

Reference Number: FOI202122366
From: Private Individual
Date: 24 November 2021
Subject: IT questionnaire

Q1 Do you have a formal IT security strategy? (Please provide a link to the strategy)

A1 [We do not have a separate IT Security strategy. This would be included in wider Digital Futures Road Map for items like Cyber Essentials, etc. Please see attached document titled: 366 Digital Futures Road Map.](#)

Q2 Does this strategy specifically address the monitoring of network attached device configurations to identify any malicious or non-malicious change to the device configuration?

A2 [Strategy documentation would not include this level of detail this would be covered at a policy or standard operation procedure level](#)

Q3 If yes to Question 2, how do you manage this identification process – is it:

- A) Totally automated – all configuration changes are identified and flagged without manual intervention.
- B) Semi-automated – it's a mixture of manual processes and tools that help track and identify configuration changes.
- C) Mainly manual – most elements of the identification of configuration changes are manual.

A3 [B\) We have a number of monitoring tools that are reinforce manual process](#)

Q4 Have you ever encountered a situation where user services have been disrupted due to an accidental/non malicious change that had been made to a device configuration?

A4 [A\) Yes](#)

Q5 If a piece of malware was maliciously uploaded to a device on your network, how quickly do you think it would be identified and isolated?

- A) Immediately
- B) Within days
- C) Within weeks
- D) Not sure

A5 [This question is not a valid request for information under the provisions of the Freedom of Information Act because it does not describe the information being requested. The Act grants a right of access to information held by public authorities however the question requires a subjective answer and not factual response from information held by the Trust.](#)

Q6 How many devices do you have attached to your network that require monitoring?

- A) Physical Servers: record number
- B) PC's & Notebooks: record number

A6 We monitor all servers (VM and physical) and PCs connected to our network.
Servers (both VM and Physical) 453
Workstations 4433

Q7 Have you ever discovered devices attached to the network that you weren't previously aware of?

If yes, how do you manage this identification process – is it:

- A) Totally automated – all device configuration changes are identified and flagged without manual intervention.
- B) Semi-automated – it's a mixture of manual processes and tools that help track and identify unplanned device configuration changes.
- C) Mainly manual – most elements of the identification of unexpected device configuration changes are manual.

A7 B) No we have not

Q8 How many physical devices (IP's) do you have attached to your network that require monitoring for configuration vulnerabilities?

A8 We monitor all IPs in our ranges for vulnerabilities to ensure all devices are captured. However if you are referring to network switches we have 392.

Q9 Have you suffered any external security attacks that have used malware on a network attached device to help breach your security measures?

- A) Never
- B) Not in the last 1-12 months
- C) Not in the last 12-36 months

A9 A) No we have not

Q10 Have you ever experienced service disruption to users due to an accidental, non-malicious change being made to device configurations?

- A) Never
- B) Not in the last 1-12 months
- C) Not in the last 12-36 months

A10 B) Not in the last 1-12 months

Q11 When a scheduled audit takes place for the likes of PSN or Cyber Essentials, how likely are you to get significant numbers of audit fails relating to the status of the IT infrastructure?

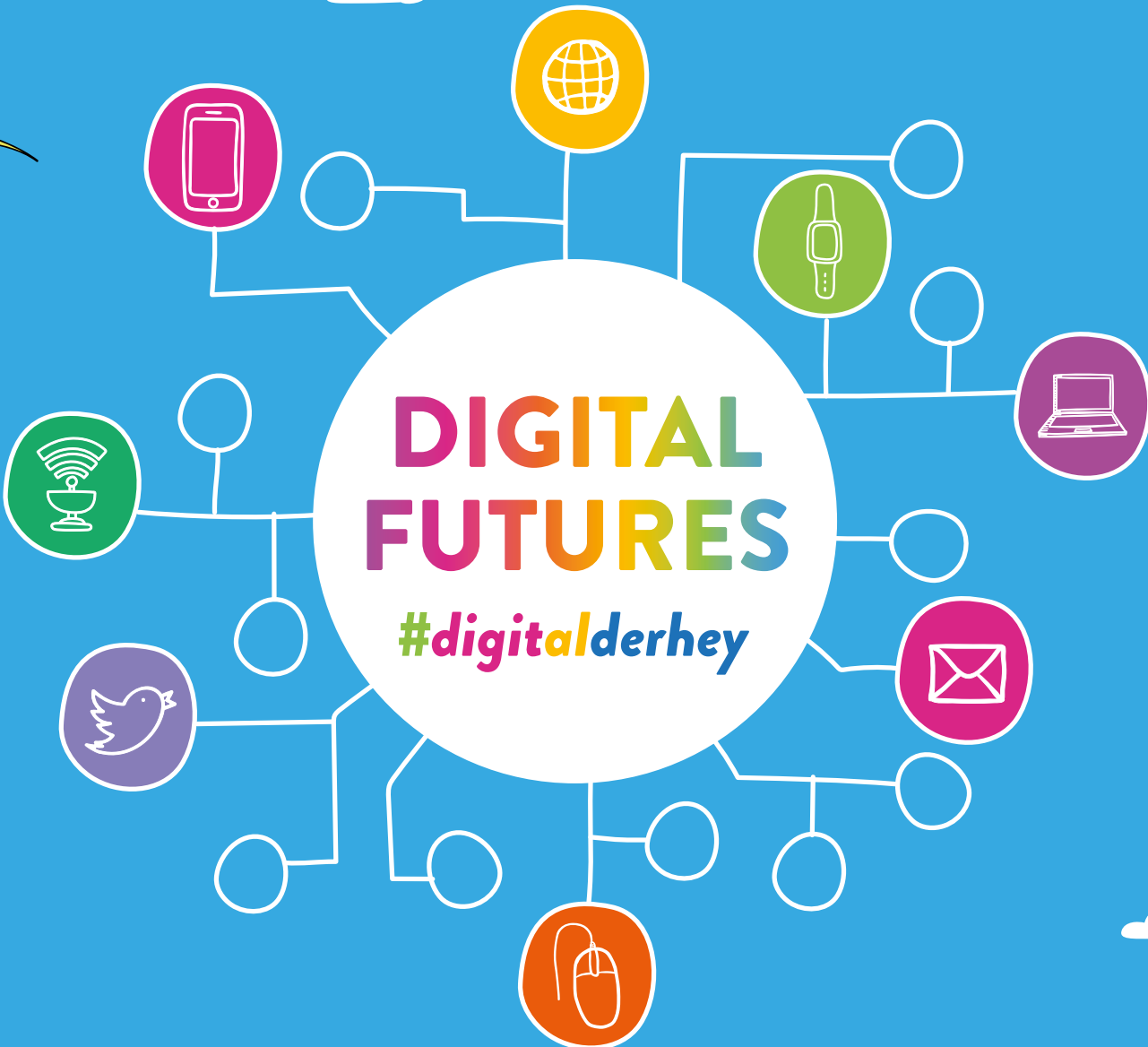
- A) Never
- B) Occasionally
- C) Frequently

