

CHFT DIGITAL HEALTH STRATEGY 2020 - 2025

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Foreword

Calderdale and Huddersfield NHS Foundation Trust (CHFT) is an integrated Trust providing acute and community health for the populations of Huddersfield and Calderdale. The Trust has invested heavily in digital in recent years making it one of the most **Digital Advanced Trusts** in the country. In the challenging times of the Coronavirus Pandemic Digital Solutions have supported our patients, our colleagues whilst working alongside our partners in delivering the highest quality of care. The current situation has driven us to **accelerate projects** at pace such as virtual clinics, components of voice recognition and nerve centre devices. There has been rapid improvements in our **infra-structure** to enable colleagues to continue to work in an agile way .

The vision of CHFT is **“together we will deliver outstanding compassionate care to the communities”** digital is a key enabler in supporting clinical and non-clinical colleagues to provide compassionate care for our patients.

In providing **one culture of care** it is fundamentally important that patients and staff are supported on **their own personal digital journey**. Acknowledging that some in our communities are digitally isolated and a partnership approach to support them in engaging with the hospital in a digital manner will be required.

In formulating the strategy we **engaged over 300 stakeholders this included** patient forums, colleague and wider partners organisations through various engagement sessions. This feedback was invaluable and helped us shape the Digital Strategy.

Our Digital Future Section outlines the direction of travel and reflects the digital ambition of the Trust. It also acknowledges that we operate in an eco-system with our partners benefiting from the digital advances we have made.

Dr Owen Williams OBE



NHS

Calderdale and Huddersfield
NHS Foundation Trust

“Digital is the key enabler in supporting clinical and non-clinical colleagues to provide the compassionate care for our patients”

Executive Summary

Executive Summary

Our Digital Journey

This 5-year Digital strategy will take us beyond clinical systems we have the ambition to ensure all our workforce and the processes used by them are digitally enabled.

In 2012, the Trust developed a Digital Clinical Systems strategy and high-level plan that described how the Trust planned to use technology to fundamentally change the way it delivers its services, with an emphasis on improving the quality and safety of patient care. In February 2015, CHFT, in partnership with Bradford Teaching Hospital Trust, successfully deployed a single instance of the Cerner Millennium Electronic Patient Record (EPR) across well over a third of the population of the West Yorkshire & Harrogate Health and Care Partnership footprint. The programme was labelled as one of the biggest and broadest Big Bang deployments in Europe. The EPR system is stabilised however, there is more to do before the Trust can truly deliver a fully (robust) interoperable EPR used by patients and clinicians alike.

There are many internal and external factors that will drive change. We intend to continually develop and implement new technologies. Consideration will be given to the NHS publications, strategies and programmes as part of the overall strategy; putting the patient at the heart of everything we do.

Business intelligence and Data capture will advocate organisation wide coverage adopting principles that will focus on "getting it right first time". The Knowledge Portal will continue to drive the standard requirement of as much information as possible.

The level of investment needs to ensure our infrastructure remains resilient, current and future proof. The investment plan will need to align with the use of resources framework set out by the Clinical Quality Commission (CQC) in ensuring the Trust is using its resources to provide high quality, efficient and sustainable care. CHFT's strategic objective is that they will achieve a CQC rating of outstanding. Building the ability to horizon scan and establish how emerging technologies can benefit and be introduced into CHFT will be fundamental to this.



"The Trust has demonstrated rapid progress on their digital maturity"

Purpose of Digital Strategy

Purpose and Scope of Digital Strategy

Calderdale and Huddersfield Foundation Trust Vision

The vision of CHFT is, "together we will deliver outstanding compassionate care to our communities". Digital is a key enabler in supporting clinical and non-clinical colleagues to provide compassionate care for our patients. It will empower us to work together and provide compassionate care in a virtual world.

In providing 'one culture of care', it is fundamentally important that patients and staff are supported on their own personal, digital journey. The Coronavirus Pandemic has driven us to accelerate our digital programmes and we intend to use the learning from these rapid deployments in developing the strategic direction of this 2020-2025 Digital Health strategy. This will be set out in 4 key areas; each one putting the patient at the centre of all we do.

- ✓ **Digital Journey** – 2012 to 2020 and how CHFT has fundamentally changed the way it delivers clinical services improving the quality and safety of patient care
- ✓ **National and Regional Context** – Consideration will be given to external factors that will drive change from a digital perspective in line with the NHS long term plan.
- ✓ **Business Intelligence** – Making Data count. The knowledge portal will continue to drive the standard requirement for as much information as possible.
- ✓ **Our Digital Future** – Our future direction of travel and the ongoing digital transformation as we prepare to reconfigure our services. The design of our building will incorporate the latest advancements in digital technology.



*"together we will deliver outstanding
compassionate care to our
communities"*

Purpose and Scope of Digital Strategy

Our clinical priorities have been described in the Trusts clinical strategy. We will ensure the strategy aligns with our clinical priorities.

Priorities	We will do this by	This will result in:
Digital technologies to improve the quality and reliability of clinical care	<ul style="list-style-type: none"> Providing “real time” patient records and care plans Reduce the number of standalone IT Systems Remove the need for paper from board to ward 	<ul style="list-style-type: none"> ✓ All relevant clinical information through a single access points ✓ Right access; right information correct? ✓ Effective alerting prompts across multiple pathways ✓ Improving patient safety
Digital technologies to support early discharge of patients	<ul style="list-style-type: none"> Reviewing current systems/processes Remote home monitoring 	<ul style="list-style-type: none"> ✓ Improve Patient Satisfaction ✓ Improving the quality of care for the patient
Adoption/Optimisation of current systems and hardware	<ul style="list-style-type: none"> Showcasing areas of good practise Supporting areas to adopt/optimize current systems 	<ul style="list-style-type: none"> ✓ Efficiency gains in utilising established digital offering ✓ Reduced reliance on face to face patient and clinical interactions
Make available to our staff an integrated healthcare system across the Integrated Care System (ICS) and beyond	<ul style="list-style-type: none"> Identifying opportunities to increase interoperability across systems 	<ul style="list-style-type: none"> ✓ Improved and more timely clinical information ✓ Reduce patient risk
Giving patients control over their care and protecting privacy	<ul style="list-style-type: none"> Enhancing Virtual Consultations Promoting and enhancing access to the Patient Portal and self-care advice 	<ul style="list-style-type: none"> ✓ Improve Patient/carer's and relatives experience ✓ Improving quality and reduce patient risk
To ensure our corporate workforce are digitally enabled to support clinical care through responsive and up-to-date technology	<ul style="list-style-type: none"> Utilising digital collaboration tools Provide the necessary hardware to support Review of our corporate systems 	<ul style="list-style-type: none"> ✓ Continue and Improve Agile Working capability ✓ Reduction of travel between sites
Support the sustainability challenge	<ul style="list-style-type: none"> Use Artificial Intelligence to predict Utilising collaboration tools for patients/colleagues Review our finances, and workforce process and systems 	<ul style="list-style-type: none"> ✓ Reduction in travel amongst the communities we serve ✓ Protecting our environment and reducing carbon footprint ✓ Reduce pressure on our estate

Purpose and Scope of Digital Strategy

Governance

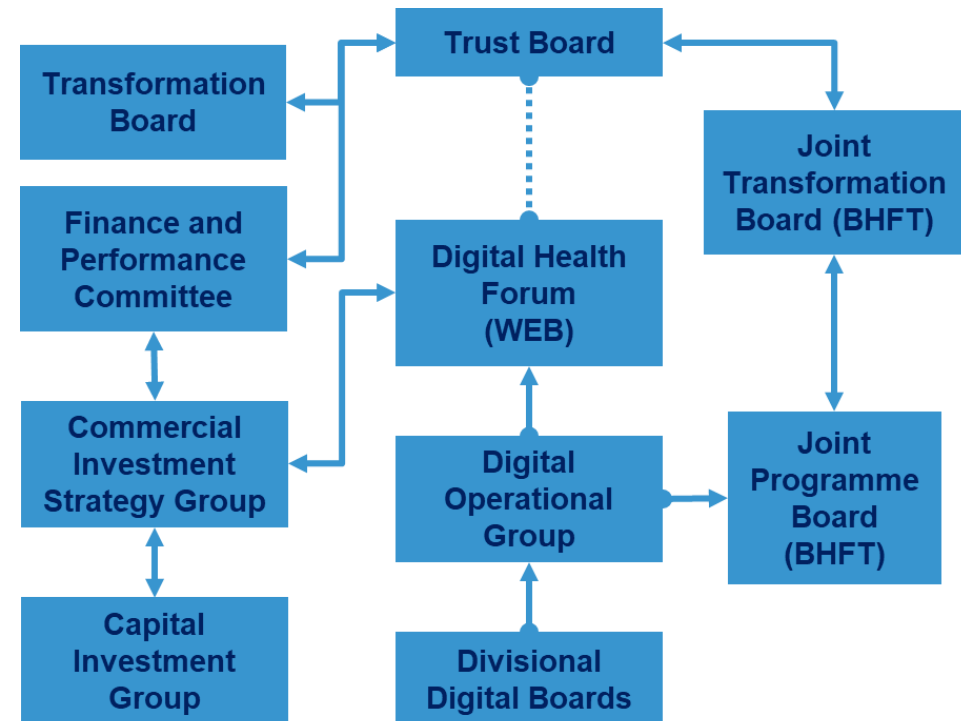
The Board will champion the Digital Health Strategy that will enable the provision of high-quality care by investing in technology for innovation and transformation. Embedding good governance around the strategy is vital. The monthly Digital Operational Group and Digital Health Forum will continue to report on and support the implementation of the projects relating to the digital strategy, including benefits realisation. The digital strategy will focus on the quality and safety of the care we provide to our patients that will ultimately drive efficiencies that will transform the way we deliver care and run our hospitals. Governance will ensure General Data Protection Regulations (GDPR) will be met and Equality Impact Assessments (EQIA) will ensure we meet the needs of all those required.

