

Digital & Technology Strategy, Next steps for the Digital Trust 2019-2024

Version 1.1 August 2020; reflecting progress through the Covid-19 pandemic response.



TeraFirma
HEALTH **IT** AS A SERVICE

Digital Trust Strategy

1. Introduction; The Digital Trust, next steps

Our Trust vision is to be trusted to provide safe, caring and effective services, because people matter. This is delivered through living the values of Care, Respect and Responsibility, and together we create a place people choose to work.

The Digital Trust Vision for 2024

The vision for 2024 is to become a HiMSS level 7 Trust, through investing in technology, informatics, digital design and the principles of NHS long-term plan. In so doing we will deliver digital maturity through effective adoption of technology, which will support quality and performance transformation. Our vision for 2024 is;

1. To become an interactive digital Trust, where citizens have digital access to services, to contribute and participate actively in their health record – so they may better manage their health. In doing so, we will protect privacy and give citizens control of their medical record.
2. To become a digitally enabled organisation, where as a workforce we are able to embrace technology to support different ways of working – so that we may access the information we need wherever we are.
3. To become a data-driven healthcare partner, where decision support and artificial intelligence (AI) help limit unwarranted variation whilst genomic data, predictive techniques and co-authored care plans enable personalised care.
4. To be known as a responsible digital leader, in our approach to delivering national standards; data security, cyber security, interoperability and workforce development.
5. To become a provider that does not need a 'digital strategy', as technology will be adopted as mechanism for innovation to meet the core Trust Strategy.

2. Our three fixed point strategic objectives are:

- **Brilliant Basics** – creating secure, safe environment where equipment, access and service do not create barriers to care provision
- **Digital First** – creating a place that embraces innovation with a workforce skilled to deliver different ways of working, so that teams can deliver safe, caring efficient services and board development of digital confidence
- **Connected Care** – creating a place where teams across the borough are joined up around our citizens to improve outcomes, prevent ill health and link together as a regional health and care system

This fixed points directly align to the underpinning triple aims of the Trust strategy, which are to;

1. Develop integrated care provided locally to enable people to stay at home or be treated as close to home as possible.
2. Strengthen hospital-based care to ensure high quality hospital services are provided in the most effective and efficient way.
3. Provide specialist services to patients from the Black Country and further afield.

4. The Strategy in context

The Digital Trust Strategy is set out within the broader framework of the NHS long-term plan and the context of the Black country and West Birmingham, Sustainability and Transformation Programme (STP). The Digital Trust – Next Steps defines the digital delivery approach to the broader Trust Strategy (Care Better Every Day), the Clinical Safety Strategy and the Trust workforce strategy (The Dudley People Plan). The Digital strategy is underpinned by;

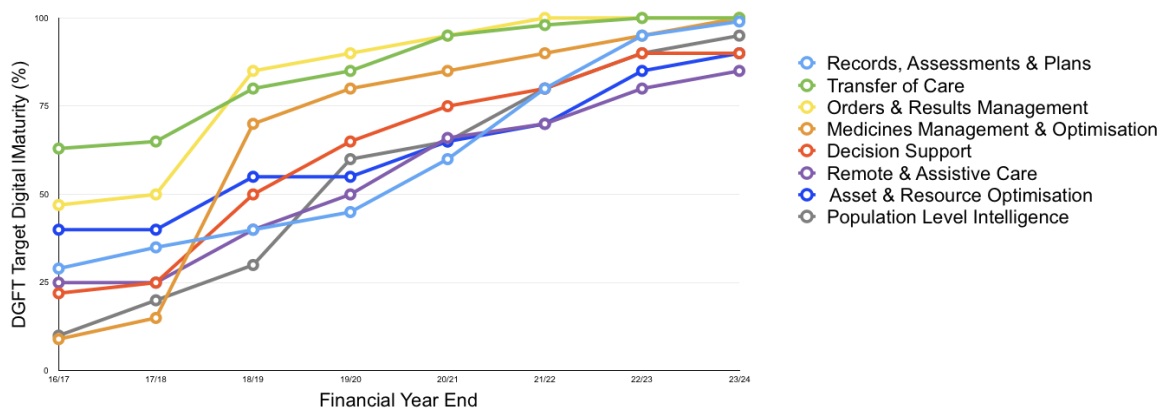
- The Trust’s existing Data Security Strategy to ensure confidentiality and security of our data
- The Trust’s improvement programme the ‘Dudley Improvement Practice’
- The National Digital Maturity Index which identifies the digital priorities and capability
- Board Assurance Framework through Current and Future Strategic Risk context