D) Always

A11 This question is not a valid request for information under the provisions of the Freedom of Information Act because it does not describe the information being requested. The Act grants a right of access to information held by public authorities however the question requires a subjective answer and not factual response from information held by the Trust.

DIGITAL FUTURES

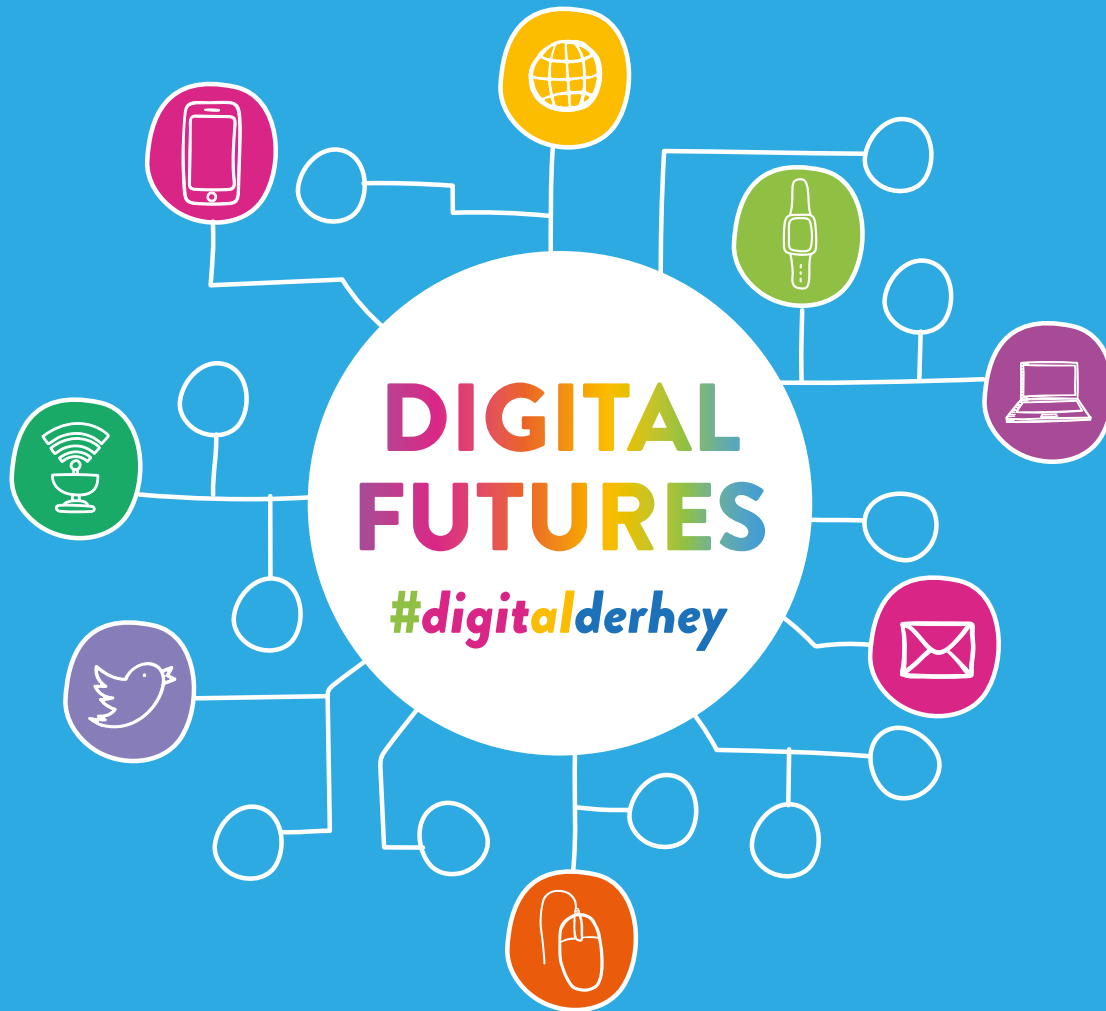
#digitalderhey





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Foreword

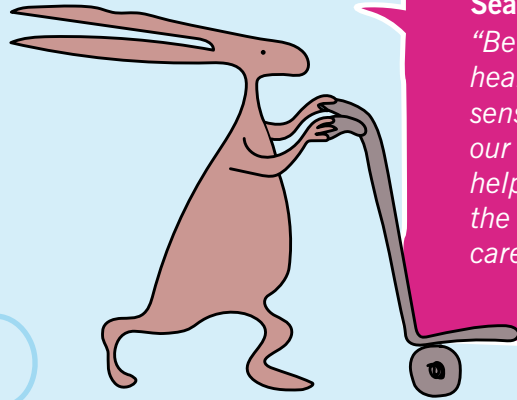
Everything we do, almost every part of our day is determined by digital technology. This technology has led to life changing inventions and has linked individuals across the world, with potential for collaboration and game-changing learning. In our NHS we are trying to mirror the difference that digital makes everywhere else.

At Alder Hey we are determined to be a leader in the NHS, creating a digital future by working with our children and young people to give them the best possible care, supported by unleashing the power of digital technology in every part of what we do. We want the experience of everyone we are in touch with to be enhanced through digital, from their first contact to their last.