The necessary investment plans will need to be aligned to capital, revenue expenditure and resourcing plans to ensure the success of the strategy. New investments will be prioritised. Initially high-level benefits criteria considered will include:

- Patient Outcomes
- Statutory Regulations
- Burning Platform
- Availability of Funding

As the Trust continues to open new digital opportunities, they will need to develop more robust processes around capturing the agreed benefits. The Trust has launched an engagement methodology, Digital Ways of Working (DWOW) that sets out to involve key stakeholders across the whole workflow that is about to be digitalised.

DWOW will help our workforce to understand the “as is” with a focus on the impact of the “to be”, ultimately allowing those involved to support and lead how staff will transition through future digital change and capture benefits from the start. CHFTs strategy aims to achieve a CQC rating of outstanding by being recognized as a well-led and governed Trust whilst achieving financial sustainability.



Digital Journey

Digital Journey - 2012 to 2020

CHFT is an integrated Trust providing acute and community health care for the populations of Huddersfield and Calderdale. In 2012, CHFT developed a Digital Clinical Systems strategy and high-level plan that described how the Trust planned to use technology to fundamentally change the way it delivers its services. The strategy made several recommendations, mainly relating to the clinical systems functionality and how it would be deployed to digitise the patient record, with an emphasis on improving the quality and safety of patient care.

In order to deliver the strategy, the Trust needed an underlying, modern and reliable infrastructure. It made a commitment to continue to invest in the Trust's Information Management & Technology (IM&T) Infrastructure in order to ensure it could support the delivery of the plan. As a result, the following elements were procured and deployed:

- New wired infrastructure for both hospitals.
- Improved computer room facilities at CRH and new facility at HRI.
- Resilient Data storage platform.
- Cross site resilient server platform.
- Wireless Network across all CHFT sites.
- Updated, site resilient email platform.
- Improved PC Estate.

A list of further additions to the infrastructure were also approved and deployed:

- Single Sign-On.
- Input Devices (PC's, Laptops, Tablets etc)
- Unified Communications (single bleep, single number reach inc mobile etc).
- Video Conferencing.
- Managed Data Services.
- Limited Virtual Desktop Infrastructure (VDI).
- Manage Print Services.



“The infrastructure work plan gave the Trust a solid foundation/platform to build future technology solutions on”



Digital Journey - 2012-2020

Whatever product the Trust chose as its strategic option, it was acknowledged that it would take some time to procure and implement a core product set. At that time, there were some emerging issues that the Trust faced,; issues that technology could help alleviate by deploying some new technologies. As a result, several business cases were approved:

- ✓ Bluespир Theatre System deployed in October 2014.
- ✓ Electronic Document Management System deployed February 2015.
- ✓ NerveCentre E-Observations deployed in October 2015.
- ✓ K2 Athena Maternity EPR deployed in June 2015

The Trust's ambition was always to assess its status with regards to an accepted model for measuring progress towards achieving a full EPR. It chose to work towards the HIMSS European EMR Adoption Model; evidence shows that when Trusts achieve these later stages of this model, the real benefits start to accrue for both the health professional and patients.

In August 2019, the Trust completed an assessment against the new standards. The Trust was confirmed as a stage 5 hospital, putting CHFT well above the UK (2.3) and European (2.1) average for a Trust of our size (Appendix 1). The Trust has maintained their commitment to invest in digital, and as a result CHFT has moved to the top of the NHS England's national Clinical Digital Maturity Index (CDMI) from a position 2 years ago of outside of the top 100, cementing its position as one of the most digitally advanced Trusts in the country. Further evidence can be taken from the Digital Maturity self-assessment that takes into account the broader digital perspective this was last completed in 2017 the Trust once again demonstrated considerable progress, over the same 2 year period CHFT has risen from 113th in the country to a position of 13th place There are plans in place to improve this position with an ambition to reach HIMSS stage 6 in 2020.

STAGE	 
	EMR Adoption Model Cumulative Capabilities
7	Complete EMR; External HIE; Data Analytics, Governance, Disaster Recovery, Privacy and Security
6	Technology Enabled Medication, Blood Products, and Human Milk Administration; Risk Reporting; Full CDS
5	Physician documentation using structured templates; Intrusion/Device Protection
4	CPOE with CDS; Nursing and Allied Health Documentation; Basic Business Continuity
3	Nursing and Allied Health Documentation; eMAR; Role-Based Security
2	CDR; Internal Interoperability; Basic Security
1	Ancillaries - Laboratory, Pharmacy, and Radiology/Cardiology information systems; PACS; Digital non-DICOM image management
0	All three ancillaries not installed

Digital Journey – EPR




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The most significant deployment of our digital journey was the introduction of the Cerner Millennium Electronic Patient Record (EPR). CHFT, in partnership with Bradford Teaching Hospital Foundation Trust (BTHFT), successfully deployed a single instance of the Cerner Millennium EPR across over a third of the population of the West Yorkshire & Harrogate Health and Care Partnership footprint. This was labelled as one of the biggest and broadest Big Bang deployments in Europe.

The Trust's progress on the introduction of digital technology is enabling clinicians and patients to access and interact with 'real-time' patient records and care plans wherever they are. All GPs in Calderdale and Greater Huddersfield are now able to view the hospital electronic patient record within their own patient record. Hospital clinicians can also view the GP record for all Calderdale and Greater Huddersfield patients within the hospital Cerner (EPR). Calderdale Community Service staff can also view the Calderdale GP record for both SystemOne and EMIS.

Work has also commenced to progress digital interoperability with the Calderdale Social Care System to enable integration of the adult health and social care records by early 2020. There is still more to do to ensure all local health partners are fully integrated. The intention is to connect with mental health, ambulance services and other local community healthcare organisations. This will align with the national programme LHCRe.

The Trust has some of the highest utility of the national electronic staff record (ESR), has been successfully using an App (application software) for the recruitment of bank staff and has deployed an e-rostering solution for nursing. The Board of Directors and Executives lead by example; all meetings are now paperless, and meetings can be accessed virtually. The level of organisational adoption already achieved at CHFT gives the Trust a distinct advantage for rapid progression to a fully, paperless environment.



*"The Trust has an ambition
to reach HIMSS stage 6 in
2020"*

Digital Journey – Next steps

Digital Next Steps

Whilst the long-term Strategy for the Trust is being developed, it was agreed that several Digital Next Steps needed to be implemented to ensure the digital maturity continued to progress. Subsequently, a report was developed and approved by the Board in June 2018. The Digital Next Steps described a phased approach that would address issues systematically as prioritised by the Trust and would act as the interim to the overall Digital strategy.

The plan was to approach the issues in three phases:

Phase 1 Stabilisation - which addressed some key changes to improve the overall efficiency of the system.

Phase 2 Optimisation - which focused on the completion of numerous projects that had been put in place to improve access to other systems that were not part of the original scope. The majority being solutions that Cerner did not offer such as Medisoft, (Ophthalmology EPR). The introduction of virtual clinics and the switch-on of the Patient Portal would also be considered.

Phase 3 Obtaining and Improving Functionality - Prioritising a number of digital solutions that needed replacing or would be better placed as a Cerner solution.

Collectively, these phases would aim towards delivering a single access, one source of the truth, patient record whilst reducing our reliance on paper.



"EPR is now stabilised but we have more to do to optimise it"

National and Regional Context

National Context

There are many internal and external factors that will drive change. These will require us to continually develop and implement new technologies. Consideration will be given to the following publications/organisations as part of the strategy.

NHS Long Term Plan

The NHS long term plan was published in January 2019. The Plan describes the NHS ambitions over the next ten years to ensure the NHS is fit for the future. The plan describes the improvements to be delivered in the following key areas:

- Improving out-of-hospital care (primary and community services).
- Strengthening the NHS contribution to prevention and reducing health inequalities.
- Reducing pressure on emergency hospital services
- Delivering person-centred care.
- Delivering digitally enabled primary and outpatient care
- Focusing on population health and local partnerships with Integrated Care. Systems having a central role in the delivery of the Plan

NHSX is a new joint organisation for digital, data and technology and has been formed to drive digital standards that will digitally enable the NHS Long Term Plan.

