information Management and Technology (IM&T) Strategy was approved, how it responds to national policy, how it supports the Sustainability and Transformation Partnership (STP) priorities and its Local Digital Roadmap (LDR) and how it makes a positive contribution to the Trust's Transformation Programme. It complements the Trust's clinical service and quality improvement strategies alongside of the People and Estate Strategy.

This Strategy signposts the evolution of our digital services over the next five years. It creates a framework for the organisation's digital work programme; it describes the key developments which will give our staff the tools and capabilities to successfully embrace the challenges of the future, sets out an ambitious infrastructure upgrade programme and acknowledges the investment challenges to achieve this. Sections 10 to 15 refer. Finally, Sections 16 and 17 describe the governance framework and the security, business resilience and affordability challenges that increasing dependency on digital systems and electronic information brings.

Of necessity this Strategy sets out to address a range of clinical and corporate priorities and challenges. Fundamentally though, the Strategy has patients at its heart. Its core objective is to use technology to make every patient's journey through our hospitals as safe as possible, and to make every working day as easy and rewarding as possible for our staff. Section 2 summarises the key benefits this Strategy delivers to these stakeholders.

The Digital Strategy is one of a number of interdependent strategies, underpinning the dynamic programme of change necessary to support delivery of the Trust vision and strategic goals set out in Section 4.

2. MAKING A DIFFERENCE: WHAT WILL THE STRATEGY MEAN FOR PATIENTS AND STAFF?

This section set out how the Digital Strategy, when fully implemented, will have a significant positive impact on our patients and the working lives of our staff.

OUR PATIENTS
Helping to make your stay with us as safe and quick as possible by using technology to support your care
Giving you confidence that anyone who contributes to your health and wellbeing knows about you and your uniqueness
Making sure that our doctors and nurses can see the information they need about your treatment, when they need it, wherever they are working
Joining things up and removing boundaries; sharing key information quickly between hospitals, GPs, community services, Social Services and others involved in your care
Fewer delays and less frustration waiting for things to happen
Putting you in control; giving you secure on-line access to your health record, appointments, correspondence and results
User-friendly technology such as "Patients Know Best" to make it easy for you to reach out for advice and support when you need it, without having to come to hospital
Offering e-consultations to save you the inconvenience of travelling to hospital
Helping you to look after yourself and giving you confidence to take the right action, at the right time to keep you out of hospital
Keeping your information safe and secure; only giving you control over who can see your records
Free WiFi when you are at hospital to keep you connected with your friends and family

OUR STAFF
One password to remember to access all your systems with a single log-in
Log-in that lets you move from device to device without losing your place in the system
Quicker, safer decisions; everyone with a legitimate need can instantly see the information they need
Auto prompts and alerts (e.g. allergy checks that reduce the risk of prescribing error)
Information to hand when needed; no more delays waiting for paper records; no more searching for drug charts, observation charts, etc
Do-once-and-share: no more duplication and repetition; once entered, information is available to all clinical staff; automatic population of key documents
Access from anywhere means that medical staff no longer need to be on the ward to carry out certain tasks such as authorising drugs, completing Immediate Discharge Summaries
Reducing delays by sharing information with other care providers
Improved WiFi, new digital telephone and video services and NHS Mail all helping to keep you connected and supporting agile working
Freeing up time to care; productivity gains within your team and more efficient use of Trust resources
Empowering patients – seeing patients who have more access to their health and clinical information
Greater possibilities of e-consultations with patients and between colleagues
Getting It Right First Time

3. OVERVIEW OF THE DIGITAL STRATEGY – 2018 to 2023

In November 2011 the Trust Board approved a five year Information Management and Technology (IM&T) Strategy which set out an ambitious programme of investment in new systems and infrastructure which would ensure that the Trust was able to meet its national policy obligations and would support and underpin the delivery of the Trusts overall Strategic objectives. Key to that was a new data network and the replacement of the Trust's Patient Administration System, Clinicom PatientCentre, with Lorenzo, a next generation Electronic Patient Record (EPR) developed under the aegis of the National Programme for IT (NPFIT).

This Strategy takes account of current policy, of the emergent Sustainability and Transformation Partnership Local Digital Roadmap (LDR). It creates a framework for the organisation's Digital work programme and contextualises how that will support the Trust in achieving its objectives. This strategy demonstrates the range and complexity of the Trust's Digital programme and describes the strategic context within which the Digital Strategy has been developed. It signposts the direction of travel for technology over the next five years and sets out the ambition to build upon our investment in technology, to develop a workforce with the skills they need to successfully embrace the challenges of the future and to exploit the transformational opportunities that technology enables.

The current Lorenzo contract ends in 2021, at which point responsibility passes to the Trust. This transition will need to be planned and provisioned for.

This Strategy is not solely about clinical systems and solutions. It also strives to keep pace with, and grasp emerging opportunities relating to the 'Corporate' systems and services which support the business, such as Financials, Procurement, Estates, Electronic Staff Record (ESR) and Records Management. We will look to exploit technologies which have the potential to reduce costs and improve operational effectiveness such as the use of Cloud services, adoption of NHS Mail and procurement partnerships. Throughout the life of this Strategy we will focus on improving data security and business resilience for our critical systems.

The key risks to the delivery of this strategy are:

- the availability of capital investment funds for new technologies,
- the affordability and provision of sufficient IM&T resources to develop, deploy, maintain and support the technology portfolio
- developing and nurturing a workforce with the capability, skills and capacity to meet the ambition set out in this strategy.

Key Strategy Objectives

Delivering sustainable, impactful transformation through technology, eliminating waste and duplication, improving efficiency and business resilience

Paper-free-at-the-point-of-care, underpinned by the Lorenzo electronic care record, incorporating e-prescribing and medicines administration, e-Observations and escalations

Digital pathways for all patients, from e-Referrals to e-Discharge, eliminating paper process delays, reducing risks and enhancing clinical effectiveness and patient safety

Patients and carers able to view their own record on-line and making it easy for them to access support, advice and have e-consultations on line

Achievement of HIMMS Level 7 for electronic records and full compliance with the Acute Digital Maturity Assessment

Fully upgraded data network and unified communications service, supporting agile working, clinical mobility, NHS Mail and One-Password Single-Sign on for all staff

Drive value from ICT investment through adoption of new technologies, such as cloud services, and opportunities for consolidation and partnering of ICT services

Compliance with national Digital policy, including Accessible Information Standards; Cyber Security; Information Governance and General Data Protection Regulations

4. TRUST PROFILE

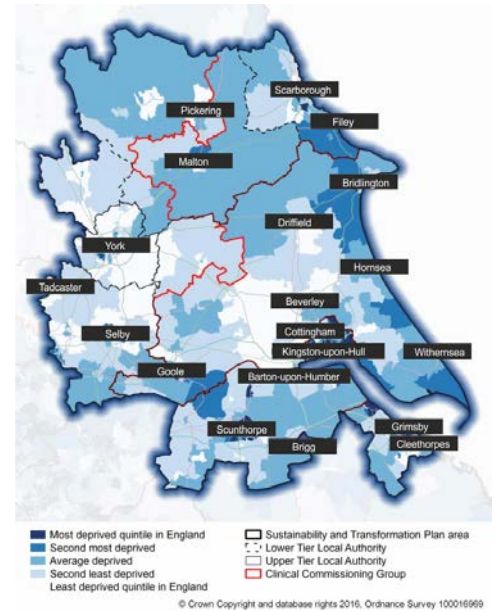
The Trust operates from two main sites, Castle Hill Hospital and Hull Royal Infirmary and provides a full range of acute services to the people of Hull and East Yorkshire area. It is a university teaching hospital and a partner in the Hull York Medical School. The Trust is part of The Humber Coast and Vale STP which covers a diverse rural, coastal and urban community with a population of 1.4m. As depicted in the map right, the Humber, Coast and Vale footprint covers six CCG boundaries, six local authority boundaries as well as services provided by 3 acute providers and a number of health and social care organisations.

Hull & East Yorkshire Hospital Trust has an extensive service portfolio providing the full range of planned and general hospital services to a catchment population of 600,000 in the Hull and East Riding of Yorkshire area. It is a Major Trauma Centre, a Centre for Cardiology and Cardiothoracic Surgery and hosts the Queens Centre for Oncology and Haematology on the Castle Hill campus. It provides specialist services across the STP footprint, extending to North Yorkshire, North and North East Lincolnshire, a region that has a catchment population of up to 1.8 million.

Hull itself is a city of about 270,000 people. It was identified as the 2nd most deprived local authority in England in 2015. The health of people is generally worse than the England average, with a lower life expectancy for men and women.

The East Riding of Yorkshire itself is a predominantly rural area of 340,000 people. The geography makes it difficult for some people to access services.

The Trust Strategic Vision is **“Great Staff, Great Care, Great Future”** which shapes and supports the following **Values and Long Term Goals**:



5. TRANSFORMING THROUGH TECHNOLOGY: DELIVERING THE DIVIDEND



National Policy places great store in the role of technology in modernising and transforming the way we work and how we care for our service users. Over the life of this Strategy we will deliver a significant digital dividend.

Our vision is to build a workforce with the digital skills they need to prosper in the changing environment, to deploy products and services that meet the objectives set out in the 5 Year Forward View, that remove friction and frustration for our staff, our partners and our service users, thereby enabling all stakeholders to adapt to change more easily.

Below are the core technology related initiatives which directly contribute to the transformational challenges as set out in National Policy and by Lord Carter of Coles. This is not an exhaustive list of projects or optimisation activities that teams will be working on during the life of this Strategy. They are however the key initiatives where work is planned or ongoing and collectively they illustrate how technology supports collaborative working and can make a profound difference to how we work.

Transforming Patient Pathway Management

Reconstructing Clinical Administration, built around pathways, exploiting the instant availability of information where needed, removing the reliance on paper processes, avoiding task handoff, improving visibility and decision making, reducing clinical risk.

End-to End Digital Transactions

Referrals direct into Lorenzo via the national e-Referrals Service; Treatment recorded and reported digitally; Information collected once and shared with whoever needs it to carry out tasks, Immediate Discharge Summaries and Outpatients letters direct into GP Systems.

Empowering Patients

Sharing and engaging with patients, to help them take control and to support self-managed care.

Using Patient's Know Best (PKB) we will give all patients the option of receiving real-time on-line access to their appointments, letters, test results and hospital record.

Transfer of Care

The new G2 Speech Voice Recognition and Digital Dictation System provides the opportunity to transform how we produce and issue letters. In future, letters dictated by Clinicians directly into G2 can be electronically signed-off and instantly pushed into GP systems and made available to patients, on-line, via Patient's Know Best.

In addition to reducing the transaction cost of letters, Transfer of Care processes will be significantly enhanced by the speed of information flow across the care landscape, available to whoever needs it.

Reducing Risk – e-Observations

NerveCentre e-Observations will be live across Castle Hill by 31/3/18. It will be rolled-out across HRI as soon as possible. This will enable the electronic alerting and escalating of deteriorating patients to doctors. We will embed e-Obs results into Lorenzo.

When fully deployed e-OBS will make a significant contribution to the care of sick patients, removing delays in escalation, improving clinical care to deteriorating patients, reducing nursing time taken to carry out observations, eliminating paper records, enhancing staff productivity and freeing up time to care.

GS1 - Scan4Safety

GS1 global standards are a significant enabler for patient safety, providing the base information to ensure Right Patient, Right Drug, Right Dose, Right Route and Right Time.

GS1 supports improved safety, efficiency and cost control.

Our new system, when fully implemented, provides visibility and traceability across the full patient journey of clinical procedures performed, what equipment is used, which devices are implanted, what medications administered, by whom and when, all of which can be recorded in the patient electronic record.