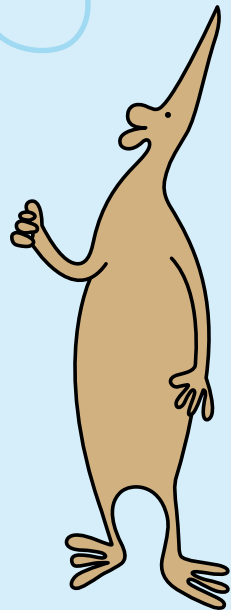
We pledge to use digital to ensure that we are safer and that we deliver the best possible care at every step. For our staff we pledge that their working day will be made better by delivery of a digital infrastructure that is based around their day to day needs. **Using this Digital Strategy Alder Hey has the opportunity to transform the way we work and the way we deliver care.**

Dame Jo Williams
Chair

Louise Shepherd, CBE
Chief Executive

**Sean Age 17**

"Better use of technology in our healthcare is beneficial in every sense of the word. It determines our access to healthcare and helps us with the future, paving the way for their future such as career pathways."

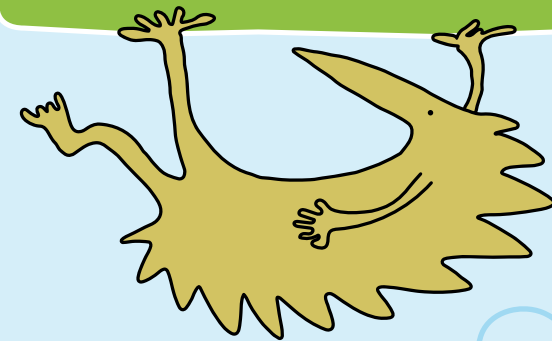
**Tom Age 17**

"Technology for us as young people is a large part of our everyday life. Living in this day and age the ability to use the newest technology is necessary for almost all jobs and therefore would be very useful for us to be a part of."

"Hospitals can be a very fearful place – especially for children – and we should use digital technology like virtual reality to reduce this."

Esme age 9

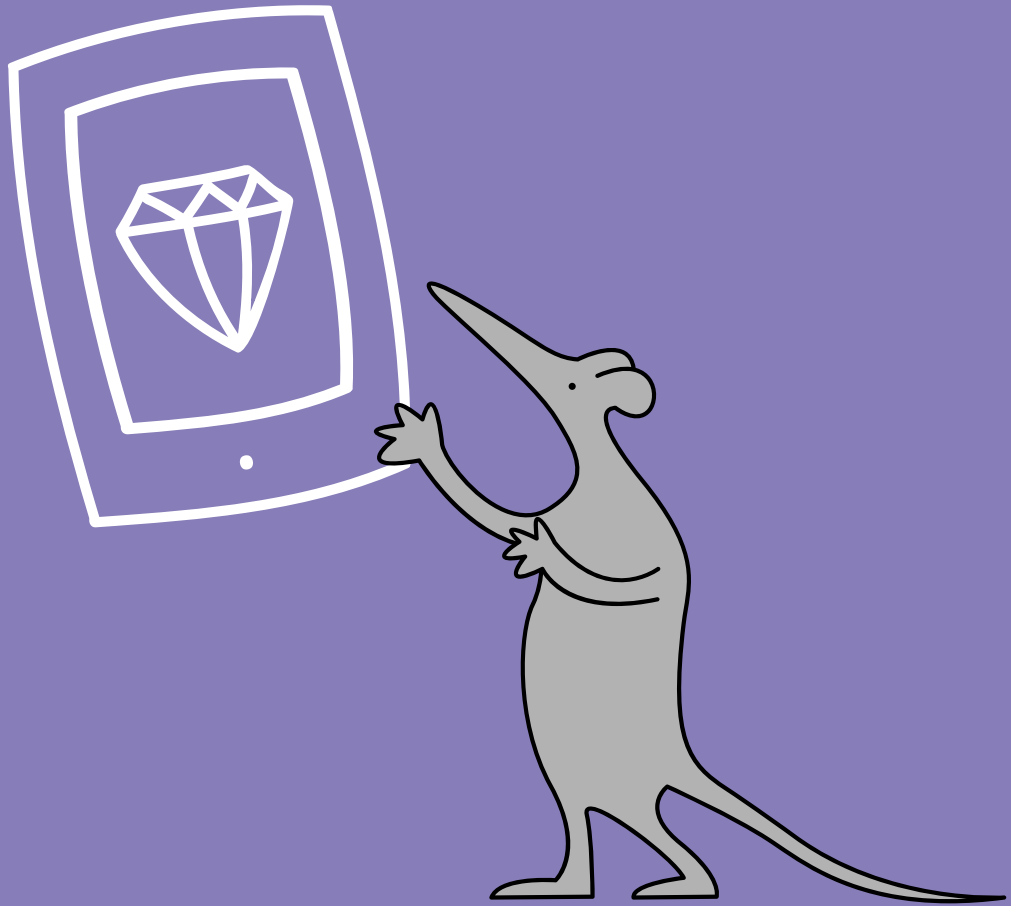
"We know we live in a digital world but we don't always know how we can make our voices heard by using digital media. We have seen how much benefit there is for children in apps like AlderPlay but this is only the beginning. We don't want to be silent about their care; we want information and we want to engage. A digital platform allows us that."



1

1

Our Digital Promise - Outstanding Digital Excellence



A very warm welcome to 'Digital Futures' #digitalderhey. Digital Futures sets out the digital ambitions and strategy for Alder Hey NHS Foundation Trust over the next five years.

Our ambition is to create an ethos of 'Outstanding Digital Excellence'. At the heart of this vision is our 'north star' focus on creating the best experience and outcomes for Children, Young People and Families, and Staff.

"The opportunity of digital is immense for health and care services. It is here to stay and further expand..."

Through this we will strive to:

- Provide the best possible digital and technology services to support, enable and drive clinical excellence, digital quality improvement, outcomes and patient safety
- Deliver Information Technology basics well, championing a 'Digital First' approach across Alder Hey, supported by excellent, proactive, customer focused services
- Unleash innovation and research to harness digital technology in order to create opportunities to adopt and evaluate digital innovations throughout the world's first 'Living Trust'
- Maximise local, national and international partnerships to bring in expertise and new advances in pursuit of a shared vision

We believe that achieving Outstanding Digital Excellence, having an ethos of creating the best digital experience and delivering the best clinical outcomes should 'be our norm' and cut through everything we do internally, locally, regionally, nationally and internationally. We will not always get it right but we will focus our efforts to try and get it right, every time.