NHS Digital Strategy 2015 - 2020

The strategy describes how, by 2020, all the citizens who want it will have access to national and local data and technology services. This will enable them to see and manage their own records, undertake a wide range of transactions with care providers and increasingly manage their own healthcare. At the same time, clinicians will have access to the right information when they need it, where they need it. Progress has been made but there is a long way to go. The Local Health Care Record Exemplar (LHCRE) were set up to enable this.



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The Topol Review 2019

The Topol review is an overarching review that provides a focus on developing and enabling our staff to be prepared for the digital developments in the NHS. It acknowledges that the healthcare workforce needs expertise and guidance to evaluate new technologies, that the adoption of new technologies should enable staff to gain more time to care, promoting a deeper interaction with patients. Patients need to be included as partners and informed about health technologies, ensuring the use of technology is equitable and does not reinforce inequalities

Regional Context

West Yorkshire and Harrogate Integrated Care System (WY&HICS)

The Trust is a member of the West Yorkshire and Harrogate Health and Care Partnership Integrated Care system (ICS). This is the second largest ICS in the country covering a population of 2.6 million people and a budget of over £5 billion. The purpose of the partnership is to deliver the best possible health and care for everyone living in the areas of, Calderdale; Kirklees; Bradford District and Craven; Leeds; Wakefield; Harrogate. The Partnership is made up of care providers, commissioners, voluntary organisations and Councils working closely together to plan health and care. With a vision to create a regionwide efficient health care system that embraces the late thinking and best practise, we want to bring together patient information systems and clinical and social care systems providing health care professionals and others supporting our patients with a full picture of their care pathway, many of which will be underpinned by this digital technologies.

Scan4Safety

The programme has been launched across WYAAT (West Yorkshire Association of Acute Trusts) working in collaboration with Leeds to share and implement best practise. Scan4Safety is attempting to harness global standards to increase quality and improve efficiencies and its core aims are to ensure that the - Right Patient, Right Product, Right Place, Right Process.

The department of health mandated the adoption of GS1 and PEPPOL messaging standards throughout the healthcare sector and its accompanying supply chains in the NHS Procurement Strategy. NHS Improvement has made £15m available to accelerate the adoption of Scan4Safety across WYAAT.

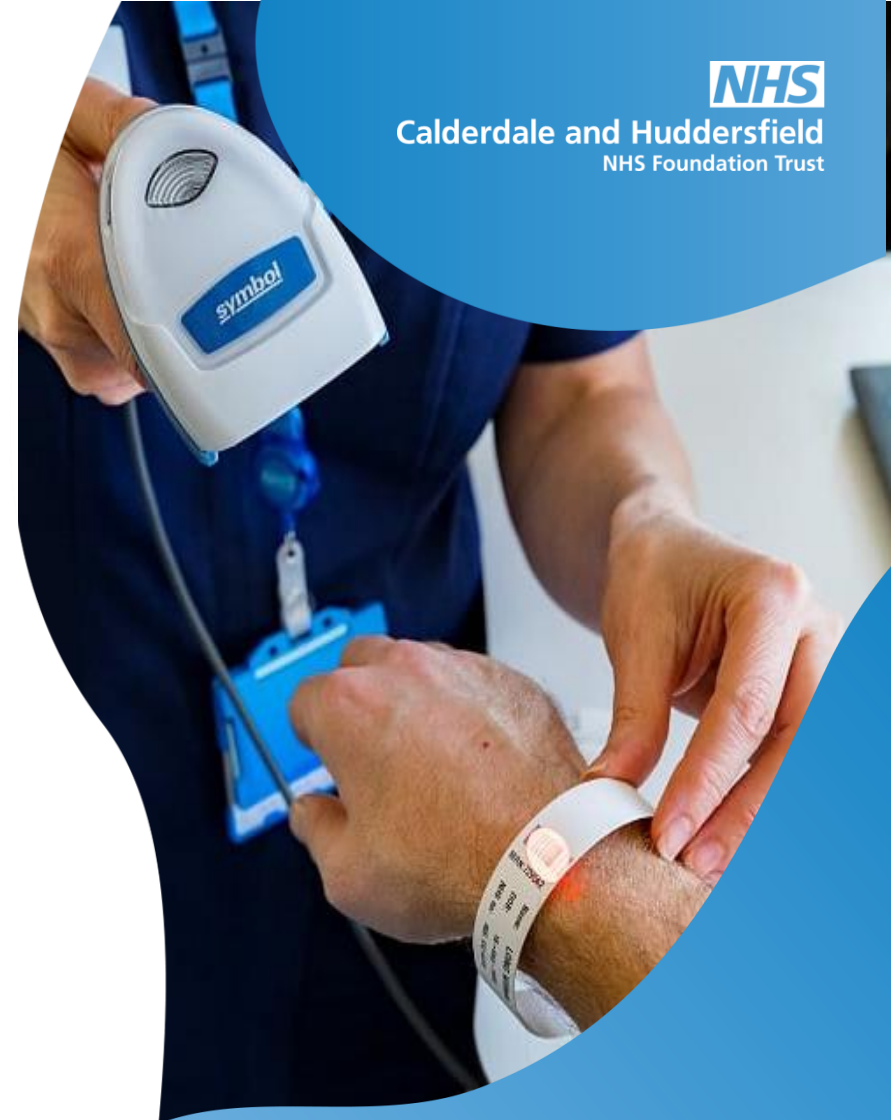
This is underpinned by GS1 standards, which provides a consistent data structure for the identification of patients, products and places and the use of barcodes to scan and record the whereabouts of these inputs to patient care.

Local Healthcare Record Exemplar (LHCRE)

This is a national initiative that aims to build information sharing environments across the NHS. The Yorkshire and Humber Health Care Record (YHCR) is being developed as part of the programme building on some of the principles published in the WATCHER Review on interoperability and data sharing. CHFT will be part of phase 2 for YHCR however, are already making progress in this area locally.



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*"We have a vision to create
a regionwide efficient
healthcare system"*

Partnership Working



Electronic Patient Record (EPR)

At a more local level, in January 2018, Calderdale and Huddersfield NHS Foundation Trust and Bradford Teaching Hospitals Foundation Trust developed a proposal, a shared vision that described the next phase following the deployment of the single instance. The proposal set out the basis for a strategic partnership agreement with Cerner UK. The strategic partnership is founded on:

- A shared EPR Objective -The primary case for an EPR is to improve patient safety, improve outcomes and improve the experience our patients.
- A shared strategic objective of being fully digital.
- Proven success of a single instance deployed between two Trusts that can host other Trusts.
- Both Trusts' interest in a strategic relationship to progress their digital ambitions.

The Trusts' proposed a multi-stream approach whereby progress is made in parallel on each workstream to achieve benefits at pace. Each Trust would benefit from the others Trust leadership in the work stream from design through implementation. This confirmed CHFTs ambition to lead on Optimisation - Usability & Digital Breadth and BTHFT to lead on the Quality Improvement that supports teaching and research and Population Health.



Business Intelligence

Date	Time	
28/03/2019	12:09	Procedure End
28/03/2019	10:31	Procedure Start
28/03/2019	10:01	Prep Start
28/03/2019	09:29	Anaesthetic Start
28/03/2019	09:29	Enter Anaesthetic Room
28/03/2019	09:28	Enter Theatre Suite
28/03/2019	09:23	Send For
28/03/2019	06:52	Arrive Admissions Unit

Business Intelligence

Business Intelligence (BI)

Business intelligence joins together the strategies and technologies used by organisations that enables the data analysis of business information. BI technologies provide historical, current, and predictive views of business operations. CHFTs Business Intelligence strategy advocates organisational wide coverage where key departmental systems reporting outputs are transparent and are understood. The trust is already benefiting from the richness of the real time data from our digital systems particularly EPR and will continue to do so. The following continue to be principles that will be adopted:

- Reporting systems will be viewed from both an internal and external lens and integrated to provide a single version of the truth, to facilitate improved outcomes.
- Getting it Right First Time, will be integral to our business.
- Using data to help model and prioritise the needs of our patients.
- Improved efficiency will provide all information from ward to board available as necessary through increased automation.
- A simple self-sufficiency solution will allow access to critical decision-making data.
- Key organisational "signed off" reports with a distinctive branding will be produced following a rationalising process led via the Performance Management Framework (PMF).
- Visibility of greater data richness provided from clinical systems in the form of new Clinical Information reports will be led by the clinical services.
- The Knowledge Portal will continue to drive the standard requirement of as much information as possible.
- Consider how other digital reporting systems are utilised and captured to ensure all data is included as part of the overall BI strategy.
- The Business Intelligence team within CHFT will be recognised as a Centre of Excellence.
- Augmented and Artificial Intelligence (AI) will be considered as we develop our digital systems.