Making it Easier: Lorenzo Lite

We will develop a Trust internal Lorenzo-Lite Read-Only Viewer. We will decommission the link to the (pre-Lorenzo) electronic patient information and make that available in the Viewer. Clinical staff will be able to see historic and current information about their patient without logging into Lorenzo.

This has the potential to enhance outpatient efficiency

Records Management

HEY has over 1.2m hospital records in circulation.

Although the transition to electronic records is gathering pace, safely removing the need for Casenotes will take time. In the interim, HEY has invested in the iFIT Intelligent Casenote Tracking System which will improve traceability and availability of hospital records and will generate significant savings from reduced handling costs.

Supporting & Sharing

Via our in-house developed Lorenzo-GP Viewer, we share key patient information with GP's, enabling them to monitor progress and outcomes, including ED attendances, for their practice patients.

We will enrich the Lorenzo-GP Viewer to include alerts of abnormal scan results and will work with STP partners to extend the Viewer into other care providers such as NLAG, CHCP and Humber FT.

Making it Easier: Single Sign-On

We know that our staff get frustrated at how long it takes to log onto multiple systems. In 2018 we will implement a one-Password solution for staff to access the systems they need to do their job. We want to link this to Smart cards so that staff can 'tap and go' (just like 'tap and pay') when they are using Lorenzo.

Safer Prescribing

Lorenzo Electronic Prescribing and Medicines Administration (e-PMA) will significantly reduce prescribing errors and missed doses. ePMA removing the reliance of paper records, eliminates the risk of lost drug cards, makes prescribing information available whenever and wherever and has the potential to significantly enhance staff productivity.

Hospital Avoidance

Maximising the use of the eRS Advice and Guidance Service to eliminate unnecessary referrals.

Using CISCO Virtual Waiting Room to provide e-consultations, virtual clinics and give support to patients without the need for costly and disruptive hospital visits.

Digital Pathology

Replacement of the current Laboratory Information System, in partnership with York.

Extending digital reporting into Cellular Pathology to support the cancer transformation alliance and improve the resilience and effectiveness of the service. It enables the wider formation of a Cellular Pathology network beyond STP boundaries.

Extending digital reporting into Clinical Haematology will improve the efficiency of the diagnostic service and will enable medical consultant staff to link with the laboratory service more efficiently.

These innovative developments and productivity improvements will be supported by the introduction of Laboratory to Laboratory connectivity and drive towards the vision of a single Pathology Record across the STP.

Collaborative Image Reporting

The STP has made a successful bid to NHS England for the procurement of a Pan-STP image sharing and workflow management system during 2018.

The solution will link the current Enterprise Imaging Systems at York, NLAG and HEY Trusts and will enable workflow to be assigned to, and diagnostic images viewed and reported by, clinicians from all Trusts, irrespective of their base. This improves clinical effectiveness, reduces reporting delays and supports workforce transformation.

Modernising Medicines Supply Chain

The Regional Medicines Supply Chain Collaboration is a project involving 9 Trusts (the 3 local 'STP' Trusts plus the 6 'WYATT' STP Trusts) working together to modernise medicines procurement and management.

This collaborative project aims to drive innovation, automation and modernisation of the medicines supply chain and will see medicines supplied directly to end users by an out-sourced provider. Additionally, it is hoped to be an enabler for future innovation and efficiencies, for example the provision of more ready-to-administer products.

The process is currently (March 2018) in 'competitive dialogue' stage with potential providers, though to the approval of the final business case by participating Trusts.

Self-Service API's / FHIR

HL7 is embedded for exchanging information between internal and external systems. We will continue to open records for sharing, embracing the new Fast Healthcare Interoperability Resources (FHIR) and Application Programming Interface (API) as they mature.

FHIR and API are critical enablers for enhanced interoperability and wider sharing of care data and records. These new tools will open systems and data sharing beyond traditional 'trigger based' messages towards an open sharing architecture.

Reducing Risk – Task Management & Activity Flagging

Lorenzo has the ability to alert clinicians and clinical teams to tasks and activities that need performing and checks that need carrying out.

When deployed, Task Management functionality will push actions into individual clinical staff and team Lorenzo in-boxes, improving response times, speeding up clinical and operational decision making, reducing pathway delays and eliminating the risk of missed activities.

NHSMail2

Following approval by the Executive Management Committee in September 2017, HEY will adopt the national NHSMail2 service by the end of Q1 2018.

This will reduce costs, support employee mobility, will enable the Trust to introduce ESR Self Service. Looking ahead, the NHSMail2 platform has the potential to link to, and exploit the mobility capabilities of Office365.

Expanding e-Rostering

We want to extend the e-Roster system to other groups of staff to both help us deliver the "Carter" recommendations and make a measureable contribution to HEY's Digital Maturity score.

Other staff groups include AHP (Allied Health Professionals) the rest of the nursing clinical areas such as Endoscopy and some back office staff. Rollout of e-Roster also includes the development of Bank resources and the utilisation of the relevant Bank software.

Business Intelligence (BI)

The availability of high quality, real-time intelligence is critical to effective and impactful clinical and operational decision making.

To enhance the richness, flexibility and influence of our BI system we will expand the range of corporate and clinical data feeds into BI, develop forecasting models and predictive analytics and will increase the sharing of key data with other agencies

Infrastructure

We aim to reduce the cost of ownership, or the need for capital investment for new systems by exploiting Cloud / Off-Site Hosting opportunities for our systems. We will review partnering opportunities with the University of Hull to exploit the benefits of their new, commercial Data Centre, which is scheduled for opening in 2018.

We will work with our partners to take advantage of collaboration and consolidation opportunities.

6. THE 2011 STRATEGY – LOOK BACK

The key National Policy drivers at that time were the NHS White Paper, '*Equity and excellence: Liberating the NHS (July 2010)*', and the NHS IM&T Strategy '*The Power of Information: Putting all of us in control of the Health and Care Information we need (May 2012)*'. The latter document described how the provision of high quality clinical information will transform the way patients are treated and how information technology can help modernise and change the way care is provided throughout public health, healthcare and social care in adult and children's services in England.

The 2011 Trust Information Management and Technology Strategy set out a five year investment programme via which the Trust would both address local imperatives and respond positively to national policy. The Strategy was based upon the following principles:

- *Systems are integrated to provide one true source of fully electronic information*
- *Information is entered once, shared widely and is accessible whenever and wherever required*
- *Technology supports effective clinical collaboration within the Trust and throughout the wider health economy*
- *Systems and technologies will enhance clinical effectiveness, improve outcomes and enhance service user experience*
- *Information, relevant to the specific needs of each user group, is available regardless of time or location*
- *That systems are user friendly, flexible, robust and support new ways of working*

National IM&T Strategy required Trusts to develop their IM&T capabilities further in order to meet national expectations for new Electronic Patient record (EPR) systems, paperless working, increased digitisation and the use of electronic correspondence and communication across the whole health and social care continuum.

Lorenzo was the centrepiece of the IM&T Strategy, around which all other developments are positioned. HEY committed to deploying the NPfIT Lorenzo Regional Care (LRC) solution and, following the Cabinet Office major systems review in 2011/12, a new national contract for Lorenzo was agreed, which enabled the Trust to commit to Lorenzo with confidence. Approval of the Investment Case by the Trust Board in April 2013, together with approval to proceed by the (then) Health and Social Care Information Centre (HSCIC) culminated in a successful Trust wide go-live on 8th June, 2015. Alongside of Lorenzo, there have been a number of other important systems developments, all of which support the principles set out above.

The box right summarises the key achievements since the 2011 IM&T Strategy was approved.

Key achievements

Implementation of core Lorenzo throughout the Trust including ED, Requests and Results, Clinical Documents, Lorenzo Maternity, Lorenzo Advanced Bed Management (F&W), Lorenzo Electronic Prescribing (Ward 29) and Lorenzo GP e-viewer

Introduction of bedside e-Observations across 50% of the Trust

Implementation of Trust wide Business Intelligence system, linked to Lorenzo

Achievement of National Policy target for paperless e-Discharges to GP's

New, Trust wide voice recognition and digital dictation system

Implementation of a Trust Wide Managed print device service

Replacement network and unified voice and video service at Castle Hill.

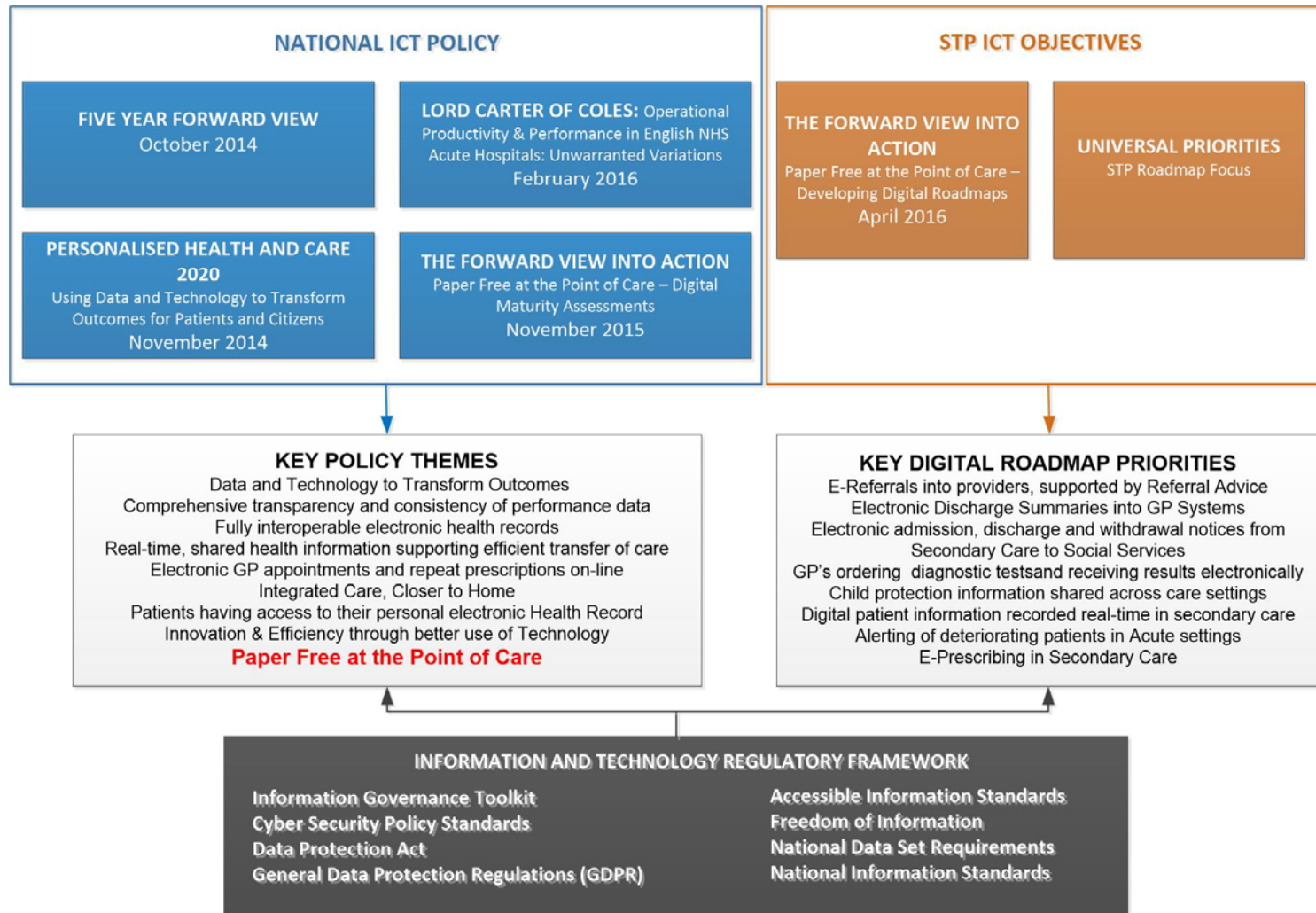
Patient WiFi Service launched at Castle Hill