The opportunity of digital is immense for health and care services. It is here to stay and further expand and will both enable and drive both current and future developments.

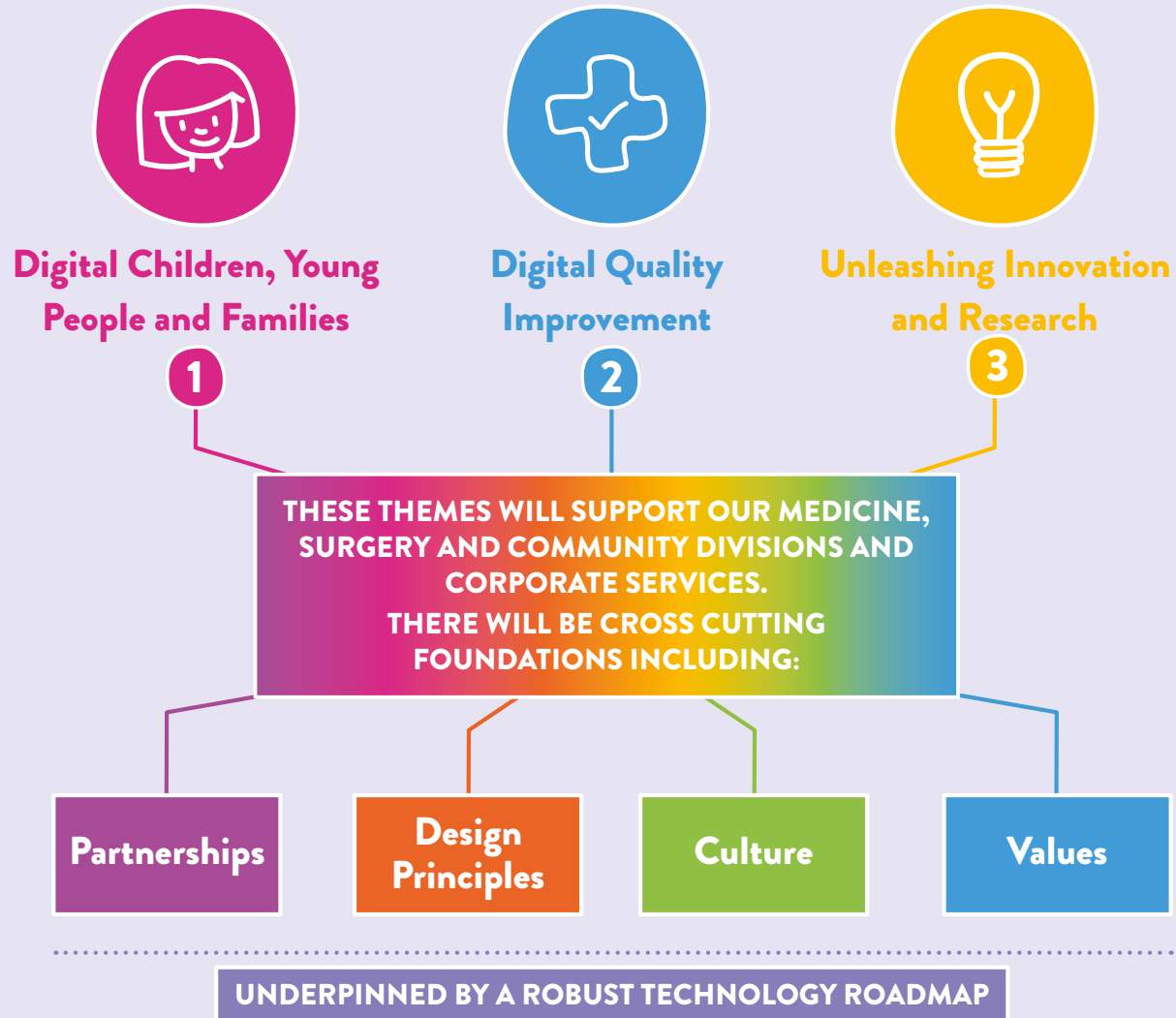
We will focus delivery on three key transformation themes:

1. Digital Children, Young People and Families
2. Digital Quality Improvement
3. Unleashing Innovation and Research

These themes will be supported by cross cutting foundations of Partnerships, Design Principles, Culture and Values; underpinned by a robust technology roadmap.



WE WILL FOCUS DELIVERY ON THREE KEY TRANSFORMATION THEMES:



1

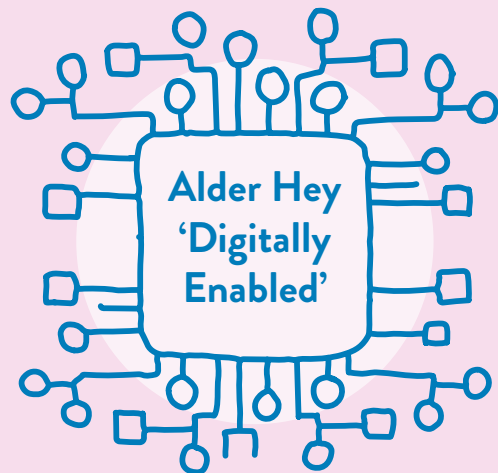
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Framing the Digital Strategy



‘Digitally Enabled’ is identified as a strong foundation in Alder Hey’s ‘Our Plan’. It is a core tenet of the Trust’s five year strategy.

It is important to note that this cuts through our whole strategy from Brilliant Basics and Outstanding Care, supporting our people to do their best work, through to growing the future with game changing research and innovation. Improving Care through Technology is a key plank of our Inspiring Quality strategy and delivering best in outpatient care. The translation of innovative digital developments into enablers of improved patient care and experience will be supported by a robust framework of evaluation.



Outside work most of us, especially children and young people, expect a seamless digital experience that works so well we don’t think of it as digital. When this works well we just notice the result not the technology; our sat nav guiding us around traffic jams on the way to work, our favourite music wherever we are, and seeing our friends and family around the world with no effort at all. The digital experience at Alder Hey should be the same for patients, carers and staff.

In health and care services, the use and development of digital and technology are critical factors prevalent in much of what we do, but has way more potential and opportunity to truly support and transform the way in which we provide, plan and deliver care.