Current (2019) Strategic Risk Context – Board Assurance Framework objective 5b: *Failure to successfully adopt digital workflows, due to competing organisation / clinical pressures, availability of resources and change fatigue; results in clinical risk, reputational risk and inefficiency*

In review of the Trust strategic objectives and strategy in the coming months, the underlying strategy risk to the Trust of digital innovation is better framed as *“Failure to invest in and adopt technology compromises the ability to Drive service improvement, innovation and transformation”*.

5. Summary Overview of the Trust Digital Maturity Trajectory

The following digital maturity assessment trajectory includes the 16/17, 17,18 (EPMA) and 18,19 National assessments, which are linked to model hospital. The following graph describes how the local strategy meets the National objectives in all key domains over time.



6. Engagement

The Digital Trust team and CIO engaged with the wider workforce through a number of “Think Tank” focus groups utilising the Dudley Improvement Practice in August and October 2019. These off-site engagement sessions were undertaken in collaboration with colleagues at Dudley College to take input from a diverse group of the Trust’s workforce including managers, practicing health care professionals, administrative staff and IT professionals. Groups included doctors, nurses, pharmacists, AHPs, operational managers, communications experts and educators. These sessions explored how Dudley Group NHS Foundation Trust should approach adopting digital workflows and also workforce preparedness for the unintended consequences of technology on clinical practice and work-life integration.

Workforce and patient engagement sessions were planned for 2020, but due to Covid-19 these plans were suspended. The intention of the Digital Steering Group work plans is to re-establish this engagement and report to the newly formed Digital and Technology Committee. It is important particularly important that the Trust continually explores how adopting digital workflows and remote workforce effects the preparedness of the workforce for the unintended consequences of technology on clinical practice and work-life integration. Current key themes from these sessions;

- Keeping our plans simple to make a good start in electronic documentation
- Workforce design input to enable staff to record information electronically / digitally
- Workforce access and availability of this recorded data, to inform service design and practice
- Workforce development to build digital skills and reverse mentoring
- Citizen engagement to build digital skills in our wider population
- Offer technology platforms that divisional teams and the whole Trust can derive benefit from
- NHS organisations must ensure that patients, citizens and staff are involved in the co-design of transformation projects, particularly in identifying how digital healthcare technologies can help to improve both patient experience and staff productivity (OD1)

Further engagement with the Trust Board away days at Himley Hall in December 2019 and feeding back January 2020 led to the Digital and Technology Committee being re-established to manage this important agenda.

7. Where we were 2018 / 2019 and the Impact of COVID-19

In 2018/2019 internal and external IT reviews for the Trust highlighted that we made significant use of our technology stack but had not progressed with new digital capability. The impact of COVID19 has accelerated the delivery of key IT solutions. We will continue to take advantage of COVID19 funding and technology opportunities and maintain strong governance for products and suppliers.

During the early 2020 key deliverables identified in our Technology Strategy were implemented. Delivery in to practice occurred for each of the key fixed point objectives.

- **Brilliant Basics:** Unified communications platform. Microsoft Teams implemented through a Pre-N365 National Contract between NHS Digital and Microsoft. This accelerated our Digital cloud sharing provision to all staff. Board approved National N365 deal for September 2020 roll out.
- **Brilliant Basics:** delivery of ongoing IT refresh programme, remote working support and deploying workforce support tools. The Trust also delivered enhanced cyber security tools (from National funding award through the STP, which prevent significant cyber-attacks).
- **Digital First:** Video Consultations and access for patients via the National procured 12-month contract of "Attend Anywhere". This aligned with the STP strategy of reducing face to face outpatient appointments by April 2021
- **Digital First:** Expanded the clinical use of the existing Trust Wide EPR platform "Sunrise" including additional functionality to support the identification of COVID19 test status on Patient Tracking Boards, Respiratory Assessments, Critical Care Review, Pharmacy Referral and Handover and End of Live Frameworks
- **Digital First:** Radiology home workstation reporting for Radiologist
- **Digital First:** Community teams – 'AlwaysOn VPN' to support rapid secure access to the Trusts systems and reduce log-in barriers.