Integration of Patient Administration into the Corporate ICT Directorate

In-house systems integration capability developed

7. NATIONAL POLICY CONTEXT

There have been a number of key policy initiatives since the Trust's previous strategy was approved. However, NHS technology strategy has not changed fundamentally since 2011 and continues to focus on: using Data and Technology to support sharing, improve efficiency, eliminate waste, enhance productivity, empower innovation and service re-design and transform outcomes. Recent national policy is more granular and explicit in terms of mandating what must be done. It also now places increased emphasis on organisational capacity and capability, security, governance, business resilience and delivering value. The main influences which shape our Digital Strategy are therefore:



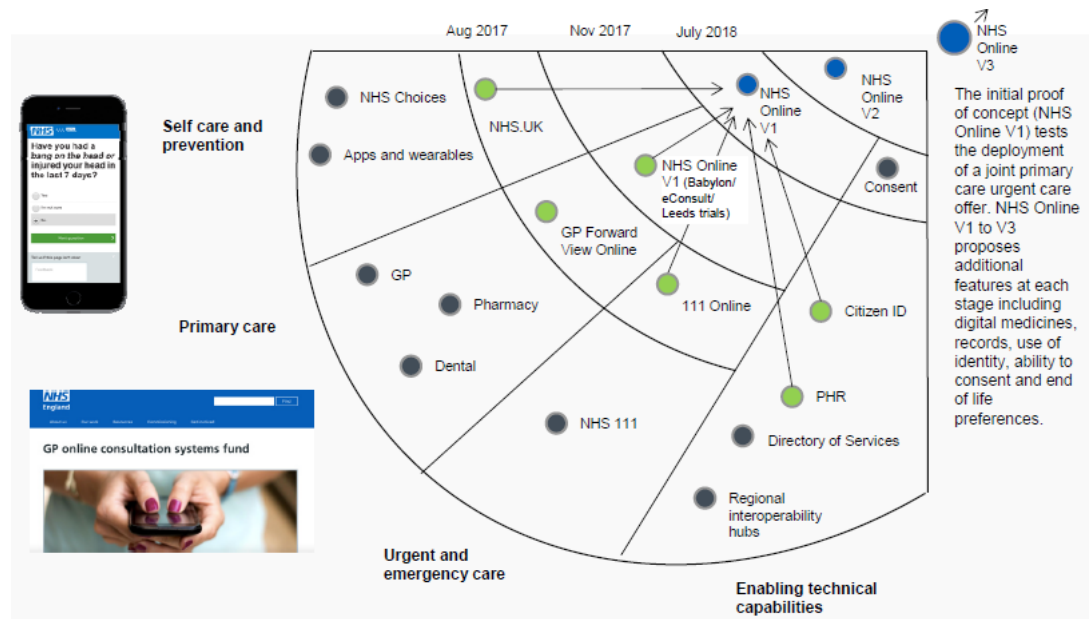
Digitisation is a key enabler to achieving national, STP and Trust visions and goals:

- **An Integrated Shared Record** – providing care professionals with a single electronic environment to access and share real time information about the treatment and care of service users, removing the limitations of paper records and enabling interactive care and rapid, informed decision making;
- **Out-of-hospital care models** – enabled by access to secure, relevant and accurate and comprehensive information, anywhere care is given
- **Self-managed Care** – empowering citizens by providing an interactive and secure environment within which service users can access their own personal records, interact with their care professionals and can take an active and empowering role in their own health and well-being;
- **Prevention** – giving service users access to meaningful, helpful advice and guidance, whenever and wherever needed;
- **Sustainable Hospital Care** – by maximising the transformational dividend from technology, eliminating waste, inefficiency, duplication and unnecessary tasks and removing barriers and delays.

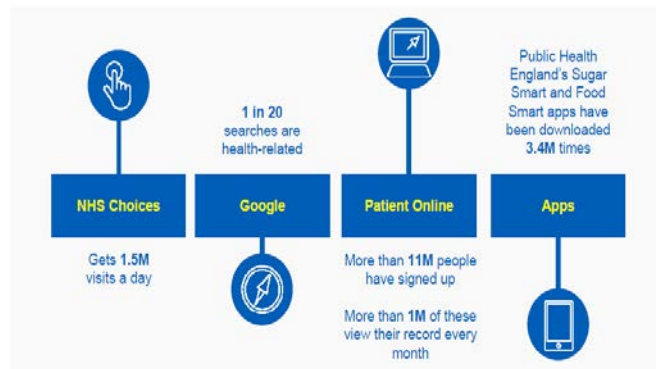
This Strategy sets out the way on which Hull & East Yorkshire Trust will address and deliver on national policy obligations, governance expectations and its own internal technology priorities. The initiatives and aspirations set out in this new Digital Strategy complement the STP priorities. By working closely with our partners through the local Digital Roadmap Programme Board we already contribute significantly to the direction of travel for STP level technology investments and developments. We will continue to further those relationships and promote a positive approach to future Digital Transformation in the region, for example the opportunity to connect our instance of Lorenzo to Humber Foundation Trust's instance.

8. NHS DIGITAL WORK PROGRAMME

NHS Digital is the Government Department responsible for driving progress with the 'digital agenda' in all its guises. Its aim is to help achieve the objectives set out in the *Five Year Forward View*: to improve health outcomes; to increase efficiency; to improve the patient experience. In addition to providing oversight of all NHS organisations response to compliance with national policy, NHS Digital is also charged with developing national digital services to meet the growing demand for access to support on-line such as access to health based information services, links to health apps, access to personal health records and to help patients manage conditions on-line. See box right.



Public appetite for digital health services



A key tenet of the NHS Digital Work Programme is to widen digital participation and inclusion. The diagram left shows how NHS Digital will progressively consolidate national digital services into one single point of entry (NHS Choices) that will provide the same digital experience for patients, no matter which device or service they enter the system on.

It is important that STP wide developments, together with organisation specific developments, are supportive of and complementary to, the NHS Digital work programme. All STP partners are responsible for implementing both collaborative and organisation specific technologies and services that encourage and support patient digital engagement.

For HEY this means Trust wide availability of patient wifi services, making information available to our staff 'on the move', staff able to access 'total' information about the patient and other digital services as part of carrying out their role and delivering care, staff able to access information and systems real-time, creating shared records accessible by all care-givers and able to support 'joined-up' care pathways, eliminating the restrictions, delays and risks around paper based systems, achieving paper-free at the point of care, enabling patients to access their hospital appointments, results and records digitally, offering e-consultations to avoid unnecessary hospital visits and enabling and empowering patients to play a role in managing their own care.

The HEY Digital Strategy makes a positive contribution to these objectives. For service users and their carer's, Hull & East Yorkshire Hospitals in-hospital digital services will support the objectives set out in the *Five Year Forward View* and will complement their out of hospital digital experience.

9. TRUST DIGITAL MATURITY REVIEW

In December 2015 NHS England launched the Digital Maturity Assessment (DMA) which was designed to measure each Trust's readiness to meet the challenges set out in the *Five Year Forward View and Personalised Health and Care 2020*. Specifically, were Trusts ready to deliver the following national policy objectives:

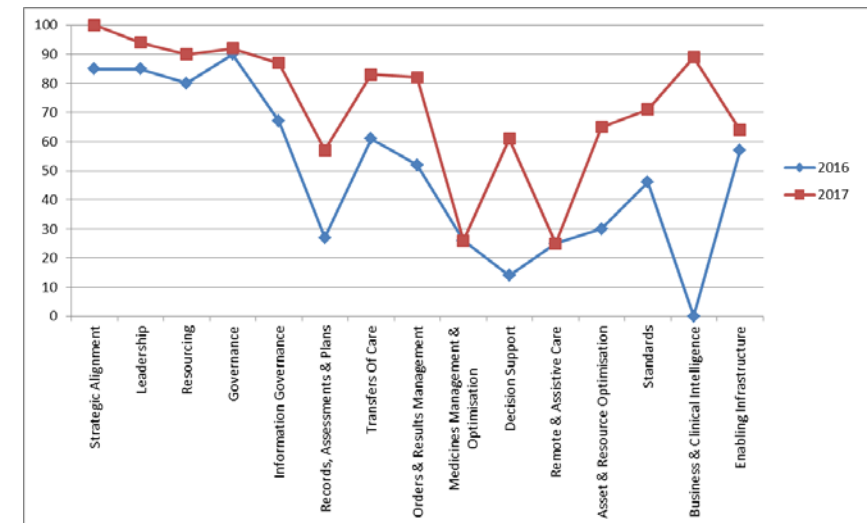
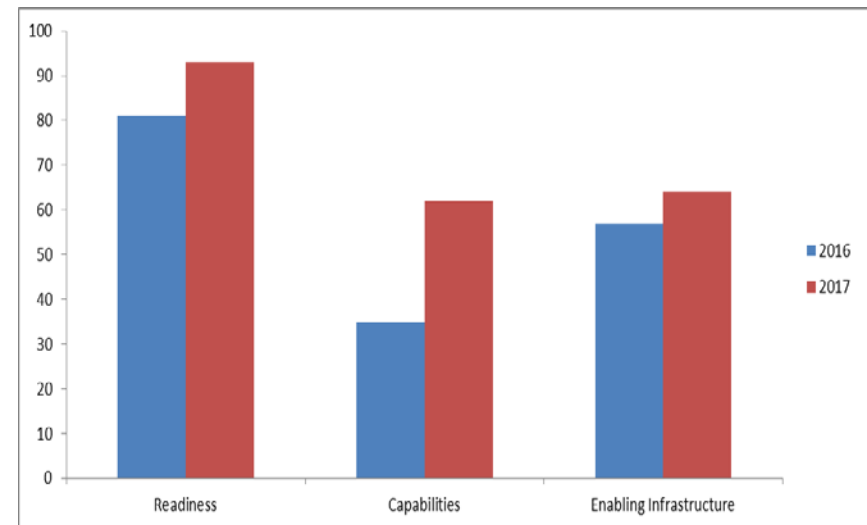
- *Using Data and Technology to Transform Outcomes*
- *Integrated Care, Closer to Home*
- *Innovation & Efficiency through better Use of Technology*
- *Interoperability: Joined up Systems; Shared information*
- *Paper Free at the Point of Care:*
 - *Readiness: Are providers set up effectively to deliver?*
 - *Capabilities: Do providers have the digital capability?*
 - *Infrastructure: Are the underpinning technological enablers in place?*

The results of the national assessment were published in early 2016. An updated follow-up DMA, with additional questions, was published in September 2017. It was designed to:

- *Track progress made since the first round of self-assessments and the reasons behind it*
- *Support planning, prioritisation and investment decisions within providers and STP footprints*
- *Provide a means of baselining / benchmarking levels of digitisation nationally*