← Administration

← Finance & Procurement

Group Therapy Room →

Meeting Rooms →

Agile Working

*"The Business intelligence team
in CHFT will be recognised as the
centre of excellence"*

Business Intelligence

Data Quality

In a mainstream digital world, data quality has never been more important. HIMSS Analytics have created the Adoption Model for Analytics Maturity (AMAM). The standards described in the model are reliant on good data governance and data content and will help develop our future information strategies. Our ambition will be to achieve stage 6 by 2021. The model is focused on four specific areas

- **Data content** - data collection requirement, from basic data used to run a business to more advanced data needed in support of personalised medicine. The data content sought is balanced to support operational and financial analytics as well as clinical orientated efforts.
- **Infrastructure** - Analytics infrastructure includes not only the database and reporting tools, but the ability to extract, transform, and load data from a variety of internal and external data sources in a timely manner.
- **Data Governance** - Data Governance efforts grow to ensure analytics efforts are aligned with organisational strategic priorities and that analytics serves the needs of the business effectively.
- **Analytical competency** - The tools to compliment intuition and experience-based decision making with data driven decision making are put into place and then exercised to the appropriate Stage level identified by the organisation.

STAGE	HIMSS Analytics AMAM Adoption Model for Analytics Maturity Cumulative Capabilities
7	Personalized medicine & prescriptive analytics
6	Clinical risk intervention & predictive analytics
5	Enhancing quality of care, population health, and understanding the economics of care
4	Measuring and managing evidence based care, care variability, and waste reduction
3	Efficient, consistent internal and external report production and agility
2	Core data warehouse workout: centralized database with an analytics competency center
1	Foundation building: data aggregation and initial data governance
0	Fragmented point solutions

Mass customization of care

Advance clinical, operational, and financial analytics

Build a strong foundation



Our Digital Future



Investment in Digital

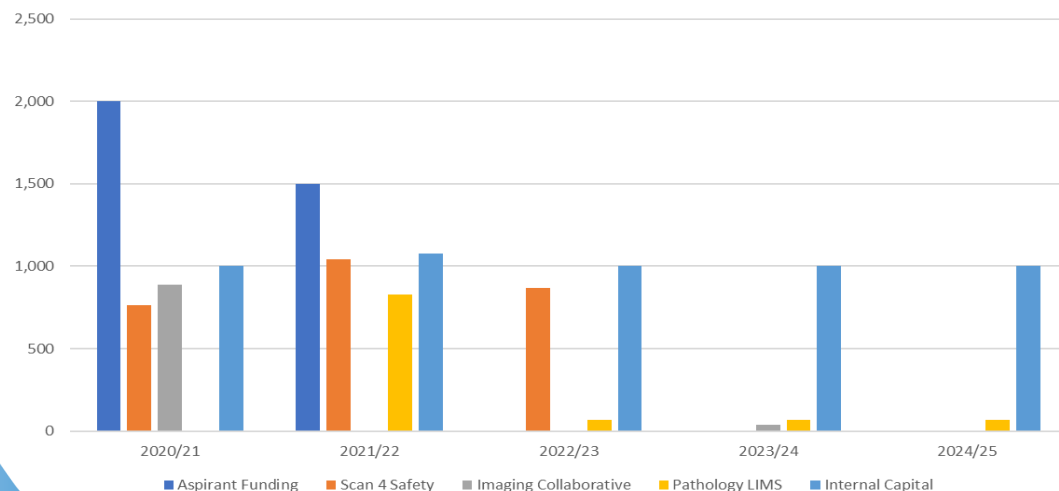
Capital Investment

CHFT's digital strategy builds on the significant investments made to date and the successful delivery of projects that have led to demonstrable benefits to both our patients and colleagues but also those of the wider healthcare community. As significant investment has been made to date; there is a requirement to continue to support and refresh the technologies in place. This includes replacement of hardware and systems but also the infrastructure supporting all these systems. This also includes additional security to comply with the latest best practice standards.

Funding the strategy will come from various sources. The plan outlines the Investment in Digital over the next 5 years and the funding streams available to us. Breakdown of capital investment over the next 5 years (Appendix 2).

1. Internal Capital
2. Aspirant Funding
3. Scan for Safety
4. Pathology LIMS
5. Imaging Collaborative

Breakdown of Capital Investment



Year	Total Funding
20/21	£4.6m
21/22	£4.2m
22/23	£1.92
23/24	£1.1m
24/25	£1.0m

“Successful delivery of projects that have led to demonstratable benefits to both our patients and colleagues”

Investment in Digital

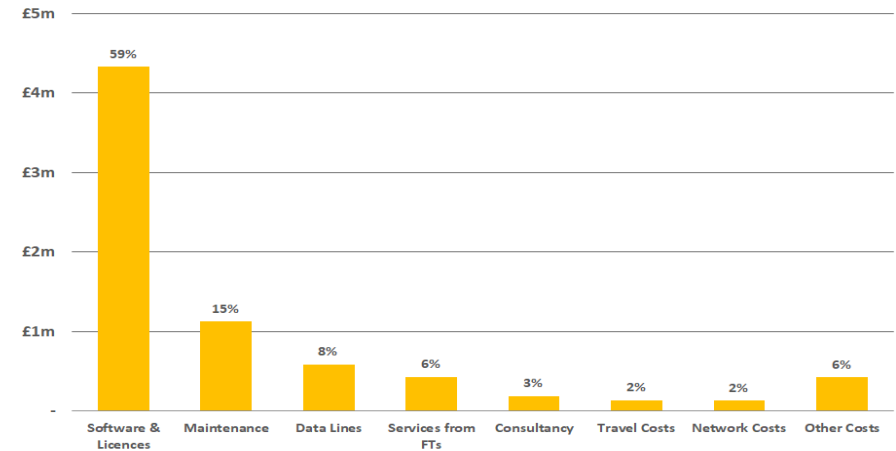
Revenue Expenditure

Revenue streams are already in place to replace existing systems. Additionally, it is likely that new funding streams will become available for specific developments and this may impact on the prioritisation that takes place. A total of £7.3m Revenue Expenditure is budgeted for 20/21 and this shows the level of commitment towards digital at the Trust. Going forward, it is expected that expenditure will be increasingly revenue based due to the nature of Digital services provided i.e. cloud hosting.

The Digital Aspirant funding has a mixture between Capital and Revenue which reflects this changing nature of expenditure. Whilst CHFT is a leader in the use of digital technologies in the provision of healthcare across the UK, further investment is required to both maintain this position but more importantly to continue to push the boundaries and to deliver further benefits to patients and colleagues.

The financial governance supporting any investment is vital and any investment must be able to offer demonstrable benefits. This is not always easily defined for investments that continue to deliver what is currently in place. For this reason, it is proposed to develop two financial elements to the digital health strategy.

THIS Non-Pay Expenditure



The first relates to ongoing technologies and infrastructure and the second to adoption of new technology. A provisional financial envelope will be created to support both elements of the strategy. This will comprise both capital and revenue expenditure.



Our Digital Future

Reconfiguration and Digital

In December 2018, Department Health and Social Care (DHSC) announced £196.5m for reconfiguration for the Trust. The Service Model for both sites will be reconfigured and some of the key aims:

- ✓ Improve Clinical Outcomes and Safety
- ✓ Improve Service Delivery and Patient Experience
- ✓ Improve the recruitment and retention of staff
- ✓ Optimise the use of available hospital estate
- ✓ Create a therapeutic healing patient environment and a high-quality working environment

The design of the building will incorporate the latest advancements in digital technology and be aligned to the Digital Health Strategy. The intention is to incorporate future proofing to ensure that when the emerging technologies are at a mature stage these advancements can be included.

The Digital strategy will aim to provide a robust digital platform for the new building design and service models. We will ensure our network capacity meets the needs of our digital expansion.

The principles described in the Trusts infrastructure strategy are designed to give direction for the Trusts IT infrastructure and also provide the basis for long term investment and decision making. The principles will contribute to the Trusts economic sustainability and also be adaptable to any reconfiguration requirements as part of the Trusts overall strategic plan.



“Designing the new hospital with digital at the heart of the design from the onset is a fantastic opportunity”

Our Digital Future

Infrastructure

To support the aspirations of this Digital Strategy, it will be essential to provide a robust and responsive infrastructure that will sit at the heart of all we do. The infrastructure needs to support a hybrid of legacy and future system provision; thus ensuring it will provide the platform required to transition to modern ways of Cloud and service provision.

It needs to enable staff to have a positive user experience when interacting with any of the digital systems they use through the provision of a modern digital workplace. We want to allow staff to easily and quickly find the information they need, wherever they need it. We will ensure that many of the barriers that can often be associated with digital adoption are removed.