- **Connected Care:** The rapid deployment and expansion of our existing population health platform “dbMotion,” enabled clinical teams and access to real-time harmonised patient information including GP practice records to make decisions earlier in the clinical pathway.
- **Connected Care:** Made ready sharing structures to support the Midlands Nightingale project.

8. Approach

The Trust has already derived significant quality and safety improvement through Electronic Patient Record (ERP) deployment, with significant improvements in the management of sepsis patients. That said, the existing investment in digital capability has so far not recognised the full potential in terms of quality and safety improvements or cash-releasing financial benefit. These objectives will only be fully achieved through workforce engagement and adoption of the existing technology. An independent HiMSS review of current digital adoption and the full capability of our existing solutions is recommended to define evidence based priority setting in delivery plans.

In addition to making the best of what we already have, there are rapidly emerging technology demands that have yet to receive investment. This is set against a national context articulated by Dr Simon Eccles, NHS CCIO and deputy CEO of NHSX; “We have got our attitude to tech wrong. We are spending less than 2 per cent *{of turnover}* in many of our organisations on our full digital infrastructure and technology as a digital industry in which any other similar size industry will be spending 4 to 5 per cent” (HSJ 6th Sept 2019).

We will need to address issues of video capability and connectivity (raised in the June 2020 ‘COVID19 lessons learned think tank’ undertaken by the Dudley Improvement practice) through a long term ongoing investment in mobile working and give further consideration to future platforms that can reduce the overhead on laptop investment for example borough-wide Virtual Desktop Infrastructure (VDI).

In addressing the current themes and planning for the future, this digital strategy recommends a new approach to technology for the Trust. The first proposal is that by having ‘technology platforms’ the divisional triumvirates and corporate teams can in collaboration define quality, safety and efficiency benefits that can be derived. The second proposal is to engage with teams through the Dudley Improvement Practice methodology, so that improvement through Technology is properly understood and measurable. Value and limitations need to be objectively assessed when planning change. The third and final mechanism is for clinical and operational teams to engage and lead in place-based and system-based connected care collaboration. This aligns to the national direction of the long-term plan, STP strategy and associated funding streams.

9. Platforms of complimentary technology

In 2016 the Trust embarked upon a strategy to rationalise electronic clinical records. With over 350 clinical solutions across the organisation at that time it was key to establish a focus. Outdated digital strategies focus on the following. The Trust had attempted and failed at both;

- a single monolithic system. In practice this translates to either an enormous investment into workflow engines and bespoke on-premise development teams (which is not affordable) or an incompetent solution that meets specific needs, but broadly fails the organisation.
- a best-of-breed approach. In practice translates to excessive investments and overheads, with a reliance on interoperability. This frequently creates failures and often requires users to have multiple log ins.

Trust signed a 10 year deal in 2016 for a Trust-wide “clinical wrapper” solution, that achieves both a single point of contact for the clinical record, integration and interoperability for niche requirements. The Trust will continue to develop this scalable electronic patient record wrapper platform reducing the number of systems used for patient information leading to a fully integrated EPR across the Trust.

This set the tone for the Trust-wide “technology platform” approach described here. Whether that be infrastructure, software or communication solutions, the technology must serve the Trust (and not just a department). A reduction in the multi-vendor approach, whilst understanding that “one-size only fits most” will bring benefits in adoption of technology whilst reducing the overheads in management multiple cyber security risks, multiple point of failures and increase the investment in the platform of choice.