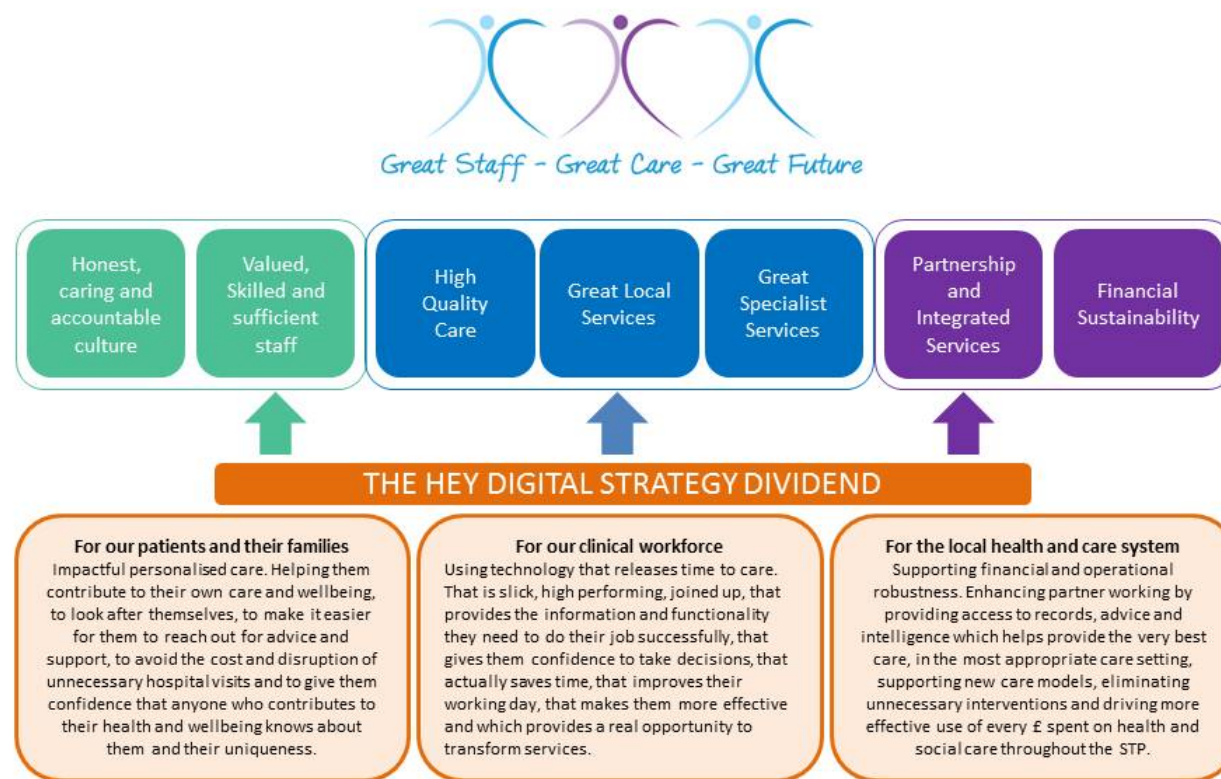
The updated Trust position (shown right) was completed with input from the Chief Consultant Information Officer, Nurse Director – Surgery Health Group, Senior Principal Pharmacist (e- Prescribing Project), Chief Pharmacist, Clinical Director Therapy & Therapeutics and Senior Scientist (Pathology). In summary:

- Lorenzo has had a significant positive impact on our scores
- There has been a 77% improvement in our digital capabilities index
- The biggest capability gains relate to Records, Assessments and Plans; Orders and Results Management; Decision Support; Asset & Resource Optimisation and Standards. Business Intelligence was not evaluated in 2016
- **Areas remaining static and requiring further progress are:**
 - **Medicines Management:** requires the full rust wide roll-out of ePMA
 - **Remote & Assistive Care:** requires e-consultations, remote monitoring, condition self-management tools (eg Patients Know Best)
 - **Infrastructure:** requires Trust wide network replacement, full roll out of Patient WiFi and increased Disaster Recovery/Business Continuity emphasis



10. LOOKING FORWARD - THE NEW TRUST DIGITAL STRATEGY: 2018 TO 2023

This Strategy sets the blueprint for our digital services over the next five years. It represents the second phase of the Trust's technology modernisation programme and builds on the progress so far. The Strategy supports the Trusts visions and goals and will make a positive contribution as depicted below:



The heart of the 2011 Strategy was to implement Lorenzo. Since go-live in June 2015 Lorenzo has become embedded in day-to-day working. Being able to access more information, cohesively, in one place, and sharing that more widely to improve clinical and operational decision making and transfers of care has made a difference. However, there is much more to achieve through our investment in Lorenzo and the complementary systems that sits alongside it. The formative phases have been about stabilising, embedding and optimising Lorenzo. As we move into the second phase of our digital vision, our focus is:

- *To become a truly digital organisation, driving value, performance, clinical excellence and operational sustainability*
- *To make a positive difference, to working lives of staff, to care partners and to those needing our services.*
- *To be outward looking & collaborative, underpinned by accessible, relevant, shared intelligence*
- *To deploy and exploit safe, secure, feature rich, high performing, and transformational technology.*

- *To have patient focussed systems and information, which support self-management, integrated care and new care models*
- *To give service users confidence that anyone who contributes to their health and wellbeing knows about them and their uniqueness*
- *To make it easy for service users to reach out for advice and support, however and wherever they need it.*

We have not yet fully exploited the significant positive impact technology can have on the lives of our staff and our patients. In tandem with other Trust developments, Lorenzo can open up new ways of working, internally and with our care partners, empowering clinicians and service users to think differently about how and where care and support is given and received. We know that through technology we can unlock the potential to break free from traditional ways of providing care and support. We know that technology can drive sustainability internally, across the STP and the wider NHS and Social Care landscape. Physical and technical boundaries can deprive people from getting the right care when and where they need it and reduce the efficacy and patient experience that goes with the service. We know that we can use technology to free patients from the inconvenience of unnecessary hospital visits, enhancing self-management, improving wellbeing and empowering patients to take control.

This Strategy is not simply about doing away with paper and sharing records 'digitally'. It is a mandate for changing the way we think and transforming how we work and how we care for our service users. Ultimately our vision for the future is to deliver a service to patient's that does away with the traditional boundaries, be they organisational, technical or human.

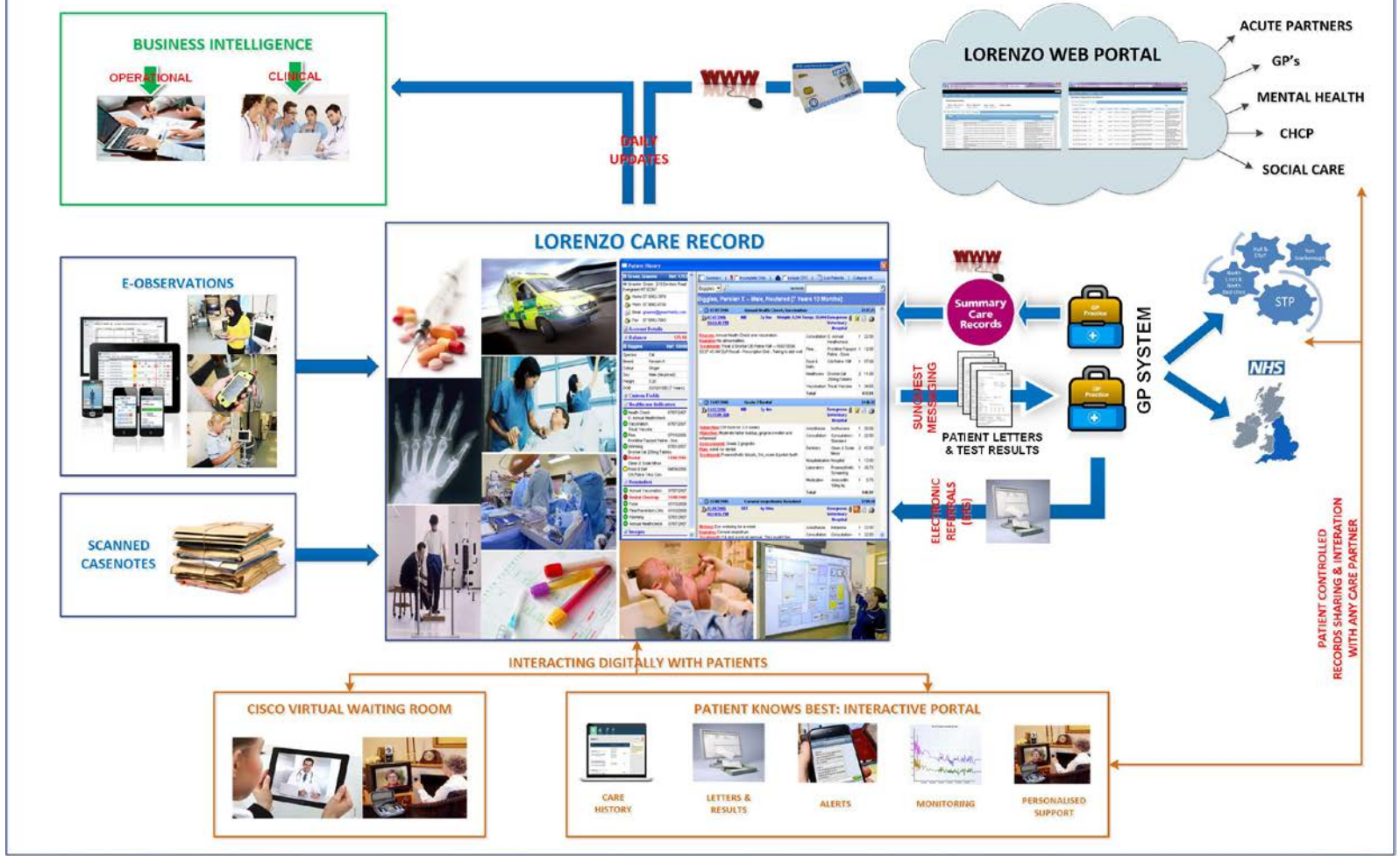
We aspire to become a leader in the use of technology, to remove boundaries through Digital Transformation, enabling information to flow seamlessly with the service user, through primary, secondary and social care services and beyond, supporting personalised care for every unique individual, wherever and whenever they need it.

The following sections describe how, *over the life of this strategy we will build on progress to date and create a digital environment which will:*

- *make a tangible, measurable and significant contribution to the Trust achieving its Vision, Values and Long Term Goals;*
- *contribute to the delivery of The Humber Coast and Vale STP service development priorities, support collaboration and mutual accountability and support the achievement of the following key objectives: Health & Wellbeing; Care & Quality; Finance & Efficiency;*
- *enable the Trust to achieve National Digital Policy objectives*

For Hull & East Yorkshire Hospitals, the foundation for sharing key patient information quickly, securely and comprehensively is our unified electronic care record, with Lorenzo at its heart. This is depicted in the box overleaf.

DELIVERING NATIONAL POLICY FOR PAPER FREE AT THE POINT OF CARE: THE KEY STRATEGY FOR SHARING INFORMATION ELECTRONICALLY WITH CARE PARTNERS AND PATIENTS



11. FUTURE DEVELOPMENT OF THE LORENZO CARE RECORD

The extant IM&T Strategy was approved in November 2011. Lorenzo is the cornerstone of that strategy, 'going-live' throughout the Trust on 8th June 2015. Lorenzo sits at the heart of the 'business', is fully embedded into clinical workflow and feeds our bespoke Business Intelligence service, via which clinical and operational reports are produced and shared with care partners to support more efficient and coherent clinical management. It is the key system for managing our patient's care journey in the Trust, for managing activity, for planning, enacting and recording clinical treatment and for national and corporate reporting.

Via Lorenzo we have expanded and digitised the information we share with GP's, improving the visibility, timeliness and richness of information about their patients. Alongside of the e-transfer of Immediate Discharge Summaries from Lorenzo directly into GP systems, and the ongoing programme for outpatient e-correspondence, HEY has developed a GP-Lorenzo viewer via which, subject to appropriate security checks, GP's can view key patient information. Lorenzo has also allowed us to integrate the Summary Care Record (SCR) into our clinical assessment processes, achieving the highest number of SCR patient medication and allergy 'lookups' nationally.