As more digital systems move to a modern way of delivery, such as Apps and Containers, the devices that are used to interact with them should support that move to a more modern way of working too. Moving away from the multiple devices required currently to enable staff to carry out their roles, we must look to rationalising devices so that we can bring the hospital into the palm of their hands for as many systems as possible on a singular device. Enabling collaboration by removing the need to be physically present and supporting modern ways of multidisciplinary working using voice and video technology will be a key enabler for many strands of this strategy.

Underpinning all of this is a requirement to ensure that the infrastructure will ensure staff, patients and the organisation are protected from the ever evolving world of cyber security threats whilst staying compliant with the many mandatory and regulatory requirements such as the Data Security Protection Toolkit (DSPT), General Data Protection Regulation (GDPR) and the Data Protection Act 2018 (DPA 2018).



***“A robust and responsive infra-structure
that will sit at the heart of all we do”***

Our Digital Future

Infrastructure Adoption Model

Advancing through the Stages of the Infrastructure Adoption Model (INFRAM) is a progressively sophisticated process. To achieve INFRAM Stage 7, an organisation must first successfully achieve a Stage 6 validation. The INFRAM standards are meant for organisations that are pursuing advanced infrastructure capabilities and have taken into consideration how the INFRAM can support their digital transformation. INFRAM Stage 6 focuses on helping organisations assess its infrastructure strategy.

The Stage 6 review process looks at the current infrastructure capabilities and assesses whether the organisation is on track with respect to its infrastructure ambitions. An INFRAM Stage 6 organisation is able to demonstrate that it has the strategy, governance processes, technology and culture needed to ensure the deployment of an advanced infrastructure which is capable of fully supporting the operational, financial and clinical areas and goals of the organisation. Achieving Stage 6 indicates the organisation has established a strong foundation upon which to ultimately achieve INFRAM Stage 7. CHFT currently would be able to evidence the standards to support stage capability and would look to do a full assessment to meet the standards of a stage 6 by March 2021.

STAGE	INFRAM Infrastructure Adoption Model Cumulative Capabilities
7	Adaptive and flexible network control with software defined networking; home-based tele-monitoring; Internet/TV on demand
6	Software defined network automated validation of experience; on-premise enterprise/hybrid cloud application and infrastructure automation
5	Video on mobile devices; location-based messaging; firewall with advanced malware protection; real-time scanning of hyperlinks in email messages
4	Multiparty video capabilities; wireless coverage throughout most premises; active/active high availability; remote access VPN
3	Advanced intrusion prevention system; rack/tower/blade server-based compute architecture; end-to-end QoS; defined public and private cloud strategy
2	Intrusion detection/prevention; informal security policy; disparate systems centrally managed by multiple network management systems
1	Static network configurations; fixed switch platform; active/standby failover; LWAP-only single wireless controller; ad-hoc local storage networking; no data center automation
0	No VPN, intrusion detection/prevention, security policy, data center or compute architecture



Our Digital Future

Workforce Experience

One of the key takeaway themes from the Digital Hothouse Engagement forums was **making what we have work for us**. The focus of our work must be releasing value from what we currently have with the dedicated support from staff with the necessary skills. A combination of education, change management opportunities that can be funded to maximise the Digital Aspirant Programme that **will enable us to make what we have work seamlessly**.

We recognise our digital ambition does not solely lie in bringing in new technology and innovation, optimising our current systems is at the centre of our aspirations. From our staff engagement we found that colleagues were keen to move from a point of adoption of digital to a phase of optimisation.

Optimising the use of technology will allow patient pathways to be improved, communications will work seamlessly helping us produce a much richer Electronic Patient Record (EPR). This in turn will deliver better patient care, improve reporting and increase staff satisfaction improving all our working lives.

Optimisation will involve a diverse group and we will identify Digital Champions within each division to help share our ambitions and be a resource to help optimise but also to help embed our digital message. Optimisation will not just focus on improving the digital records but how we interact digitally within our community embracing all levels of digital adoption.

A plan will be developed and resourced to ensure our workforce have the tools, knowledge and support that will enable them to be prepared for all our digital developments, new and old, in line with the Topol review published in 2019.



“A plan will be developed making what we have work for us ”

Our Digital Future

Patient Experience

The NHS Long term Plan is looking at improving how services are delivered. Building on the progress already made on digitalising appointments and prescriptions they describe "a digital NHS front door" will provide advice, check symptoms and connect people with healthcare professionals. The Coronavirus Pandemic will also give reason to review the plan and the progress that has been made, at pace, against the key deliverables.

Project 2020

Transforming Patient Services launched in 2018 and led by CHFT in collaboration with the local health communities has seen a variety of new clinical service models and pathways being developed. The strategy will continue to develop the principles set out in the project to improve the patient experience. Offering choice, for some patients, would mean a reduction in the traditional face to face visits to the hospitals. Engagement will be outside of the hospital building, spreading across the patient population and communities. Improving our communication methods and accessibility through different channels such as:

- Patient Portal
- Direct messaging
- Virtual Consultations
- E-Consent/Virtual Consent
- SMS Messaging
- Software Applications
- Self-assisted care solutions
- Virtual visiting

Ensuring patients are supported on their digital journey in accessing the hospital in a virtual manner will be provided to ensure Digital Inclusivity. Improving convenience for patient's alternative consultation methods can have a significant impact on population health by reducing NHS related travel. The NHS Long Term Plan (2018) has set targets of 33% reduction of current hospital-based outpatients' activity over the next 5 years.



“We want to improve our communication methods and accessibility for all our patients”

Our Digital Future



Calderdale and Huddersfield
NHS Foundation Trust

Digital in the Community

Digital features heavily in the majority of people's lives through the increased use of social media, internet shopping and banking now becoming mainstream. Accessing healthcare through digital means will continue to grow.

Digital is an enabler that can bring communities together and can transform care for patient groups, however there are people within these communities that lack the necessary digital skills. To support digital skills, we will provide easy to use guides/videos to enable to people upskill where appropriate. When introducing digital solutions patients will be involved and engaged ensuring all users requirements are considered. Ensuring that equality and diversity/inclusivity will be at the forefront of the design.

Digital Inclusion

Digital Isolation is when people do not have the technology or infrastructure to participate in the digital solutions offered. Supporting those patients that are digitally isolated to access hospital in a virtual manner needs a partnership approach as other services for instance from the council/central government are provided digitally. This will ensure that we do not duplicate effort but also ensure the community have a consistent approach supporting them on the journey.

Working with our partners to address digital isolation throughout communities will be needed. Our engagement in regional forums such as the Kirklees Digital Board and Calderdale 2020 is supporting us in tackling digital inclusivity at a community level allowing us to build that greater picture. Going forward, greater emphasis on the Digital Skills will enable us to prioritise Digital Inclusion.



"Working with our partners to address digital isolation throughout our communities"

Our Digital Future – Continuation

CHFT have continued to improve on the digital functionality and maturity of the healthcare environment. A number of projects are in progress and will conclude during the life of the strategy.

Theme	Project	Outcome
Transformational	Outpatient Transformation	Supporting the delivery of the Virtual Consultations for Outpatient Clinic utilising Microsoft Teams Booking App.
	Patient Portal	Re-launching of the patient portal followed by increase adoption and improvements in the content to enable patient led care.
	Agile Working	Supporting Agile Working Principles to maximise the opportunity of using collaboration tools like MS Teams.
Partnerships	Health Information Exchange	Enabling our Primary Care to view the live patient record from within their own system (EMIS/System One)
	Medical Interoperability Gateway (MIG)	Enables Secondary care to view Primary Care with further developments into the social care record, Ambulance and the mental health trust.
	Scan 4 Safety	Continuation of the 3 Year Scan 4 Safety Programme harnessing the power of scanning capabilities to improve patient outcomes.
	LHCRE	Local Health care record extend interoperability across the whole region, allowing the sharing of key patient information.
	Upgrade to Cerner version	Upgrade to the latest version of our Electronic Patient Record (Cerner Millennium).
Digital Health Team	Endoscopy	Nursing documentation is completed into the Electronic Patient Record viewable to all immediately resulting the removal of paper.
	Voice Recognition	Deployment of Voice Recognition technology throughout the organisation
	Ascribe Integration	Integration from the Ascribe system into the Electronic Patient Record to the digital end to patient improving safety
	Medisoft Integration	Ophthalmology integration for clinical and booking information
	E – Consent	Ability for patients to electronically and virtually provide consent for procedures
	Electronic Document Management system	Upgrade to support the storage of electronic documentations and open in context

Our Digital Future – Ambition

Ambition

CHFT is now part of the national Aspirant programme and are expected as part of this programme to build on the work already undertaken Global Digital Exemplar organisations. The programme was awarded to both CHFT and BTHFT in order to capitalise on the EPR single Instance and a placed based expansion of digital technology.