This of course also supports the patient safety strategy in bringing together clear integrated care pathways and avoids unnecessary hand-offs between systems. Interoperability is essential for core shared platforms with the Trust. The procurement of system platforms will continue to follow NHS X / Digital interoperability guidelines. The measure of this objective is undertaking the Healthcare Information Systems Society (HIMSS) and will reach HIMSS Level 7 by 2025. The Trust internal auditor (RSM) has been commissioned to undertake baseline assessment against the HIMSS adoption model in September 2020.

The Trust provides an accredited ISO27001 public and private cloud through TeraFirma’s Tier 3 Datacenter to Health Care Providers in the STP and neighboring organisation. TeraFirma will continue to deliver this model while enabling the NHS Digital Cloud / Digital First into our hybrid model. Building partnerships with other Health Care Provider within the STP is vital in removing duplication and competition for funding in the basic requirements of infrastructure, where digital solutions are desperately needed. The strategic principle is to seek the highest quality in service in proportion to cost. This will support the reduction of the STP overall expenditure in infrastructure while continuing to provide a highly resilient and ISO accredited environment. An opportunity then exists to share cyber-security and business intelligence leadership to deliver improved system working and quality improvement.

10. Cyber Security

We will continue to protect our systems, networks, devices and data from cyber-attack and protect against unauthorised exploitation of potential vulnerabilities. As a constituent of the Black Country & West Birmingham Sustainability & Transformation Partnership (STP), DGFT are involved at all levels including being an active member of the Cyber Security Sub Group of which DGFT currently chair. We will continue to provide digital expertise to the wider health economy by sharing in our learning from our approach, experience and industry based standards.

11. Enabling a Digital Workforce

This digital strategy is strongly aligned with our workforce strategy, STP Digital Strategy, NHS Interim People Plan and the TOPOL review. We will use technology to improve the reporting and management of sickness absence, workload and work-life balance. We will create interoperability between all the Corporate Service systems to deliver a real-time staffing view that enables accurate management, flexible working and the capability to co-ordinate staff nationally on a temporary basis.

The Chief Information Officer (CIO) portfolio is being transformed in collaboration with local academic institutes and the new Dudley Institute of Technology. New career entry-points for healthcare IT and progressive career paths are being formed to better supporter inclusion and diversity across the directorate, the Trust, the Region and Nationally. Investing in the development of existing staff, will continue to enable digital leadership capability, deliver improvement and future digital talent.

Focusing on electronic staff records (ESR) self-service, autonomy, manager tools, training passports and safety is vital. The ability to stay connected with the workforce, seek insights into wellbeing, mood and development requirements is vital. Future investments that build upon existing incumbent platforms will mean that significant innovative improvements can be achieved in supporting staff health and wellbeing. Equality, diversity and inclusion networks can be better supported through platforms of technology and intelligence based engagement to ensure that our workforce needs are heard and met.

12. Citizen, Patient and Population

Only 25% of the population who have access to the internet have registered for online services with a GP. This strategy focuses on implementing new solutions that support the delivery of healthcare but also coach and promote the use of these products. A borough wide participation / coaching agenda is required to ensure access to patient held records. In doing so the sharing of mental health, Social Care and Community Pharmacies information.

It is important for the Trust to look to co-develop the use of emerging technologies from design to implementation; seeking citizen engagement. New technology can enhance the lives and delivery of care to our patients. We will use it to redress inequalities enabling ease of access and social mobility in accessing healthcare through for example the use of tele-medicine and wearables and we will not isolate the 10% of the population that do not access technology or the internet regularly through choice or circumstance.

13. Emerging Technologies in Health Care

The Trust will need to take steps to move towards the use of Robotics Process Automation (RPA) in the coming years, to drive productivity improvements including cost, data quality and reliability. Taking this step requires significant workforce engagement and a detailed understanding of the objectives and success criteria.

The potential of Genomics, personalised medicine and AI-based technologies to transform healthcare are significant in terms of prevention and speed of diagnosis. Nationally and internationally, healthcare providers and commissioners continue to develop and review the governance arrangements that protect and safeguard patients. A confidence in the ability to manage complex care pathways of the future through emerging and automated technologies is a significant challenge for the organisation and wider place-led care model alike. Embracing the opportunities of automation need to become the norm. When business cases are presented, models and pathways should be challenged to included automation and intelligence, however getting to this significant milestone will take time.