The functional development and enhancement of Lorenzo is ongoing and, over the life of this Strategy, we will:

- *Complete the Trust wide deployment of Lorenzo Electronic Prescribing and Medicines Administration (ePMA)*
- *Decommission CAYDER and adopt Lorenzo Advanced Bed Management (ABM) throughout the Trust. This will provide slicker, integrated and intuitive pathway management, from referral to discharge, integrated into the EPR, with actions visible, traceable and reportable. Our vision is to enable care partners from outside of the Trust to interact with ABM, enhancing co-ordinated care models and improving patient flow.*
- *Develop a Lorenzo-Lite Portal for our staff to easily and quickly access key clinical information and to enable the current links to the old Patient Administration System to be decommissioned*
- *Implement Lorenzo Task Management to improve oversight and accountability along the patient journey*
- *Commit to Lorenzo Theatres, bringing theatres into the heart of the EPR, supporting integrated resource allocation, contributing towards GS1 compliance and enabling ORMIS to be decommissioned*
- *Complete the roll-out of NerveCentre e-OBS throughout the Trust, positioning e-OBS alongside of Lorenzo through enhanced integration.*
- *Build on the digitisation 'proof of concept' initiatives in Breast, Cardiology and ED and drive paperless working throughout outpatients and inpatients*
- *Continue to build a richer Lorenzo care record through integration of key 3rd party clinical systems, including the adoption of Fast Healthcare Interoperability Resources (FHIR) Standards*
- *Support the wider data sharing across the STP community through promotion of the use of the enhanced Summary Care Record.*
- *Manage the transition process at the end of the Lorenzo Local Service Provider (LSP) Contract which expires in June 2021*

11,000 registered users 5,500 individuals logging-in each month 200,000 total log-ins	350,000 Emergency Department contacts processed
420,000 In-Patient Episodes processed	2.5m Out-Patients processed
Over 1m Referrals processed	650,000 Radiology Orders processed
2.6m Pathology Test Orders processed	800,00 transactions processed by our Integration Engine daily Over 700m messages processed since go live
300,000 Medication histories checked via the Summary Care Records	700,000 Immediate Discharge Letters sent electronically to GP's

In 2016 the Government launched the Global Digital Exemplar (GDE) Programme. A Global Digital Exemplar is an internationally recognised NHS provider delivering exceptional care, efficiently, through the use of world-class digital technology and information. NHS England is currently supporting 16 digitally advanced acute trusts, seven Mental Health Trusts and three Ambulance Trusts to become Global Digital Exemplars over two to three and a half years. Exemplars will share their learning and experiences to enable other trusts to follow in their footsteps as quickly and effectively as possible.

In autumn 2017, NHS Digital launched the Lorenzo Digital Exemplar Programme (LDE), via which Trusts using the Lorenzo EPR, provided by DXC under the Local Service Provider (LSP) contract, could apply to become a Lorenzo Digital Exemplar in their use of technology enabled adaptive change. This complements the Global Digital Exemplars programme in that it requires successful Exemplars to inspire and help educate others by demonstrating how successful adoption of technology can deliver both improved patient outcomes and increased operational effectiveness.

An LDE Expression of Interest Bid was approved by the Trust Board in October 2017, which is underpinned by a commitment to provide resources and funding to meet the ambition set out in the bid, the core objectives of which are to:

- *Accelerate the pace of transformational change throughout the Trust, delivering significant benefits, quicker.*
- *Deliver an electronic patient-centric care record which supports effective clinical management, 'joined-up' care and clinical excellence throughout the STP*
- *Maximise the dividend from technology; eliminate the reliance on paper records; deliver end-to-end electronic processes from referral to discharge*
- *Extend the scope of e-records sharing with care partners. We will examine the feasibility of bridging our instance of Lorenzo and Humber Foundation Trust, who also use Lorenzo. This would enhance end to end care between our two organisations, reducing paper transactions and enabling a holistic view of patients with complex physical and mental health requirements*
- *Deploy technology which supports interaction with service users, gives patients access to their electronic hospital records, correspondence and results and supports assisted self-care and admissions avoidance*
- *Achieve HIMSS Level 7 capability*

In December 2017 Hull and East Yorkshire Hospitals NHS Trust was selected by NHS Digital to become one of four national Lorenzo Digital Exemplars alongside of Royal Papworth Hospital NHS Foundation Trust, North Staffordshire Combined Healthcare NHS Trust and Warrington and Halton Hospitals NHS Foundation Trust. These four Trusts will share circa £10m of support funding, which is provided in the form of resources from DXC. The planning phase is underway, following which an Investment Case, Benefits Case and Mobilisation Plan will be submitted for approval to the Trust Board and to NHS Digital.

The LDE award is reflective of the success that the Trust has had with its Lorenzo implementation. We are already making digital transformation a reality in the Queens Centre for Oncology and Haematology. This specialised hospital is mobilising to become an entire digital hospital by summer 2018. The success of this programme will not only transform our oncology services, where e-prescribing of specific medications is already ahead of the wider Trust, but it will serve as a beacon of success for the rest of the Trust to aim for. It captures the essence of the vision and willingness of HEY to reap the benefits of being a Lorenzo Digital Exemplar.

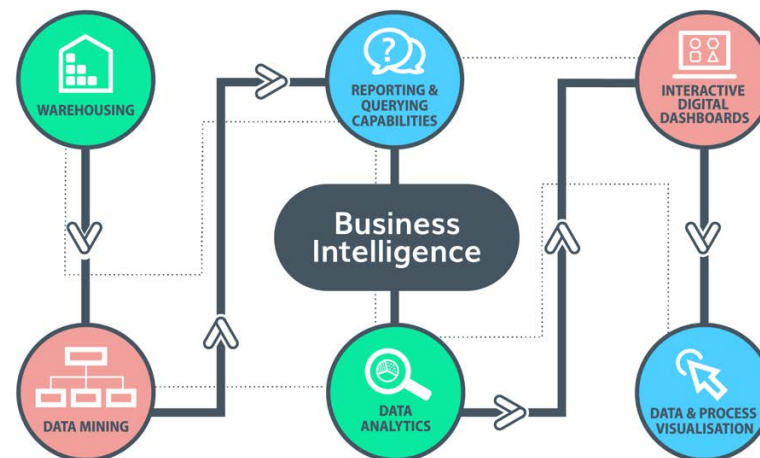
12. DEVELOPING BUSINESS INTELLIGENCE CAPABILITY

The 2011 strategy set out a vision to implement a Data Warehouse prior to implementing our new EPR in preparation for handling the large amounts of data generated by Lorenzo. Alongside this, a review was undertaken around what technologies and systems were available to support the provision of real time reporting, complemented by dashboards to aid operational decision making and performance.

The Trust invested in a third party Data Warehouse and Business Intelligence (BI) system to give the organisation a foundation from which to store all of its data from various sources and build its reporting capability. That system, Acute Health Data Enterprise (AHDE) from Insource, provides HEY with the tools and capability to meet its national and local reporting obligations, including national activity datasets, and to provide a suite of internal reports and dashboards to support effective governance and performance management.

As at 2017 the Data Warehouse holds over 800 tables of data, including datasets from Lorenzo, including:

- Referrals
- A&E
- Outpatients
- Inpatients (Wards, Critical care etc)
- Clinical Coding
- Maternity
- RTT
- DTOCs
- Radiology
- Pathology
- Clinical Correspondence (letters)
- Specialty specific Lorenzo Clinical Data Capture (CDC) Forms
- Commissioning datasets
- SLAM (Finance and Contracting Activity System)
- Datix (Risks & Complaints System)



Acute Health Data Enterprise (AHDE) is the prime system for supplying the organisation with a suite of information, reports and dashboards. In a typical month our reports are viewed by over 350 unique users, examining around 20,000 individual report views. Of these reports, 40% are data quality operational monitoring reports which contain Patient Identifiable Details (PID). HEY has supplemented the core AHDE product by creating a real-time flow of information from Lorenzo. A suite of over 600 reports / dashboards are in use across the organisation, many of which are used daily to aid operational processes and support decision making:

- real-time dashboards for **A&E**, including **Patient Journey Analytics** (ribbon graphs)
- real-time **Bed Management** updates to aid patient flow management
- a portal for **GP's** to access their patients current status, test results and correspondence
- **Referral-to-Treatment (RTT)** dashboard, including forecasting (approved by the IST and shared nationally as best practice)
- **Demand and Capacity** Models

Becoming a Digital hospital will result in increased demand on BI Reporting services to provide insightful information to aid day-to-day decision making, as well as give an overview on overall performance. Looking ahead, our strategy is to build on the foundations that have been laid, through the expansion of datasets being fed into the warehouse

and BI Reporting system, and to align Activity, Financial, Workforce and Quality metrics from one source. *Over the life of this Strategy we will expand the range of data feeds into the Data Warehouse & BI system to include:*

- *New Radiology Information System*
- *EPMA (e-prescribing)*
- *Advanced Bed Management & Whiteboards*
- *Theatres & Scan-4-Safety System*
- *E-observations*
- *Finance Costing information*
- *Workforce information*
- *Patient flow/pathways*
- *Clinical Indicators & Activities*
- *Other Quality/Safety metrics*
- *Additional clinical data (via CDC forms)*
- *Care Plans*

Through our Data Warehouse and BI reporting system the organisation has access to a rich suite of information to aid decision making both at an operational and strategic level. In addition to increasing the range of data and expand the reporting suite, *over the life of this Strategy we will address the requirement to:*

- *Develop better forecasting models*
- *Develop and adopt predictive analytics,*
- *Introduce more data linkages between systems*
- *Increase the sharing of datasets with other agencies*

Alongside of these local developments, some significant national strategy drivers dictate what the Trust needs to be in a position to do. *Over the life of this Strategy we must:*

- *Reduce reliance on manual data submissions through the means of manual returns and move to automation of data uploads via datasets.* There is a drive to have information flowing more frequently from Trusts directly into national repositories such as SUS/HES, and therefore Trusts have to ensure they have robust systems in place to manage this process going forward
- *Respond to and implement change existing datasets.* The priorities that have been set are:-
 - *Emergency Care Dataset (ECDS)*
 - *Maternity Dataset (MSDS)*
- *Migrate to SNOMED CT as a single coding structure throughout health and social care by 2020.* This will have a significant impact on Trust processes and reporting.

Finally, in order to support the demands of users in an increasingly digital age for richer, more complex and more bespoke information, it is vital that the IM&T workforce develops and maintains the specialist skills required and have access to the latest business products and tools. This requires investment in resource, products, tools and training. Over the life of this Strategy, we will develop and maintain a highly skilled and motivated workforce through:

- *Investment in bespoke training packages for staff to use SQL and other programming tools to develop systems and apps*
- *Investment in technologies and software such as Microsoft Power BI (an industry wide standard) as a tool to analyse and present data*
- *Launch an education programme for our key staff on the use of Business intelligence to support decision making*

13. TECHINCAL DEVELOPMENTS: INFRASTRUCTURE & SERVICES

Our aspiration to be an exemplar in the use of technology, to improve the working lives of our staff, to make it easier for them to do their jobs, to remove the drudgery of repetition, to eliminate time wasted on inefficient or unnecessary tasks, is predicated upon having access to technology which makes it possible to achieve this vision. The systems, applications and developments set out in this Strategy all require modern, resilient, high-performing infrastructure which makes it easy for users to access and exploit those services.