Both CHFT and BTHFT have a shared ambition to achieve a HIMSS stage 6 in 2020/21. Both Trusts have committed to a joint project to complete the remaining safety elements of HIMSS level 6. These elements include:

- Closed loop technology for Medication, blood products and Human Milk administrations.
- Cardiology imaging accessed through EPR.

Currently there are only 6 hospital trusts at stage 6 and zero at stage 7. This accreditation will provide the opportunity for CHFT to once again be recognised as one of the NHS advanced digital leaders.

The Aspirant programme will help fund some but not all our digital ambitions. The investment plan already details the current investment in digital so we intend to review our investment plans regularly as there will always be significantly more demand for digital than there is funding.

We will introduce some priority principles so we can ensure investment decisions offer the appropriate evidence throughout the governance process.

Options appraisals will also be developed that will encompass areas that require significant investment such as Cardiology, Intensive care, theatres and Endoscopy. We need to ensure that these critical clinical systems are not constantly being de-prioritised purely on cost, when we know that by simply digitalising documentation can only be a short-term solution.



"CHFT have an ambition to achieve a HIMSS stage 6 in 2020/21"

Our Digital Future – Ambition

Prioritisation

Cerner Millennium is the core clinical system for the CHFT, it has always been the intention to adopt a “Cerner First approach” as we grow its functionality. The recent focus has switched to developing a plan to integrate existing systems that can be accessed through Cerner ensuring all healthcare professionals have a single access route to patient information. This is pushing the boundaries around interoperability and integration whilst aligning with the Trust objectives described in the 5year strategy (plan on a page) on delivering **a robust interoperable EPR that is used by patients and clinicians alike**. The engagement sessions highlighted colleagues supported a focus on the interoperability and integration of existing systems in order to make access to patient information seamless and efficient. A set of criteria have been agreed that will help prioritise those systems yet to become part of the core clinical system.

1. Patient Outcome

2. Statutory Regulations

3. Burning Platform

4. Funding Limits

System	Outcome	System	Outcome
Infection Control Solution	Reduce number of incidents and improve patient safety	NICU Badger Net	Eliminate the need of an integration solution
Cardiology (All systems)	To enable access to all results and reporting and imaging within EPR	Integration of medical devices	Improved Quality and safety enable the transfer of results straight into EPR
ICU (Ward watcher)	Improve Patient safety	Pathology	To enable access to all results and reporting within EPR
Theatres	Introduce anaesthetic module as overall package	ICE	GPs to place orders direct into EPR
Maternity	Cerner used for all patient encounters across the Trust	e Prescribing advances	Improved patient safety by Closed loop/dose range checking.
Audiology	To enable access to all results and reporting within EPR	Radiology (HSS RIS)	To enable access to all results and reporting within EPR
Neurophysiology	To enable access to all results and reporting within EPR	Oncology (PPM)	Improve stability across multiple organisations (MDT)

Our Digital Future



Calderdale and Huddersfield
NHS Foundation Trust

Innovation

One of the challenges and opportunities Digital presents is the constant pace of change in digital technologies. Building the ability to horizon scan and establish how these emerging technologies can benefit and be introduced into CHFT will be really important if we want to remain leaders in the digital space especially across the NHS. Our research will take us beyond the boundaries of the NHS and the UK, we should seek to learn from international best practise and innovation.

- Virtual Reality
- Drones
- Predictive Analytics
- Artificial Intelligence
- Robotics/Robotic Process Automation
- Wearable Technology

Just some themes where the technology needs to be exploited and to ensure that we are at the forefront of the technological advancements and prepare to accept within the next 10 years.

Whilst the Strategy in the main focuses on improvement across clinical settings, we need to ensure the corporate areas remain at the forefront of our thinking especially as we design our reconfiguration plans and the design of our building. An agile and mobile workforce underpinned by systems and solutions that allows information exchange in all areas and reduces duplication or any manual data input will be required and always be part of our overall plans.

Innovation Hub

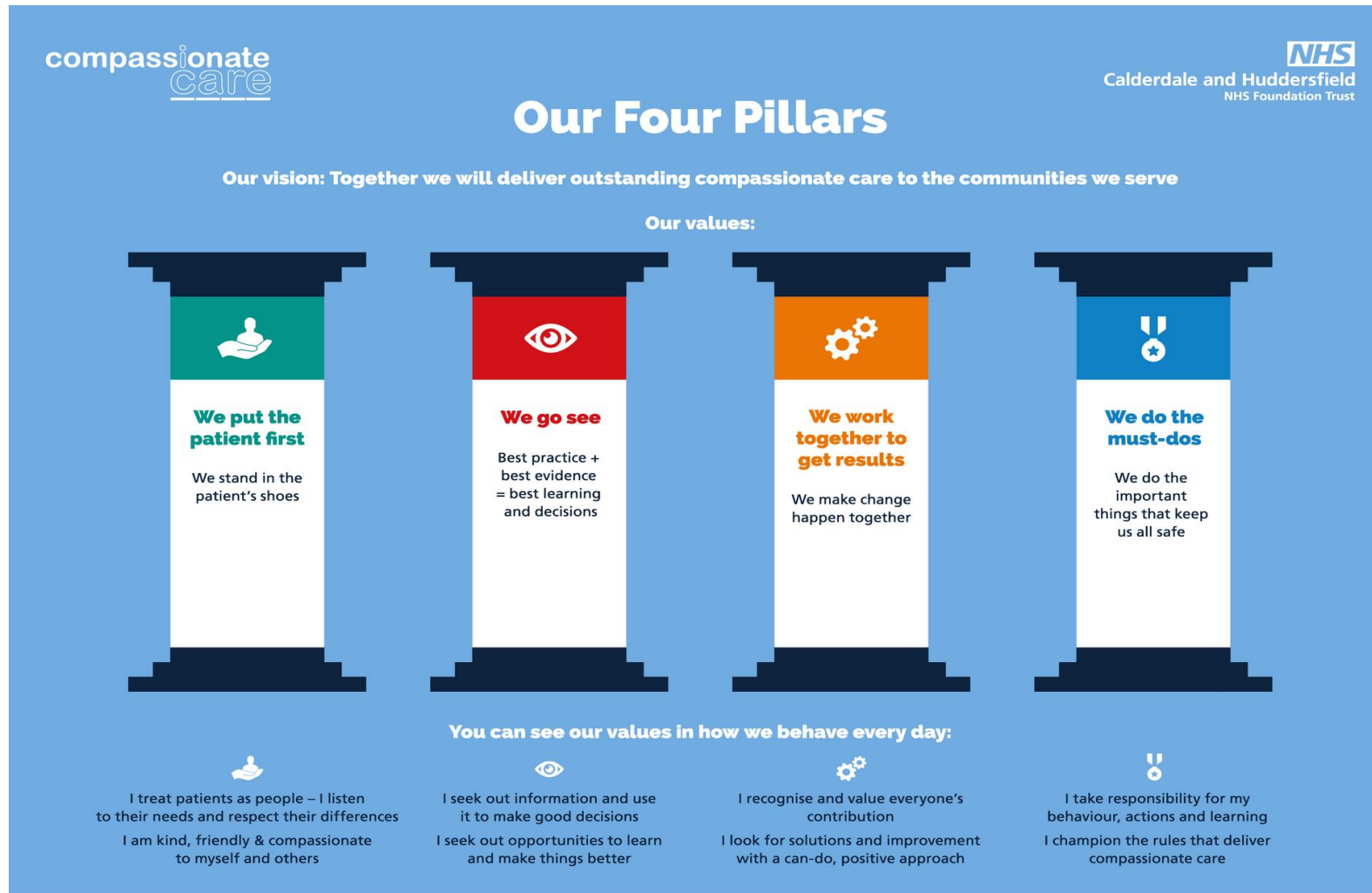
Over the next 5 years we want to establish an Innovation Hub to create a physical and virtual space which will support us in developing the upcoming digital trends. The objective is for all Digital Ideas including corporate areas can be developed in a space that will give us an opportunity to showcase our digital work. It will allow us to be better informed around our digital ambitions as we confirm the design plans for the reconfiguration.

“Horizon scanning is not predicting the future but challenging thinking and providing more options ”

Digital Strategy – Our Four Pillars

Delivery of the Digital Strategy

The Digital Strategy will be delivered using the behaviours and values of the four pillars



Digital Strategy Engagement

Engagement Forums

This Digital Strategy has been discussed at a wide range of engagement forums during the development of this strategy. In addition multiple individual stakeholders inputted.