14. Interoperability

The Trust has delivered a significant transformation programme with its electronic patient record and will continue to implement modules and functionality over the next 5 years. Through this transformation data rich Business intelligence will become available to all divisions and services with no siloes of data.

We will select technologies that are interoperable and enable a truly interconnected system. This will in turn deliver strategic objectives of HIMSS Level 7, paperless office and self-service insights / dashboards from real-time data designed to be appropriate to all levels and divisions of the Trust.

We will look to integrate wearables and medical devices into our Clinical Systems and Business Intelligence solutions. Drawing data from all available sources to offer new ways to see and use Digital Information to improve the health care of the patient, citizen and population.

Strategic Objective One – Brilliant Basics		
Strategic Aims	Year 1 Initiatives (2019/20)	Measures of Success – Year 1
<p>To deliver access to care through digital systems wherever it is required, as outlined in “the future of healthcare.”</p> <p>To deliver a platform to deliver compliance with standards to support clinical safety, cyber security and data-security strategies and citizen confidentiality, integrity and availability (CIA)</p> <p>To support the development of digital skills within the workforce to improve the capability and capacity to evolve.</p>	<ul style="list-style-type: none"> • Device Re-fresh & Repatriate Year 2 • High speed Health and Social Care Network (HSCN) • ISO27001 	<ul style="list-style-type: none"> • Revalidated ISO27001 re-accreditation • Replaced N3 with HSCN network • Partial rollout Windows 10 and Advanced Treat Protection to all devices Inc. Primary Care • Maintain Cyber-essentials certification • Maintain TeraFirma provider DSP Tool kit 100% • Embed the use of alternative communication platforms • Create a securely connected place-based health and care economy
	<ul style="list-style-type: none"> • Improved networks across the borough • GP IT refresh programme 	
	Year 2 Initiatives (2020/21) <ul style="list-style-type: none"> • Device Re-fresh & Repatriate Year 3 • Trust Network Platform re-fresh • Cyber-essentials Plus compliance • Building ‘agile’ approach within IT • STP Bleep replacement blueprint • STP Office365 and NHSMailO365 Hybrid • STP Widening Digital Participation (WDP) Programme - Patient engagement • PAS Upgrade 	Measures of Success – Year 2 <ul style="list-style-type: none"> • Complete rollout Windows 10 and Advanced Treat Protection to all devices Inc. Primary Care • Provide a fit-for-future Trust network / WiFi and telephony platform • Maintain ISO27001 (certification), DSPTool kit and Cyber-essentials certification • Achieve Cyber-essentials Plus certification by June 2021 • Digital culture embedded within the Workforce and staff engagement committee
	Year 3-5 Initiatives <ul style="list-style-type: none"> • Datacentre platform re-fresh • Device Re-fresh & Repatriate – ongoing • Maturing ‘agile’ approach within Trust • STP Widening Digital Participation (WDP) Programme - Patient engagement • Sunrise EPR Upgrade 	Measures of Success – Year 3-5 <ul style="list-style-type: none"> • Secure ongoing technology refresh • Updated data centre strategy • Maintain ISO27001 accreditation (certification) • Maintain Cyber-essentials certification • Maintain TeraFirma provider DSP Tool kit 100% • Secure sustainability of the technology platform