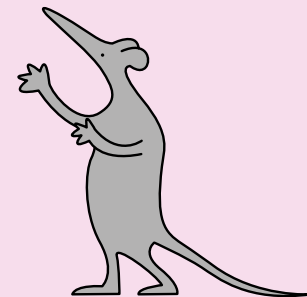
“the use and development of digital and technology are critical factors prevalent in much of what we do...”

2.1

Alder Hey NHS Foundation Trust

Alder Hey enjoys a world-leading reputation in many disciplines and is recognised as a leader in healthcare innovation and technology. With Alder Hey in the Park we have an infrastructure, clinical entrepreneurs, and active engagement with industry, academia and the local community that has created an exemplar of the power of public and private collaboration and partnerships for accelerating innovation into healthcare.

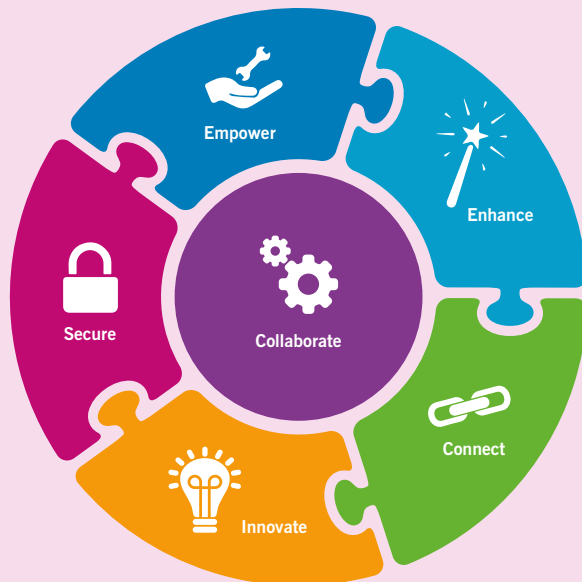
Crucially, the aspiration to transform care for children, young people and their families through digital technology is one of the key aims of the Inspiring Quality programme, with an aspiration to have excellent digital pathways and a clinical intelligence portal supporting high quality care.



2.2

Cheshire and Merseyside Health and Care Partnership

Regionally, delivery of a 'digital revolution' is one of the key enabling workstreams of the Cheshire and Merseyside Health and Care Partnership. The regional Digit@LL Strategy was published in July 2018. Digit@LL sets out a vision for the local system of empowering staff and patients through digital technologies. The strategy outlines a vision of integration of digital information and records and presents an innovation ambition to make Cheshire and Merseyside the place innovators come to learn and see digital excellence.



DIGIT@LL IS CENTERED AROUND SIX THEMATIC HEADINGS OF:

- **EMPOWER** – delivery of person held records and assistive technology empowering and activating citizens to utilise digital technologies to manage their own care, take control and work in partnership in relation to their health and wellbeing
- **ENHANCE** - improving quality, safety, patient experience & outcomes through significantly reducing paper processes and records that cause inefficiency and delays in care
- **INNOVATE** - creating a culture of constant 'innovation' and improvement with our approach to technology enabled health and care services
- **CONNECT** – delivery of the North West Coast Local Health and Care Record Exemplar Programme, Share2Care, connecting and supporting the integration of our local health and care organisations, ensuring that information is available to the right people, in the right place, at the right time to deliver and drive service delivery, integration and transformation
- **SECURE** - supporting all local health and care organisations to ensure that our local system operates and functions safely through a robust approach to Cyber Security
- **COLLABORATE** – working collaboratively with partners across Cheshire and Merseyside

Alder Hey has contributed vastly to the development of the C&M digital leadership and strategy over the past 2 years. We are the host provider for a number of system wide schemes and have made significant progress to date.

For our staff, these regional capabilities mean that they will have access to information held in other organisations for the children and young people they are caring for. It will support us to use data and intelligence to manage care proactively and give our local citizens a seamless service across health and care.

Through the Share2Care programme, we will have access to a shared record called 'e-Xchange' which will allow the exchange of key information across health and social care. Both professionals and patients will be able to access and interact with this information.

We will share best practice and expertise through collaboration. We will work together in partnership with other health and care organisations, sharing scarce expertise and specialist skills.

2.3

NHS, Academia and Industry Partnerships

Partnerships between NHS, Academia and Industry are key. Through these partnerships, we envisage the creation of a single integrated, secure governance framework, allowing researchers and clinicians to safely and securely use data to develop new scientific knowledge and novel therapies and technologies.

This will help to increase the profile and impact of Liverpool's world-class life sciences ecosystem (including but not limited to Liverpool Health Partners), increase our understanding of disease, enhance our health services and improve the prevention, detection, and diagnosis of diseases in children including inflammatory diseases such as asthma, infection and cancer.

Priorities for the NHS set nationally include infrastructure and standards, including cloud first, digital services designed to meet the needs of users, enablement of innovation so that cutting edge technologies can be easily implemented and the right skills and culture to drive the best outcomes for patients.

2.4

National Priorities

Nationally, digital technology has been seen as a key priority for several years. This focus has seen investment in a number of organisational and regional digital schemes including the Global Digital Exemplar and Local Health and Care Record Exemplar Programmes both of which, Alder Hey is part of.

There are a range of guiding principles and priorities set out in the technology vision for the National Health Service. These include a focus on user need, privacy and security, interoperability and openness and digital inclusion. Priorities for the NHS set nationally include infrastructure and standards, including cloud first, digital services designed to meet the needs of users, enablement of innovation so that cutting edge technologies can be easily

implemented and the right skills and culture to drive the best outcomes for patients.