The 2011 Strategy included a commitment to fully replace the Trust's ageing data network and telephone system, which together provide the data and voice services upon which the Trust relies in order to function. The total combined capital cost of the investment is circa £7m. All existing network components are being replaced and connected to a new, higher bandwidth, backbone with enhanced links between sites. The wifi service is being replaced with greater capacity and reach, including the provision of a guest wifi service. The old telephone system is being replaced with a new, digital, unified communications service which becomes a constituent part of the network. In future, voice, video and messaging will be software applications delivered over the network. The replacement programme commenced in 2016/17, focussing initially on the Castle Hill campus which is now 60% complete. A new guest wifi service was launched in October 2017 and will be progressively rolled out across the whole Trust alongside of the new network.

Alongside of the core infrastructure, this Strategy will address the needs of users as digital services become ubiquitous. Having access to computers, being able to log onto personalised services quickly and easily, delivering a consistent and portable user experience are all now critical to staff carrying out their roles effectively and safely.



Over the life of this Strategy therefore, we will:

- *Complete the total replacement of the Trusts Data Network and Telephone across all Trust buildings and sites.*
- *Roll-out patient wifi services, in line with national policy, to all areas of the Trust*
- *Complete the transition to a fully digital Trust wide unified voice and video service, supporting MDT's and virtual clinics*
- *Decommission the in-house Exchange service and transition to NHS Mail by 30th June 2018*
- *Procure and implement the Yorkshire and Humberside Public Sector Network (YHPSN) solution as a replacement for N3*
- *Procure and deploy a Single Sign-On 'one password' solution for staff, linked to Smart cards, using 'tap and go' to speed up access to spine authenticated systems (eg Lorenzo / SystemOne / ESR)*
- *Deploy Windows10 across the desktop environment and continue to refresh our desktop estate to enable new applications to be successfully deployed. Alongside of that we will commit to reviewing the costs and benefits of deploying a 'virtual desktop' solution to both support agile working and reduce the lifecycle replacement cost of desktops*
- *Review the opportunities and benefits of off-site cloud hosting services in line with emerging NHS Digital Policy*
- *Improve and evolve our Cyber Security approach; enhance our current technical defences to include software asset and security patch management; create a dedicated IT security management team*
- *Develop our Business Resilience governance framework and Disaster Recovery capability*

14. DEPARTMENTAL SYSTEMS: KEY STRATEGIC DEPLOYMENTS

A core tenet of our digital vision is that Lorenzo is the prime system via which we collect data, manage patient pathways and report on activity. Silo'd departmental systems are not permitted, and the ongoing development of Lorenzo will take precedence over procuring new systems. However, there will always be a need for other major clinical or patient facing systems where they are unique to a clinical service, are critical to the safe and effective running of that clinical service and have functionality which cannot be replicated in Lorenzo. The following strategic system deployments have been identified as priority requirements. This is not a definitive list and may in future be affected by, for example, NHS policy, STP plans or supplier decisions to cease supporting existing systems.

SYSTEM / SERVICE	PROJECT STATUS	BACKGROUND / CONTEXT
Clinical Imaging Capture and Reporting	Project in-flight	Following the award in 2017 of a 10 year contract with AGFA as part of an eight Trust Yorkshire collaborative, HEY will deploy a next generation hardware platform and Enterprise Imaging (EI) solution to replace its current PACS. The full work programme will be completed in 2018/19. A workflow and image sharing solution will be implemented across the STP to improve reporting turnaround, operational efficiency, clinical effectiveness and patient safety.
Cardiology Management System	Project in-flight	The current CMS (GE CARDDAS) goes end-of-life in December 2018. A procurement exercise is underway following approval of the OBC and the project will be completed by the end of Q3 - 2018.
Scan4Safety	Project in-flight	Following approval of the OBC in 2017 HEY has procured the Genesis Scan4Safety solution to improve care and safety by tracking and tracing consumables, implants, etc used in treatment of patients. This is a new national initiative and does not replace an existing system.
Patient's Know Best (PKB)	Pre-Approval Phase	PKB is the system of choice for the Trust to meet its Accessible Information and Records Sharing obligations for patients. In addition to being a secure vehicle for records sharing, it supports self-managed care and enables service users to interact with care givers without the need for hospital visits. A Business Case is being prepared. Subject to approval, deployment is planned for Q2 2018.
Diabetes SystemOne	Pre-Approval Phase	HEY will decommission the current Diabetic Department system and adopt the SystemOne. This enables more cohesive management of the treatment programme and supports STP wide plans for Diabetic care
Lorenzo Theatres	Pre-Approval Phase	HEY intends to decommission the current ORMIS system and deploy the fully integrated Lorenzo Theatres solution. This supports more coherent management of the patient throughout their acute journey and improved control of theatre resources.
Pathology Laboratory Information System (LIS)	Planning Phase	HEY will need to replace the LIS during the life of this strategy. Discussions are underway with STP partners, led by the Head of Pathology, to establish a LIS procurement collaborative and future operating model. This will drive economies of scale and provide the basis for a single Pathology Record.

15. CAPITAL PROGRAMME 2018 – 2021

The IM&T Capital Programme provides investment in new systems, developments and services. It funds major projects such as the new Network & Telephony system, the replacement of the Cardiology and Pathology clinical systems, Lorenzo e-Prescribing, Lorenzo Theatres, NerveCentre e-Observations and the Patients Know Best system.

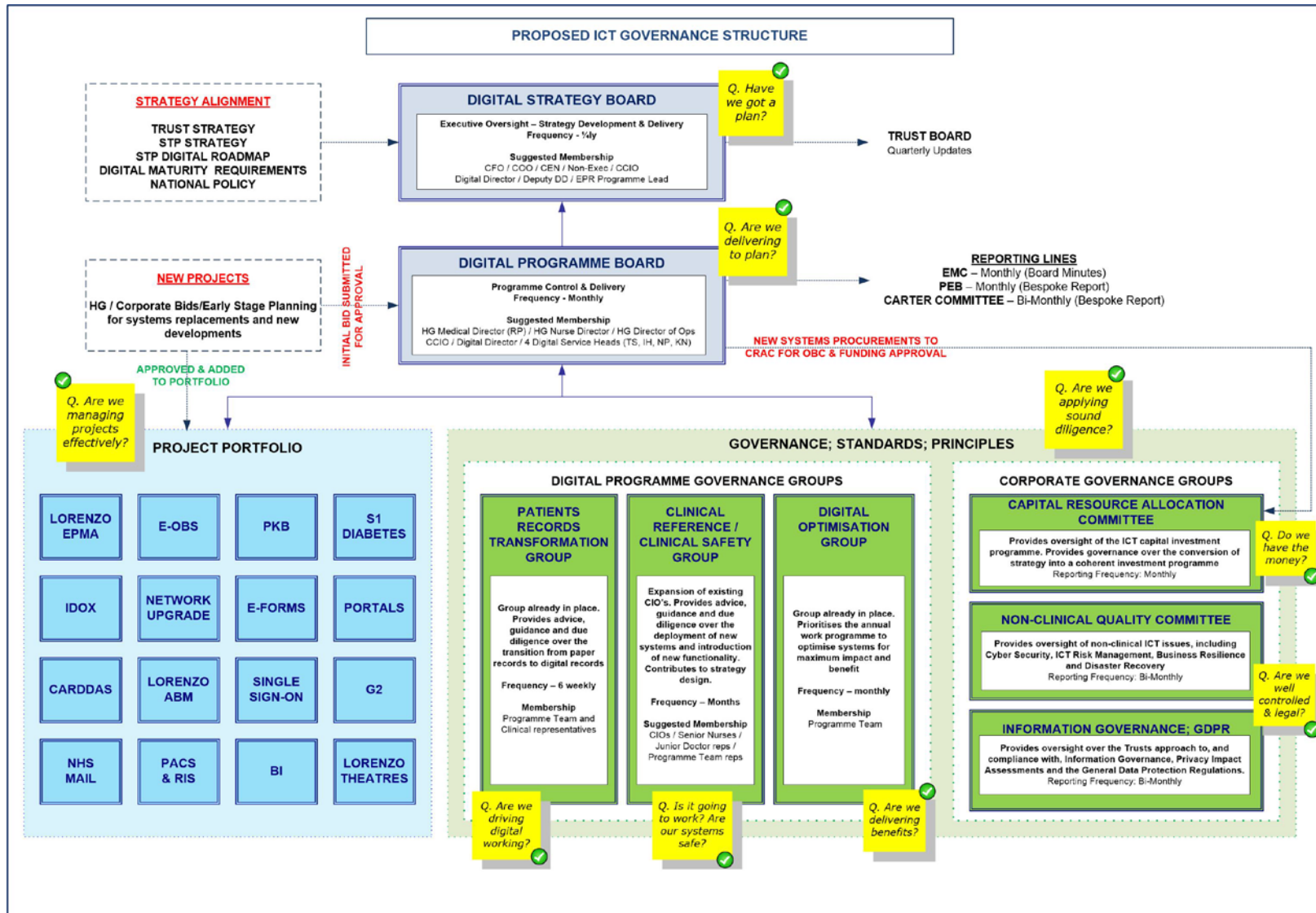
It also funds developments and upgrades to existing systems, such as the Lorenzo-Lite e-viewer, Business Intelligence reporting developments, enhanced Lorenzo integration and the new Pathology NPEX Lab-2-Lab Connectivity system.

The final component of the Capital Programme provides investment for a rolling programme of infrastructure upgrades and replacements which enables a phased decommissioning programme for end-of-life servers and desktops hardware and also to meet year on year capacity increases.

Looking ahead, the outline Capital Investment programme reflects the vision and intentions set out in this Digital Strategy. It will be refined as procurement intentions and costs become clearer. The IM&T Capital Programme is reviewed and approved by the Trust Capital Resource Allocation Committee and is subject to affordability review in the context of overall Trust finances.