Forum	Date	Discussion
Engagement Non-Executive	Multiple	Support/Guidance
Engagement CEO	Multiple	Alignment with Organisation Vision
Director of Digital Transformation	Multiple	Transformation Component
Chief Technology Officer	Multiple	Infra-Structure Component
Kirklees Digital Transformation Board meeting	04.02.20	High-level Overview
Digital Presentation at Joint Practice Leads	12.02.20	High lever Overview
Governors/Non-Executive Directors Meeting	13.02.20	Key Themes for the strategy
Digital Hot House – HRI	19.2.20	Workshop – Clinical/Non-Clinical Colleagues
Greater Huddersfield Public Engagement	26.02.20	Review and Input
Digital Tea Trolley Round – Urology/Orthopaedics	03.03.20	Feedback from colleagues - CCIO
Calderdale Commissioning Leads and Joint Practice Managers	26.02.20	Review and Input
Digital Hot House – CRH	09.03.20	Workshop – Clinical/Non-Clinical Colleagues
Digital Tea Trolley Round (Ward 19/20 HRI)	10.03.20	Feedback – Director of Digital Transformation
Digital Tea Trolley Round (Ward 8 CRH)	10.03.20	Feedback from colleagues by – CNIO
Digital Tea Trolley Round – Research Team, E Rostering, Workforce	16.03.20	Feedback from colleagues by MD
Digital Strategy – Investment Plan Finance Team	29.04.20	Review and input on finance component
Divisional Directors Meeting	02.06.20	Review Draft
Digital Health Team	04.06.20	Review Draft
THIS Leadership Team	10.06.20	Review Draft
Executive Team	11.06.20	Review Draft
Caldicott Guardian Principles	15.06.20	Review Draft
Multiple Meeting – Clinicians x3	18.06.20	Review Draft
Executive Director of Transformation	18.06.20	Review Draft

Appendices

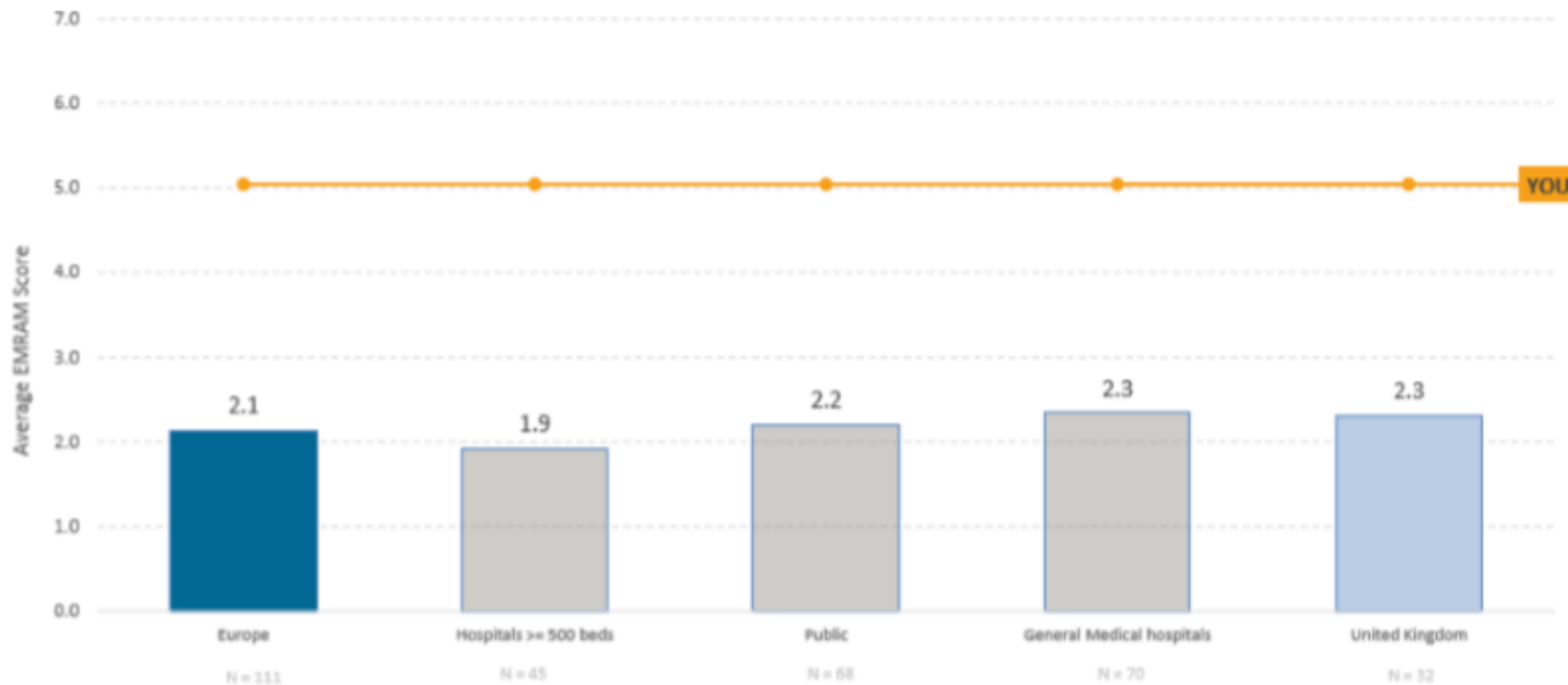
Appendix 1 – CHFT EMRAM SCORE

CHFT EMRAM Score

1. EMRAM Score and Comparisons with other hospitals

Your EMRAM Score: 5.04250

Based on your current EMRAM Score and compared to the average hospital in the following segments, this is how you perform:



Appendix 2 - Investment

Investment Plan

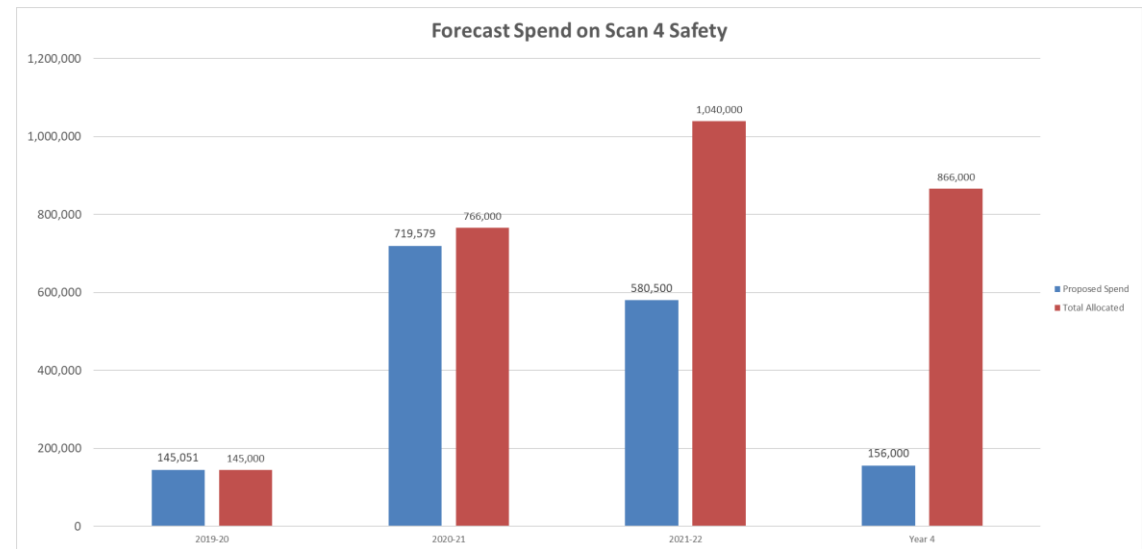
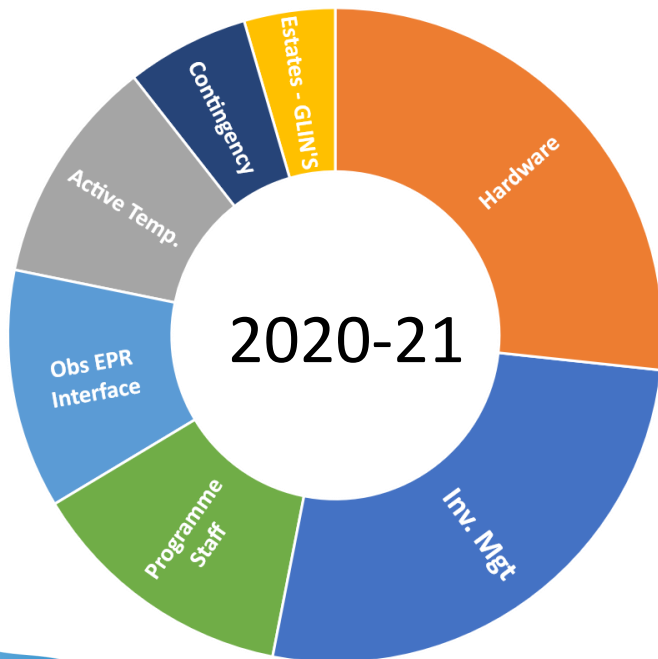
Next slides outlines the detail behind the capital and revenue expenditure for some of our specific programmes



Investment - Scan4Safety



The allocation of funding for Scan4Safety has been provisioned for four years. Year 1 and Year 2 funding has been allocated. Year 3 and Year 4 we are currently refining the allocation of the funding to ensure that latest business needs are accounted for.