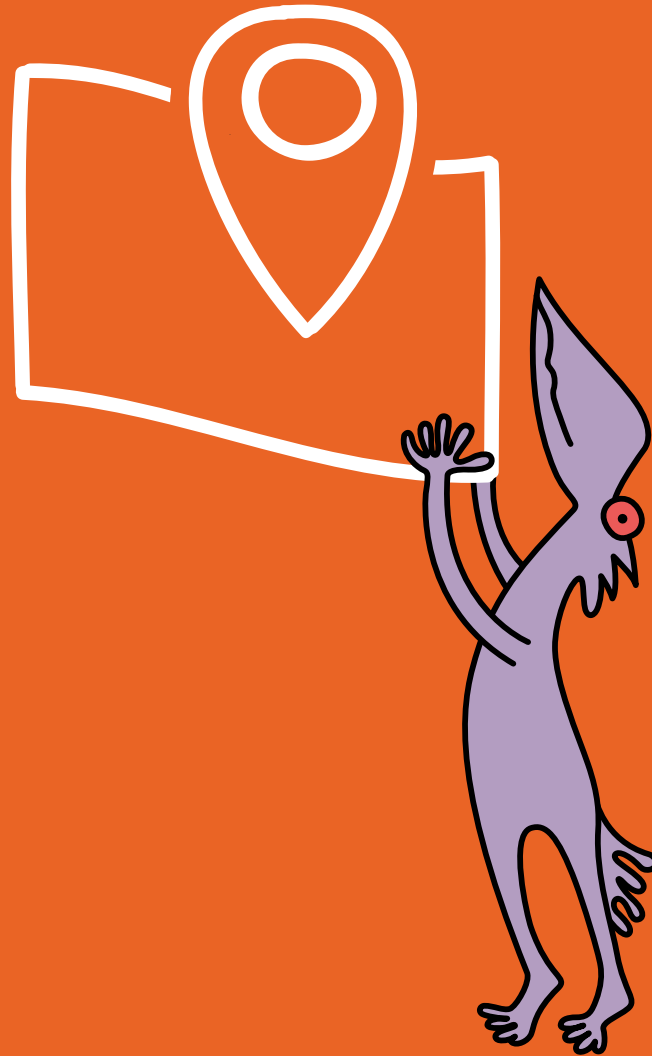
The formation of NHSX is a major development for digital advancements in the NHS, demonstrating a continued commitment to driving up a digital NHS fit for the current and future.



3

The Journey So Far

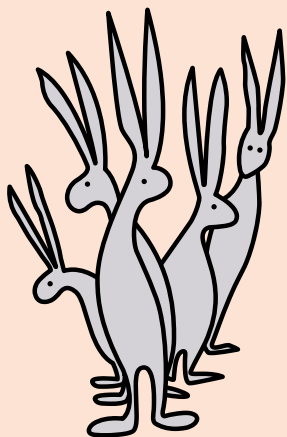
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Alder Hey is in a great place in terms of developments, investments and vision that have been in place for many years.

Feedback from people who visit Alder Hey includes what a fantastic place it is, the wonderful services provided to children and young people and the care and compassion given to often worried and anxious families

The warm, kind and vibrant vibe in Alder Hey is infectious to those receiving care there, and those that visit for direct care, education or professional purposes.



Digital Futures is the next chapter in our history of delivering digital advancements. Some of our key achievements to this point, and things which make us unique are:

- **We are a specialist paediatric Trust** which attracts the best staff in their field of expertise delivering incredible outcomes and care for our Children and Young People
- **We have an amazing new hospital**, delivering outstanding care
- **We have wonderful community services** providing fabulous care closer to home
- **Alder Hey is the only Trust in the country that has a Bat Cave.** The Bat Cave, otherwise referred to as the **Innovation Hub**, pioneers leading innovations globally
- **Alder Hey is one of sixteen Trusts who were identified as part of the Global Digital Exemplar Programme in 2016.** This has enabled us to digitise clinical pathways, improve integration and spear head regional interoperability developments
- **There are core building blocks including an integrated Electronic Patient Record and an Electronic Document Management System.** These systems are the foundations which are allowing us to digitise customised clinical pathways to fit the workflows and pathways in place at Alder Hey with individual clinical teams thus enabling improvements to quality, patient safety and efficiency
- **Our incredible Paediatric Intensive Care Unit** has its medical devices integrated with the ICU EPR enabling safe care for our children and young people
- **Our Community teams have extensive use of a community EPR**, integrated with other community services and General Practice
- **We have an integrated approach to clinical imaging** with many 'Other Ologies' integrated into our PACS system
- **Our Orthopaedic surgeons are a global exemplar of good practice** as the first to run nationwide clinical research studies completely online
- **Our Cystic Fibrosis 'CF START' is using an innovative approach employing national registry data to collect key outcome measures.** This is the first global paediatric registry-based study of a medicine and is highlighting the potential to conduct large comparative effectiveness studies with minimal cost to the health service and to the families involved
- **Alder Hey continues our proud legacy of pioneering research into children's health and wellbeing.** We are the centre which enrolls the most children and young people into important clinical research studies, ranging from discovery science to trials of important new medicines for children. The assembly of integrated child health data from different domains enables improvement in outcomes through analysis of 'big data' and application of emergent artificial intelligence methods

Iain Hennessey, Consultant Surgeon and Co-Director of Innovation

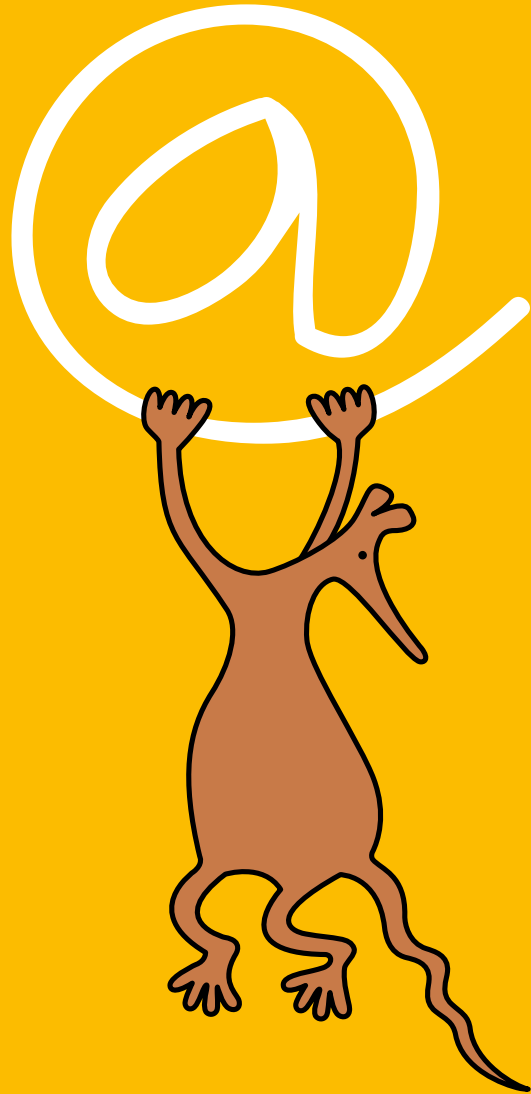
“Alder Hey is an incredibly special place. It is a wonderful mix of futuristic technology combined with an illustrious history. We have some really awesome local assets. Most importantly Alder Hey has a wonderful heart to it, the warmth and kindness that can be seen every day on the wards and in clinics is really one of our USP’s and we need to really appreciate it and expand on it.”