Strategic Objective Two – Digital First		
Aims	Year 1 Initiatives (2019/20)	Measures of Success Year 1
<p>To develop a culture of ‘digital first’ within all directorate, supported by strategic objective 1 and the workforce strategy.</p> <p>To demonstrate improved patient outcomes through the use of near / real-time analytics and clinical decision support</p> <p>To achieve improved digital adoption maturity and be known as a regional leader in digital.</p>	<ul style="list-style-type: none"> • “Sunrise First” patient record – single, trust-wide clinical record platform • Support Trust in optimising the use of Existing Systems (e.g. managed-print, patient portal, PAS bed-management dashboards) • Build self-service data dashboards • Commence corporate paper-free working 	<ul style="list-style-type: none"> • Delivery into clinical practice of Sunrise core functions • Corporate unified / ubiquitous Comms
	Year 2 Initiatives (2020/21) <ul style="list-style-type: none"> • Digital working in corporate functions • Self-service insight and information platform • Digital HR – single platform • Embed clinical decision support into clinical workflows • Straight forward digital access to services for citizens / patients, • Unified communications platform • Workforce Strategy Digital Skills Phase 1 • RFID management of Clinical & IT devices 	Measures of Success – Year 2 <ul style="list-style-type: none"> • Deliver remaining Clinic practice and EPMA, Devices into Sunrise • Waste reduction in corporate printing • Deliver key objectives of the data strategy • Patients have access to their records • Optimising outpatients and reducing waste in-line with the NHS LTP • Healthcare professionals trained in health data provenance, curation, integration and governance • Increase of interoperability between Trust systems • Undertake HIMSS ≥5 baseline assessment • Digital Maturity Capability within the National Median • Electronic Rostering & Planning within the National Median
	Year 3-5 Initiatives <ul style="list-style-type: none"> • Workforce Strategy Digital Skills Phase 2 • Mature the Patient Health Record (PHR) • Expand the use of the Internet of Things (IoT) to incorporate data into workflows • Advanced clinical decision support software • Machine Learning and Artificial Intelligence • Explore AR and VR applications 	Measures of Success – Year 3-5 <ul style="list-style-type: none"> • Healthcare professionals with core genomics, AI, literacy • Career paths in clinical / bioinformatics • Real-time passive tracking of beds, devices, TTOS, samples and scan for safety (RFID) • AI and machine learning in diagnostics • Integrated of Virtual reality supports care and patient experience • Create Personal Health Records (PHRs) • Attain HIMSS Level 7 • Digital Maturity Capability within the National Upper Quartile • Electronic Rostering & Planning within the National Upper Quartile

Strategic Objective Three – Connected Care - Population Health Management

Aims	Year 1 Initiatives (2019/20)	Measures of Success – Year 1
<p>To deliver a population health interoperability platform that links primary, secondary and community systems, promoting interoperability and openness.</p>	<ul style="list-style-type: none"> • Population Health Management platform • Population Health Intelligence strategy 	<ul style="list-style-type: none"> • Link clinical data from all local GPs and the Trust • Engage with the Midlands Population Health management academy
<p>To support a black country STP digital convergence strategy and create platforms that deliver collaboration</p> <p>Support scalable, sustainable health and care by enabling re-design at a system level, through the appropriate use of insights.</p>	<p>Year 2 Initiatives (2020/21)</p> <ul style="list-style-type: none"> • Co-ordinated care - shared care plans • Population Health Analytics platform • Patient engagement and participation • Predictive analytics to support local care planning 	<p>Measures of Success – Year 2</p> <ul style="list-style-type: none"> • Care Director supporting MDT working closer to patients' homes • Patient participation in health records • Big Data – predictive business intelligence • Robotic Process Automation (RPA) and Machine Learning (ML) in data / integration tasks • Initial reduction in repetitive admin tasks through RPA • Deliver a population health data strategy to meet national requirements (population health intelligence model)
	<p>Year 3-5 Initiatives</p> <ul style="list-style-type: none"> • Population Health Analytics, informing care • Genomics and Personalised Medicine 	<p>Measures of Success – Year 3-5</p> <ul style="list-style-type: none"> • Use of Informatics Dashboards across all divisions • AI - big data • Link clinical, genomic and other data to support the development of new treatments to improve the NHS, making data captured for care available for clinical research, and publish, as open data, aggregate metrics about NHS performance and services.