Scheme	2020-21
Inventory Management	202,056
Hardware (TC51/Griffin Cabinets)	204,499
Active Temperature Monitoring	86,042
Estates - GLIN'S	34,493
Observation to EPR Interface	90,490
Programme Staff	102,000
Contingency	46,421
Total Funding Allocation	£766,000

Investment - Scan4Safety Priorisation

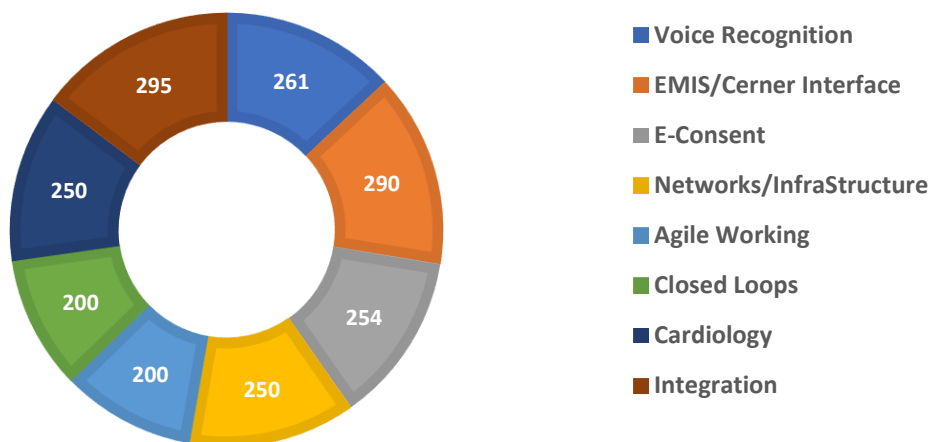
Case Study	Description	Benefits						
		Patient Benefits (50%)	Score (0/10)	Staff Benefit (25%)	Score (0/5)	Financial Benefit (25%)	Score (0/5)	Total
Asset Tracking	The capability of tracking key assets around the hospital	Critical Equipment is tagged and easily trackable	8	Reduction in time spent looking for equipment releasing time to care for patient	4	High Value Assets are able to be tracked Significant saving with reduction in timeliness of finding	4	80%
Inventory/Catalogue Management	Deploying an inventory/catalogue management across the organisation (.e. theatres/wards)	Inventory is effectively managed throughout the organisation and ready for patients when and where needed	6	Reduction in time administrating inventory (i.e. stock takes) releasing time to care	3	Increased ability to automatically monitor inventory throughout the organisation	3	60%
Temperature Monitoring	Ability to automate the monitor of fridges/ambient storage areas	All inventory held in fridges is held at the appropriate temperature not impacting effectiveness.	10	Promoting a paper lite organisation. Removing administration duties from the organisation .	4	Supporting a paper lite organisation. Reduction in wastage of inventory	2	80%
GS1 Wristband	Implementing Global Standards on the patients wristbands	Supporting Closed Loop Medicine across the estate improving Patient Safety	8	Making the environment a safer place to work by using digital solutions reducing opportunities for errors to be made	4	Enabling the effective delivery	2	70%
G LINS	Implementing Global Standards in Location Tracking	Global Stand Standards of Location supporting organisational efficiencies	5	Reduction in time in locating inventory items around the trust	2	Enabling the efficient delivery of inventory/items throughout the organisation removing wastage	2	45%
Observations to EPR Interface	Interface Vital Observations Machine directly into the Electronic Patient Record	Timeliness of patient vital sign data entering the system	10	Reducing the need to manually type and reducing opportunities for mistakes	4	Increasing efficiency of staff conducting	2	80%
Multi Functional Devices	Deployment of a Multi Functional Devices on the wards supporting Nerve Centre, Voice Recognition etc.	Patient Experience is increased as one device at the bedside completes multiple tasks	8	Reduction in using multiple devices on the Wards	4	Reducing the burden of a mixed device estate in the organisation	2	70%

Investment - Digital Aspirant

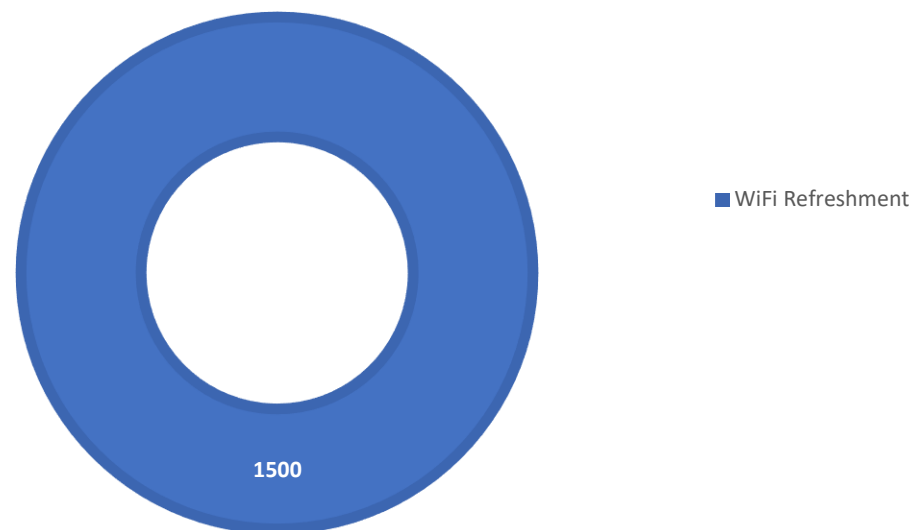
There are 23 Trusts that are part of the Digital Aspirant programme with the objective of the funding supporting Digital Transformation to enable us to provide safe and efficient care. The aim is to accelerate procurement, deployment and most importantly, uptake of the technology that is a platform for digital transformation to thrive.

The table below outlines what the organisation is planning on spending on Digital Aspirant Funding in the upcoming years.

DIGITAL ASPIRANT FUNDING YEAR 20/21



DIGITAL ASPIRANT FUNDING YEAR 21/22



Investment Digital Aspirant Priorisation

Scan4Safety the allocation of funding has been provisioned

Case Study	Description	Benefits						
		Patient Benefits (50%)	Score	Staff Benefit (25%)	Score	Financial Benefit (25%)	Score	Total
Voice Recognition	The ability to use Voice Recognition to input speech into clinical systems and non clinical systems	Enriched patient record by enabling clinicians to enter information at the time of consultation	8	Reduction in staff completing administration duties creating future capacity for increase demand	4	Limited financial saving however improvements in quality	2	70%
e-Consent	To digitise the documentation of a patient's informed consent prior to an investigation or treatment is undertaken	Streamlined digital process for patients along with a standardise approach to consent	8	Reduction in administration duties of handling paper time and making the environment safer for clinicians to work in	3	Reduction in cost saving attached to printing and scanning costs.	3	70%
EMIS/Cerner Interface	Interface between prescribing system (EMIS) and Electronic Patient Record (EPR)	Reduction in risk of adverse drug events occurring by removing dual entry into systems	8	Safer environment for clinicians to work by removing transcribing between two systems	4	Reduction in administration costs for the organisation releasing time to care	3	75%
Wi-Fi	Refreshment of Wi-Fi Infrastructure	Patients ability to connect	8	Continuation of service	4	Reduction in deployment	3	75%
Closed Loop	Enabling Closed in Medical Management and Administration	Increased safety for patients as all elements are connected	10	Safer environment for clinicians to work	5	Reduction in errors	3	90%
Cardiology	Interoperability within the Cardiology Suite of systems	Seamless interaction for all Cardiology Suite of Systems	9	Able to access information	6	Effective utilisation of clinical systems	3	90%
Network/ Infrastructure	Refreshing the organisation network is secure and high performance	All medical systems /hardware are on the latest network	7	Systems/Equipment working at optimal performance for staff to complete duties	7	Reduction in time wasted	4	90%
Agile Working	Supporting agile working for the workforce	Reduction in non-clinical staff onsite supporting social distancing	6	Enable to effectively, safely wok from home	5	Less reliance on the hospital estate	5	80%

Acronyms

Acronym	Description	Acronym	Description
CHFT	Calderdale & Huddersfield NHS Foundation Trust	PMF	Performance Management Framework
EPR	Electronic Patient Record	AI	Artificial Intelligence
CQC	Care Quality Commission	AMAM	Analytics Adoption Model for Analytics Maturity
DWOW	Digital Ways of Working	DHSC	Department of Health & Social Care
VDI	Virtual Desktop Infrastructure	DSPT	Data Security Protection Toolkit
CMDI	Clinical Digital Maturity Index	GDPR	General Data Protection Regulation
BTHFT	Bradford Teaching Hospital Foundation Trust	DPA 2018	Data Protection Act 2018
ICS	Integrated Care System	MDT	Multi Disciplinary Team
WYAAT	West Yorkshire Association of Acute Trusts	EqIA	Equality Impact Assessment