As a local health and care system, the Cheshire and Merseyside Health and Care Partnership has made significant progress over the last three years. **This includes the launch of our region wide Digit@LL strategy**, significant collaboration, securing national funding to support regional priorities. On a practical level, progress includes the delivery of the first phase of a regional shared record, a specialist group supporting cyber security and resilience and a patient held record in development.

Alder Hey has played a significant role in these developments. Through our GDE programme, we provided senior and technical leadership and pump primed the early work to connect up our local system with a shared record. We provided leadership and expertise to the regional work on digital diagnostics and our Chief Executive Officer is the Senior Responsible Officer for the Cheshire and Merseyside Digital Revolution workstream.

The warm, kind and vibrant vibe in Alder Hey is infectious to those receiving care there...





The Difference is Digital - A Model Alder Hey



Our ultimate Digital Futures ambition for Alder Hey is to create an ethos of 'Outstanding Digital Excellence'. At the heart of this vision is our 'north star' focus on creating the best experience and outcomes for Our Children, Young People and their Families, and Our Staff.



We will deliver this vision to:

- Improve outcomes for Children, Young People and Families through the use of digital technology
- Use digital technology in every clinical pathway design and clinical interaction
- Use digital technology to provide our staff with high quality decision support to ensure patient centric care
- Exploit digital innovation with private partners and academia delivering game changing innovations
- Elevate the opportunity of technology and innovation in the development of the health park and children's Knowledge Quarter
- Accelerate the research offer and increase research participation and safety through the use of intelligent digital tools
- Maximise our investment in our core systems and applications

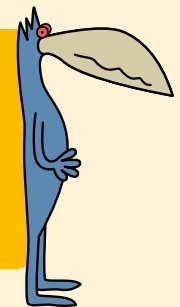
4.1

What do we mean by Outstanding Digital Excellence?

The term 'digital' means different things to different people. At its simplest definition, the term digital is about showing information in the form of an electronic image and using that information in a different way. A good example is to demonstrate the difference between analogue and digital in a watch or telephone.

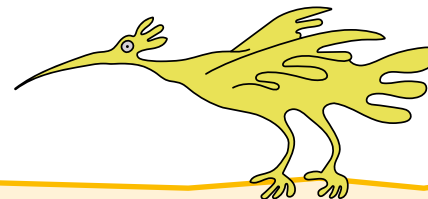
For the purpose of Digital Futures, the term 'digital' builds on its definition above. In a health context, it is about using digital systems and information to engage, deliver and transform services through technology, supporting both current and future ways of working. This may be through the delivery of core equipment that works for great care delivery, advancement of electronic patient record systems through to the opportunity of artificial intelligence, machine learning and information to support research.

Outstanding
Digital
Excellence



Through the term outstanding digital excellence, we mean:

- **Digitally empowered staff** - a great staff experience with 'invisible IT' that 'just works'
- **Minimal clicks to get where you need to** – championed through a 'save a click' campaign to improvement
- **Digitally active Children, Young People and Families** - we will do now what Children and Young people need next with Digital Innovation and Med Tech at the Centre of Quality Improvement
- **A 'no wrong device' ethos**, enabling an 'any time, any place, anywhere' approach to delivery
- **Europe's most digitally mature children's Trust**, as rated by staff and patients, validated by international accreditation
- **A Digital First approach** focused on Inspiring Quality Aims and Outcomes
- **An integrated customer service approach**
- **Systems that work and talk to each other**, giving back the gift of time to clinicians
- **Mobilising health data for science and innovation** - improving children's health through better data science, improves the health of future generations
- **Using routinely collected data** to improve public health, diagnostics and treatment
- **Integrated digital systems** make patient entry into clinical trials easier, and patients in clinical trials do better
- **Integrated digital systems which facilitate collection of meaningful patient outcomes**, which allows robust evaluation of interventions, processes and policy
- **Allowing access to unique data assets across the Trust** by the research community in a safe, secure and ethical framework. This will lead to new diagnostics, treatments and insights which will transform outcomes for patients
- **Dynamic partnerships between the NHS, academia and industry through an integrated digital strategy** is critical to create the necessary environment for Alder Hey to maintain its status as a world leader in children's health
- **Use of artificial intelligence to model patient data and predict outcomes of treatment strategies.** Use artificial intelligence to reliably predict critical deterioration using vital signs trends and patient history, which will allow interventions to be introduced to prevent such catastrophic events



Victoria Furfie, Speech and Language Therapist /Divisional CCIO – Community

"Becoming part of the Alder Hey family has been a fantastic journey for me. It has been lovely to see Alder Hey's commitment to expanding their services based in the community, to ensure the patient is supported in the most appropriate environment. Alder Hey supports clinicians to be involved in IT development, to ensure that the patient's clinical journey is at the centre of innovation."

Staff Nurse, 1C
“Make it quicker”

Success is defined by outstanding digital excellence becoming central to delivery of improved outcomes and experience of health and social care for our Children, Young People, Families and our Staff and that we act as an exemplar and implementation partner to other NHS organisations. The experience of technology application for staff and patients in our Trust should be better than their home experience.

Quality, safety and experience will be improved through moving to a world-class digital environment by ensuring the right information to the right staff at the right time. Through co-design with staff, children, young people and families, our **‘Living Trust’** will support delivery of excellent care, provide intuitive and innovative ways of working.

Our aspiration is that our digital advancements will enable a true level playing field for all of our patients and families. Augmented digital assistants could help ensure that children and young people can get the very best care. These would include digital assistants who can identify sub-optimal attendance and uptake of resource.