16. COMPLIANCE AND GOVERNANCE FRAMEWORK

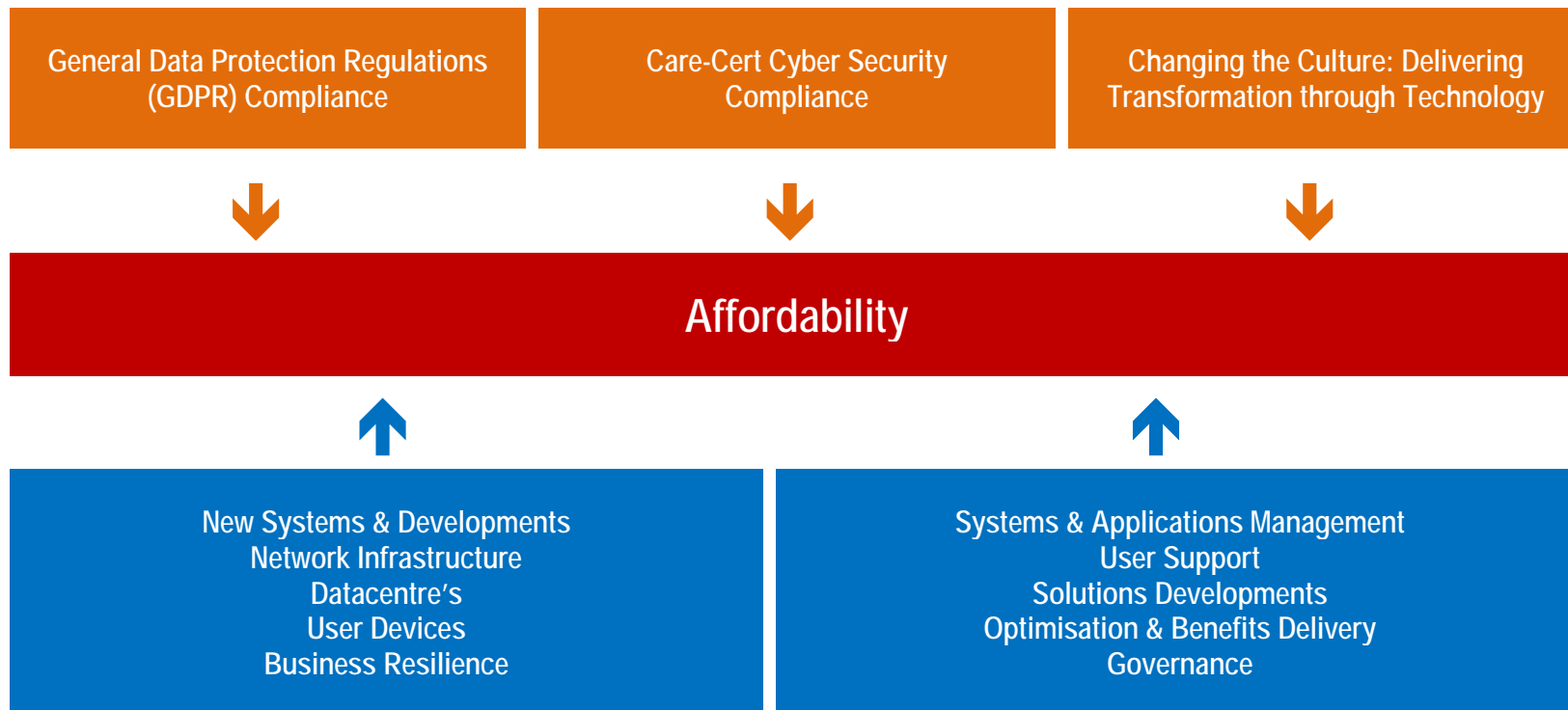
The governance framework depicted below provides effective oversight and development of the Digital Strategy and of the delivery of its core components and projects. This will be reviewed by the Trust's new Digital Director in Q1 of 2018/19.



17. STRATEGIC CHALLENGES AND RISK'S

Our Digital Strategy sets out an ambitious programme of investments and developments which will enable the Trust to comply with relevant Policy, to play a leading role in the achievement of the STP Digital Roadmap and which delivers the digital technologies which underpin the Trusts vision and goals. Technology is pervasive and is now critical to running our 'business'. We rely on our systems being secure, safe, always available, with problems resolved quickly 24 hours a day. This criticality is reflected in emerging legislation, with an increased focus on the security of data, the protection of business systems and the resilience of the Trust in the face of increased cyber-risks.

To meet these obligations requires significant investment and resources, set against a background of financial pressure and affordability throughout the NHS. The biggest technology related *challenges* facing the Trust are therefore:



ICT risks are managed at System, Project, Programme and Corporate level. There are many specific risks to the achievement of this Digital Strategy but fundamentally, the ability to successfully comply with GDPR and Cyber-Security obligations and to exploit the transformational opportunities from technology is dependent upon investment in systems, infrastructure and human capacity. Affordability is therefore the single biggest *risk* to our ability to deliver the Digital Strategy, as summarised in the tableau below.

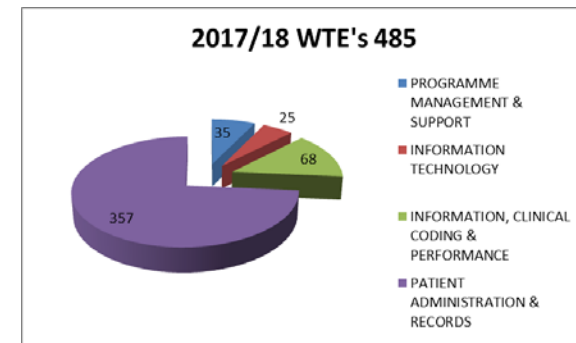
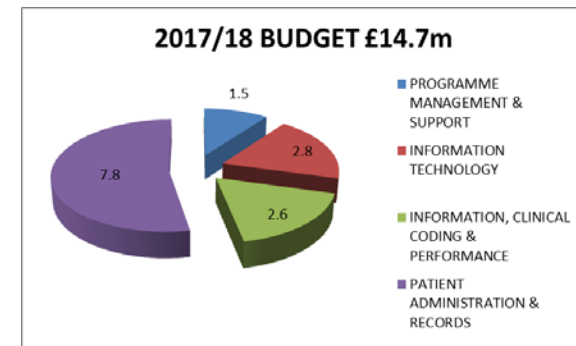
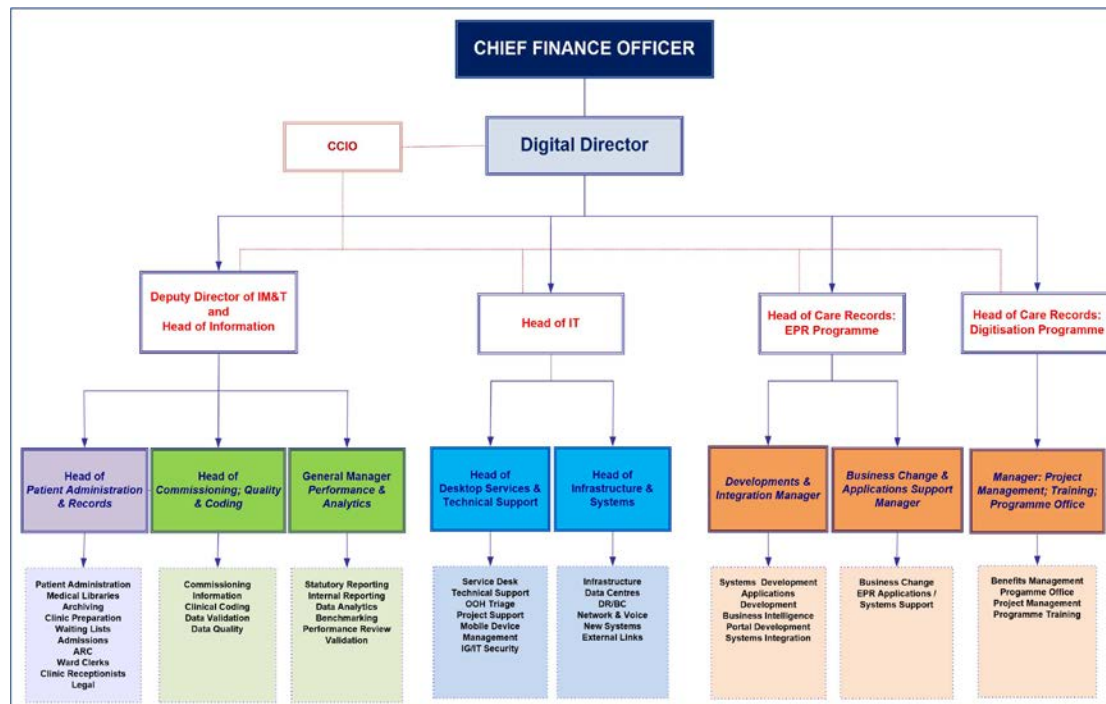
	Affordability Challenge	Mitigating Actions
Financial Risk: Capital Investment	<ul style="list-style-type: none"> • The ICT Capital Investment Programme is IRO £14m over the next 3 years, and has an affordability gap of IRO £8m. • Fixed term project posts need to be made permanent when the project moves into Business As Usual. Circa £560k of project support costs are currently charged to Capital. • Technology is a catalyst for change, but technology is often an enabler for change and does not generate a pay-back itself. • Cash releasing benefits are not guaranteed: the impact on staff is not always positive; not everyone will embrace new technology; not everyone will change the way they work. 	<ul style="list-style-type: none"> • Prioritise projects with a quicker payback. • Rigorously pursue and implement transformational opportunities. • Mandate the adoption of, and adherence to, new working practices (ie adoption of digital forms). • Re-phase or slow down the procurement and deployment of new products and systems in line with capital funding availability. • Re-invest a proportion of cash-releasing benefits into ICT capacity.
Financial Risk: Revenue Costs	<ul style="list-style-type: none"> • New systems and technologies are invariably costlier to maintain and support. • New technology does not inevitably make life easier. • National Policy dictates that more data is collected as part of the treatment process, all along the care pathway. This may be more complex and onerous. • Product functionality does not always deliver a user friendly solution. • ICT Support costs will increase in line with the increased technical complexity and the interdependency of multiple systems. There is a need for more stringent testing, assurance and reporting regimes, with extra support demands. • User expectations outstrip technical support capacity. • Not all systems are supported out-of-hours (OOH). • There are insufficient ICT staff to support OOH rotas which incorporate the breadth of skills or speed of response needed. • The total ICT resource shortfall to deliver the expectations in this strategy is currently IRO 35 wte's. 	<ul style="list-style-type: none"> • Accept and plan for the dis-benefit of new technologies • Over time, adapt the Strategy to recognise that some functional desirables will be technically difficult or unaffordable. • Review ICT technical resources deployed throughout the Trust and develop consolidation plans Pursue STP partnering / consolidation opportunities • Review the criticality of all Trust systems. Determine the level of risk acceptance and obtain sign-off by the Trust Board. Establish a priority restore programme based on that.

18. IM&T DIRECTORATE PROFILE

The Trust's IM&T service sits within the Corporate Services Directorate, reporting to the Chief Finance Officer. Following the launch of Lorenzo in June 2015, Patient Administration was subsequently transferred into IM&T from Clinical Support in April 2016 in order to create a coherent framework via which to drive the transition from paper based records to a digital care record based around Lorenzo. IM&T is structured across three service lines:

- *IT*
- *Programme Management, Development & Support*
- *Information, Clinical Coding, Performance and Patient Administration*

The current structure and high-level operational metrics are set out below. The structure will be reviewed following the appointment of the new Digital Director.



The Corporate IM&T service is responsible for the Digital Strategy and for deploying, managing and supporting the Trust's core infrastructure, Data Centres, Lorenzo EPR and most corporate systems. Corporate IIM&T is not currently responsible for the following major clinical systems: Oncology; Pharmacy; Pathology and Radiology. The governance benefits from consolidating departmental systems management under a single corporate umbrella will be reviewed as part of the Digital Strategy.