15. Success Heatmap – Clinical Capability

Information and Technology Strategic vision - 2019 - 2024								
Financial Year	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Digital Adoption	20.0%	40.0%	62.5%	75%	80%	90.0%	>95%	>98%
HIMMS EMRAM Maturity	HIMMS EMRAM 3	HIMMS EMRAM 4	HIMMS EMRAM 5	HIMMS EMRAM 5	HIMMS EMRAM 5	HIMMS 6 commenced	HIMMS 7 commenced	HIMMS 7
User Devices								
Desktop	90.0%	70.0%	50.0%	30.0%	20.0%	<10%	<10%	<10%
Laptop / Tablet / Mobile	<10%	20.0%	40.0%	50.0%	70.0%	85%	90.0%	>95%
NHSE Universal Capability	30.0%	75%	100%					
NHSE Capability Groups:								
Records, Assessments & Plans	29	35	40	45	60	80	95	99
Transfer of Care	63	65	80	85	95	98	100	100
Orders & Results Management	47	50	85	90	95	100	100	100
Medicines Management & Optimisation	9	15	70	80	85	90	95	100
Decision Support	22	25	50	65	75	80	90	90
Remote & Assistive Care	25	25	40	50	66	70	80	85
Asset & Resource Optimisation	40	40	55	55	65	70	85	90
Population Level Intelligence	10	20	30	60	65	80	90	95
Systems	FAT Client	Thin Client	Web Based / RDS	Web Based / RDS	Web Based / RDS	Web / App Based	App Based	App Based / VDI
Strategic Goal	Paper Free at the Point of Care PF@PoC	PF@PoC	PF@PoC	Pathway Optimisation	Pathway Optimisation & Connected Care	Pathway Optimisation & Connected Care	Connected Care & Population Health	Population Health

16. Deliverable – all deliverables to have a delivery plan and success criteria

Financial Year	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Clinical Systems	Hospital 24/7 (Web), Chemotherapy EPMA (Web), EMISWeb	Current State analysis, Future state Design, Trust Clinical engagement, Underpinning Drug Validation,	-E-Obs -E-Sepsis and outcome tool-kit -Clinical Decision Support -Basic ADT Bed Management	-New Zero footprint Picture Archive Communication System (PACS) -ED Tracker -ED documentation -Clinical Decision Support -Order Comms -Soarian Decommissioning -ICCP (CareVue) upgrade -JAC - Pharmacy Stock Management & Falsified Medicines Directive -ChemoCare scheduling and worksheets - ePMA	- Maternity, Theatre scheduling management - Electronic Letter, Clinical Pathways - Nursing / AHP Documentation - eP(outpatient) - with alerts - Enhanced Bed Management - Discharge Planning - Care Director - Patient Portal	-Critical Care -Oncology -Community -Patient portal - link to NHS App (API) -Anaesthetics Information Management System (AIMS)		
Infrastructure & Security	Resilient Local - Data Centres, Inter site connectivity, N3	-Vendor Neutral Archive (VNA), -Enterprise, device agnostic user-authentication (spine as required) -Mobile Device Management -eLink - Capsule - Rhapsody medical device integration -Free patient Wi-Fi. -TFIT ISO27001 -Cyber Essentials (CE) cert -Allscripts PAS 2016.2 upgrade	-Windows Server 2012 -End-point (PC/laptop) refresh - commence 3 year rolling programme -GP IT infrastructure -Embed Clinical Safety Standards (DCB0129 and DCB0160) -Maintain TFIT ISO27001 -Cyber Essentials (CE) cert -Maintain DGFT DSP Toolkit	-95% virtualised -Windows Server 2016 Upgrades -Service Licensing -HSCN nat.secure network (borough-wide) -Maintain TFIT ISO27001 -Cyber Essentials (CE) certification -Maintain DGFT DSP Toolkit -NIS Directive- Network & Info Systems (CAF) -Veeam back-up high-availability enterprise - ACI (application centric infrastructure) -Maintain PEN test schedule	-Trust Digital Telephony (IPT) -Barcoding / RFID (GS1) -Ward-based automation (medicines management) -certified cyber essentials + -Maintain TFIT ISO27001 -Cyber Essentials (CE) certification -Maintain DGFT DSP Toolkit -NIS Directive- Network & IS (CAF) -Network refresh - active/ passive	-Data-Centre refresh -Cloud Strategy -Windows Server Upgrades -NIS Directive- Network and Information Systems aligned to CAF -Maintain TFIT ISO27001- -Cyber Essentials (CE) -Maintain DGFT DSP Toolkit	Maintain TFIT ISO27001 and Cyber Essentials (CE) certification and DSP Toolkit Maintain DGFT DSP Toolkit	-Maintain TFIT ISO27001 -Cyber Essentials (CE) certification -DSP Toolkit
Medical Equipment / Asset Management	Medical Devices Group to create a consistent Digital Monitoring Devices Strategy (e.g. ECG, BP, Ultrasound)	Medical Devices Group to define capital plan for integrated medical devices	Deploy integration units - wall mounted and test links.	-Integrated digital monitoring devices,	- Established integrated medical devices	-Digital Asset Tracking, -Integrated Infusion devices -Internet of Things (IoT)	Enhanced IoT RFID sample tubes (BCPS initiative)	
Corporate and Productivity Systems		NHS Mail V2 Skype for business	Windows 10 ATP, Skype for business	-Windows 10 ATP -MSOffice 2019 / 365 review unified communications platform -Digital Dictation	- Borough Windows 10 ATP, - Enhanced unified communications via Microsoft Teams - Secure national officer N365 deal for secure unified communications	- Enhanced secure communications - Employment portal - Online meeting minutes Robotic - Process Automation (RPA) "Artificial Intelligence" (AI)	Robotic Process Automation (RPA) "Artificial Intelligence" (AI)	
Data, Information and Analytics	Intelligence Modelling	Develop metrics, KPIs and KQIs	Digital Dashboards	-Enhance Dashboarding -Enhance BigHand reporting -PRSB - AoMRC discharge standards -Emergency Care Data Set (ECDS) -Maternity Services Data set V2 (MSDS) -Systemic Anti-Cancer Therapy Data-set V3.0 -dm+d medicines	-Performance Dash-boarding and SPC charts - Centralise informatics	Build a Business Intelligence / business partnering model Predictive Modelling Natural Language Processing (NLP)	Business Intelligence Predictive Modelling Natural Language Processing (NLP)	
Shared Care Record / Patient Access	LDR Strategy	Black country LDR strategy dBMotion Infrastructure	Black country STP Outline Strategy Black country Pathology Service (BCPS)	- STP Interoperability convergence strategy -Patient letters and communications	-BCPS integration and LIMS upgrade -Dudley GP order comms upgrade (BCPS) -Patient Portal -Care coordination -Kiosk access to services -Nightingale Network connectivity	Wearable Health VR / AR in patient experience Population health analytics platform	-AR / VR in clinical use -Artificial intelligence (AI) -Genomics -Enhanced population health level intelligence	Enhanced AI Precision medicine
Workforce and Public			Clinical Risk Management in Healthcare IT - CSO	Make Data Count - Data Ambassadors Certified Information Systems Security Professional (CISSP) Clinical Risk Management in Healthcare IT - CSO	-Enhance E-Rostering -Email standard charter -Improvement practice methodology -Clinical Risk Management in Healthcare IT- clinical leaders -Develop data engineer roles -User experience (Ux) / User interface (UI) Developer skills -Digital foundation skills -Email standard charter (workforce) -Attend Anywhere Virtual consultations	-Enhanced digital skills framework -Big Data, probability and statistics - Clinical Risk Management in Healthcare IT - clinical teams - Data Science - Clinical Informatics Bioinformatics -AR / VR engineers -Widening Digital Participation Patient engagement programme	-Clinical Risk Management in Healthcare IT - mandatory -AI ML Developers -AR VR Developers -AR VR engineers -Clinical Bioinformatics	Clinical Risk Management in Healthcare IT - mandatory

RED – Mandate Amber - To be funded Purple - External funded Black – Funded Blue – Part Funded

References

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The Topol Review- Preparing the healthcare workforce to deliver the digital future <https://topol.hee.nhs.uk/> February 2019

Healthier Futures – Black County West Birmingham Digital Strategy 2020-2024 (draft)

Black County Digital Strategy 2016-2020 <https://www.blackcountrylep.co.uk/regional-growth/black-country-digital-strategy/> 21 March 2016

The NHS 10 Year Plan

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Dudley Group NHS Foundation Trust Strategy Booklet 19/21 <https://www.dgft.nhs.uk/trust-strategy-2019-21/>

Model Hospital <https://model.nhs.uk/home/provider> accessed 17 July 2020