19. GLOSSARY

API	Application Programming Interface: a set of functions, procedures and clearly defined methods of communication between various software components that allows the creation of applications which can access the features or data of another system, application, or other service.
BI / AHDE	Business Intelligence Acute Health Data Enterprise is the system which HEY uses to meet internal and external reporting obligations, from statutory and non-statutory submissions through to performance dashboards and analytics.
CareCERT	NHS Digital has been commissioned by the Department of Health to develop a Care Computer Emergency Response Team (CareCERT). CareCERT provides advice and guidance to support health and social care organisations to respond effectively and safely to cyber security threats.
CLINICOM / PatientCentre	CLINICOM / PatientCentre is the Trust EPR that was implemented in 1999 and replaced by Lorenzo on 15 th June, 2015. Key information from CLINICOM / PatientCentre is available to Trust clinicians alongside of Lorenzo, giving them access to around 18 years of patient information electronically.
CLOUD	Cloud computing is the practice of using a network of remote servers, hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer.
DATASETS	NHS National Datasets define a standard set of information that is generated from care records, from any organisation or system that captures the base data. They are structured lists of individual data items, each with a clear label, definition and set of permissible values, codes and classifications. From this, secondary uses information is derived or compiled, which can then be used to monitor and improve services. Organisations are mandated to implement and to ensure that information systems have the ability to comply with Data Set requirements by specific due dates. Key recent Datasets are the 2017 Emergency Care Dataset (ECDS) and the 2018 Maternity Services Dataset.
DMA	The Digital Maturity Self-Assessment is a survey which measures how well providers in England are making use of digital technology to achieve a health and care system that is paper-free at the point of care. It was initially launched in 2016 and will be repeated annually. It helps individual organisations identify key strengths and gaps in provision of digital services at the point of care and provides insight into how well the country is doing as a whole.
e-PMA / IPPMA	Lorenzo Electronic Prescribing and Medicines Administration system (e-PMA) was formally known as In-Patient Prescribing and Medicines Administration. The Lorenzo e-PMA application provides a fully integrated 'end-to-end digital approach to patient-centred medication management. It supports compliance with relevant regulations. Prescribers have accurate and current information about patients to inform their decisions, and the solution is underpinned by recognised standard drug databases. Combined with decision support, this helps prescribers and other clinicians reduce avoidable medical errors, and promotes cost-efficient and clinically effective prescribing.
EPR	The NHS defines the Electronic Patient Record as "an electronic record of periodic health care of a single individual, provided mainly by one institution" The implementation of an EPR enables a Trust to create a 'whole hospital record' via which staff can access and record key information relating to pathway management (from referral to discharge) and the treatment process across all hospital services and departments. The Trust EPR is Lorenzo Regional Care.
e-RS	The NHS e-Referral Service (e-RS) combines electronic booking with a choice of place, date and time for first hospital or clinic appointments. Patients can choose their initial hospital or clinic appointment, book it in the GP surgery at the point of referral, or later at home on the phone or online. The e-RS replaced Choose & Book and from April 2018 and is the mandated mechanism for referrals into acute Trusts from April 2018.
ESR	The Electronic Staff Record (ESR) is an integrated 'hire to retire' workforce management solution for NHS Organisations. ESR functionality extends beyond core HR and Payroll. It is the core tool for both managers and employees. Self Service functionality gives every ESR user the ability to manage their own data.
FHIR	Fast Healthcare Interoperability Resources (FHIR) is a draft standard describing data formats and elements and an application programming interface (API) for exchanging electronic health records. FHIR builds on previous data format standards from HL7 but is easier to implement because it uses a modern web-based suite of API technology. FHIR aims to facilitate interoperability between legacy health care systems, to make it easy to provide health care information to health care providers and individuals on a wide variety of devices from computers to tablets to cell phones, and to allow third-party application developers to provide medical applications which can be easily integrated into existing systems.
GDE	A Global Digital Exemplar is an internationally recognised NHS provider delivering exceptional care, efficiently, through the use of world-class digital technology and information. Exemplars will share their learning and experiences to enable other trusts to follow in their footsteps as quickly and effectively as possible. NHS England is supporting selected digitally advanced Mental Health, Acute and Ambulance Trusts to become GDE's.

GDPR	The General Data Protection Regulation (GDPR) is a legal framework for the collection and processing of personal information of individuals within the European Union (EU). GDPR sets out the principles for data management, the rights of the individual, and can impose fines that can be revenue based. The General Data Protection Regulation covers all organisations that deal with the data of EU citizens, so it is a critical regulation for corporate compliance. It builds on and complements the requirements of the Data Protection Act and NHS Information Governance Standards.
G2 Speech	G2 Speech is the Trust's Digital Dictation and Voice Recognition reporting system. It is linked to Lorenzo and is in use across all specialties. It is the default system used to produce clinical correspondence.
GS1 / SCAN-4-SAFETY	GS1 sets standards for identifying, capturing and sharing information about products, assets, services, people, locations, etc. GS1 standards deliver improved patient safety, regulatory compliance and operational efficiencies. The Department of Health has mandated that every service and product procured by an NHS Acute Trust in England must be compliant with GS1 standards by 2019/20. HEY has procured a GS1 Scan-4-Safety system from Genesis and has appointed a GS1 Programme Manager to oversee the implementation of this new service.
HIMMS	The Healthcare Information and Management Systems Society (HIMSS) is an American not-for-profit organisation dedicated to improving health care in quality, safety, cost-effectiveness, and access through the best use of information technology and management systems. HIMMS has developed a set of standards and certification criteria for EPRs / EHRs and have created an 8-stage model (0 - 7) that measures healthcare organisations on their progress towards achieving the ideal paperless patient record environment (Stage 7) with maximum interoperability between systems and incorporating electronic prescribing.
HSCIC	Health & Social Care Information Centre (HSCIC) is the national provider of information, data and IT systems for commissioners, analysts and clinicians in health and social care in England, particularly those involved with the National Health Service (England). The organisation is an executive non-departmental public body of the Department of Health and was re-branded as NHS Digital on 1 August 2016. See NHS Digital .
HSCN	The Health and Social Care Network (HSCN) is a new data network for health and care organisations which replaced N3. It provides the underlying network arrangements to help integrate and transform health and social care services by enabling them to access and share information more reliably, flexibly and efficiently. HEY will be purchasing its HSCN service under the Yorkshire & Humberside Public Services Network (YHPSN) umbrella. See YHPSN .
iFIT	iFIT (Intelligent File and Inventory Tracking) is a multi-purpose tracking and logistics management solution developed by Idox Health. iFIT significantly reduces the costs of managing medical records. iFIT is GS1 compliant and supports Scan4Safety.
LDE	The Lorenzo Digital Exemplar Programme complements the National GDE Programme but is specific to Trusts who have implemented Lorenzo Regional Care under the national contract. The LDE Programme aims to support a selected group of Lorenzo Trusts to become leaders in the use of digital technology and information to deliver exceptional care and operational efficiently. In common with the GDE, LDE Trusts will share their learning and experiences to enable other Lorenzo Trusts to follow in their footsteps as quickly and effectively as possible.
LDR	Local Digital Roadmaps set out how local health and care systems will achieve the commitments of the Five Year Forward View and Personalised Health and Care 2020 to use information and technology and make sure patient records are digital and interoperable by 2020.
LORENZO	Lorenzo Regional Care is the Trusts Electronic Patient Record (EPR). Lorenzo is linked to key clinical systems so that clinicians can see key information relating to each patient. It is the key system for managing each patient's care in the Trust, from referral to discharge, for recording clinical treatment and for reporting purposes.
N3	N3 is the national broadband network for the English National Health Service (NHS), connecting all NHS locations and 1.3 million employees across England. N3 was preceded by NHSnet and BT have deliver and managed N3 since 2004. N3 delivers national services such as Choose and Book (now ERS), the NHS Care Records Service, Electronic Prescriptions and the NHS Picture Archiving and Communications System. A new Health and Social Care Network (HSCN) will replace N3 the national healthcare network. It will be delivered by multiple suppliers, each adhering to an agreed set of standards. See HSCN .
NHS CHOICES	NHS Choices (www.nhs.uk) was launched in 2007 and is the official website of the National Health Service in England.
NHS CONNECTING FOR HEALTH	NHS Connecting for Health (CFH) Agency was part of the UK Department of Health and was formed on 1 April 2005, having replaced the former NHS Information Authority. It was part of the Department of Health Informatics Directorate, with the role to maintain and develop the NHS national IT infrastructure. It adopted the responsibility of delivering the NHS National Programme for IT (NPFIT). CFH ceased to exist on 31 March 2013, and some projects and responsibilities were taken over by Health and Social Care Information Centre.

NHS DIGITAL	NHS Digital (formerly HSCIC) uses information and technology to improve health and care. NHS Digital is the national provider of information, data and IT systems for commissioners, analysts and clinicians in health and social care. NHS Digital is an executive non-departmental public body, sponsored by the Department of Health.
NHSMail / NHSMail2	NHSMail is a secure email service approved by the Department of Health for sharing patient identifiable and sensitive information. Any organisation commissioned to deliver NHS healthcare or related activities can use NHSMail. NHSMail 2 is the latest version, delivered on behalf of the NHS by Accenture. NHSMail2 supports staff mobility and removes the need for individual NHS organisations to maintain and manage their own Exchange services.
NPfIT	The National Programme for IT (NPfIT) was an initiative launched in 2003 by the Department of Health in England to move the National Health Service (NHS) in England towards a single, centrally-mandated electronic care record for patients and to connect 30,000 general practitioners to 300 hospitals, providing secure and audited access to these records by authorised health professionals.
NCSC	The National Cyber Security Centre as set up to help protect the country's critical services from cyber-attacks, manage major incidents, and improve the underlying security of the UK Internet through technological improvement and advice to citizens and organisations. The NCSC has developed guidance on how organisations can protect themselves in cyberspace, including the 10 steps to effective cyber risk management. This is the control framework against which NHS organisations are measured.
NERVECENTRE e-OBS	NERVECENTRE is the system clinical staff will use to carry out electronic bedside observations of vital signs. It reduces clinical risk and supports operational efficiency by eliminating paper observations charts. It automatically calculates Early Warning Scores, provides early warning of deteriorating patients and alerts clinical staff to the need for intervention.
PKB	Patient's Know Best (PKB) is a user friendly system which allows patients to see their medical records, correspondence, test results, appointments on-line, securely. PKB supports on-line interaction between doctors and patients and enables them to take an active role in managing their own health and wellbeing.
SCR	The NHS Summary Care Record (SCR) is an electronic patient record, a summary of National Health Service patient data held on a central database covering England, the purpose of which is to make patient data readily available anywhere that the patient seeks treatment, for example if they are staying away from their home town or if they are unable to give information for themselves. Since 2010 the record has been available, holding only the essential medical information relating to medication, allergen and drug reactions. Clinicians in HEY can launch the SCR from within a patient's Lorenzo record, enabling easy rapid validation of medication and allergy history. HEY carries out circa 17,000 SCR checks per month.
SNOMED CT	SNOMED Clinical Terms (CT) is a structured clinical vocabulary for use in an electronic health record, for clinical documentation and reporting. It is the most comprehensive and precise clinical health terminology product in the world. SNOMED is mandated for adoption in Primary care in 2018 and Secondary care in 2020. Lorenzo will need to be developed in order to accommodate the collection and reporting of SNOMED CT.
SSO	Single sign-on (SSO) is an authentication process that allows a user to access multiple applications with one set of login credentials. The SSO application brings together all separate systems passwords for a user under a single and in effect it gives the user a 'one password for all' experience.
VIRTUAL WAITING ROOM	The Virtual Waiting Room system support electronic consultations and support to the patient when needed, avoiding unnecessary hospital visits.
YHPSN	The Yorkshire & Humberside Public Services Network is a collaborative of public sector organisations who came together to procure a secure computer network for central and local government across Yorkshire and the Humberside. The YHPSN is recognised as being the largest and most holistic regional network project in England. By combining individual networks into a unified regional network it has already saved the Region between £35 and £40 million, and not only do the savings continue to be made but the operational improvements and efficiencies add significantly to the effective delivery of public services across the Yorkshire and Humber Region. YHPSN are leading the procurement of a HSCN for virtually all public sector organisations (Local Authorities, Police, Health, Transport, Fire & Rescue) across the Region. HEY joined the YHPSN in April 2017.

20. POLICY REFERENCES

Equity and Excellence: Liberating the NHS (July 2010): <https://www.gov.uk/government/publications/liberating-the-nhs-white-paper>

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The Five Year Forward View (2014): <https://www.england.nhs.uk/2014/08/5yfv/>

The Forward View into Action – Digital Maturity Assessments (November 2015): <https://www.england.nhs.uk/digitaltechnology/info-revolution/maturity-index/>

The Forward View into Action – Developing Digital Roadmaps (April 2016): <https://www.england.nhs.uk/digitaltechnology/info-revolution/digital-roadmaps/>

Carter Review (February 2016): <https://www.gov.uk/government/publications/productivity-in-nhs-hospitals>

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