We need to use artificial intelligence and augmented technologies to eradicate the role of the clinician as a data entry technician.

This kills the primary purpose of what clinicians are there to do - which is to care for patients.

Through our focus on experience, we will have an increased appreciation for the human denizens of Alder Hey to be viewed as part of a grand system that is our organisation. This is key as it will support optimising clinical interfaces with information in the same way as we would optimise a machine. We will look to efficiently measure this in some way to help guide the development of our technologies.

We will strive to get better and developing technologies that allow us to be better at empathy and more importantly have more time to practise it...

People like to be with people and anything we can do to free time up to allow this presence is truly golden. A change approach with empathy is absolutely key, and in tune with the culture of Alder Hey. We will strive to get better and developing technologies that allow us to be better at empathy and more importantly have more time to practise it. This will be ceded to Artificial Intelligence in the future whereby a

member of clinical staff can bring AI to a care process.

We will have a measure for success that incorporates the softer aspects of care and the holistic care of the staff as part of the wider system. By using the improvement of this measure as a way to mould and guide our technological development, we can transform into a truly 21st century caring organisation. This will allow us to move to the forefront of a global healthcare system.

**Rafael Guerrero, Consultant Cardiac Surgeon,
 Clinical Director of Cardiac Services,
 Co-Director of Innovation**

“Immersive Technology is helping us to produce advanced visualisation of the human body. This is leading to the development of better diagnostics and improved treatments. This includes the use of immersive technology for distraction therapy and mental health support at Alder Hey. Through Digital Futures, in partnership with the Children and Young Peoples Forum, these will be further developed and implemented. Virtual and Augmented Reality is helping to enhance how we share our expertise through education, both locally and globally.”

4.2

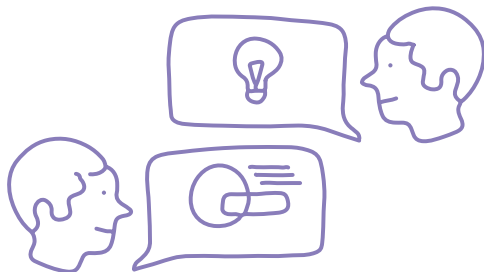
A Day in the Life...

Digital services for the future will feel different for our Children, Young People and their Families and for our professionals. In order to deliver a modern health and care service, technology and digital innovations will feature in everything we do.

THE CHILD OR YOUNG PERSON'S PERSPECTIVE

From children, young people, families and carers perspective, delivery will mean:

- Children and young people will only need to tell their story once
- Technology will be used for individuals to self-care and self-monitor proactively
- Children, young people, families and carers will be able to interact digitally with professionals involved in their care
- Joined up, integrated, safe care is enabled through a co-ordinated approach across the whole region



OUR STAFF

For our staff, this will mean:

- Staff have access to everything they need to treat their children and young people effectively, wherever they need it
- Care is more joined up and with less duplication through readily available information, integration and automation
- Ownership of the system will enable how staff will work in the future creating a supportive and engaging environment for staff
- Technology in work, will work as well for staff as their technology at home does

OUR TRUST, BROADER SYSTEM AND REGION

For the Trust, Broader System and Region, delivery of this strategy means:

- Working in partnership across the whole system
- Universal approach and delivery
- Cross-organisational pathways are introduced and facilitated and the child or young person's record data shared, reducing time and improving quality of service delivery and care
- Flagging of children and young people suitable for research leading to quicker identification of patients and associated trials
- Improvements in population-health monitoring and planning, and high quality risk stratification

The vignettes below demonstrate 'A Day in the Life' for a range of roles and settings across Alder Hey.

Community Speech and Language Therapist

"Working in community means starting your day in a variety of settings including: the child's home, a community clinic, the child's school or nursery setting. Therefore, I have IT systems which 'just work' in a variety of settings. I can access the child or young person's paperless record via the use of remote working devices including laptops and tethering devices.

Whilst working with the child or young person we will be able to view electronic care plans of our own service and also the most proximal services working with the child. This ensures that we are working collaboratively for the child or young person to achieve the best outcomes in line with the child or young person's care aims.

Access for children or parents to a digital record is vital and they will be able to see information that is important to them such as: appointment dates, recent reports & care plans. Particularly for children with complex needs, it is important that they and their parents can access this information as co-ordinating all of their care can be a momentous task. This allows them to be empowered about their own health & care.

Specific to Speech & Language Therapy, we will use apps/devices for alternative and augmentative communication to support intervention such as Skype sessions to deliver therapy."

"We will put the child & young person's needs at the forefront of our care by utilising technology..."

Outpatient Services

"There will be a vast reduction in children and young people physically attending outpatient clinics. Children and Young People will physically attend where they need to, maximising digital consultations and communications.

Clinical systems will not only allow clinician's a clear overview of the entire patient journey, they will also be able to talk to each other to facilitate data to be collected using one system but then recorded and viewed on another. This enables the clinician to have a clear paperless digital record, where they are able to see all the information they require in one place, reducing duplication and increasing clarity & quality.

Children and young people will be able to digitally 'check in' for appointments and this will link to an electronic clinician's board showing real time data.

We will put the child & young person's needs at the forefront of our care by utilising technology to ensure the child's patient journey is as supportive of their individual needs as possible. Examples of this include: using Virtual Reality technology to provide a distraction to the child which will hopefully reduce anxiety during procedures such as taking blood; providing children & young people who find waiting in busy environments difficult, with devices that will beep when they are ready to be seen – allowing them to wait in open outdoor area more suitable to their needs."



Inpatient Ward Staff

“To deliver effective inpatient care and ward rounds, good information systems for staff are crucial. The systems we have work well to support quicker and easier access to relevant background information which supports us as clinicians to identify important trends that indicate whether children are at risk of deterioration.

During ward rounds we use digital systems to ensure that care plans are recorded in a timely manner and these care plans are easily accessible to a variety of appropriate professionals to ensure holistic care of the patient. We no longer use paper records; all of our information is captured in intuitive digital systems.

To work most effectively, these digital systems are quick and easy to use and the quality of care is improved by having this appropriate technology to support patient care on the wards.”

“We no longer use paper records; all of our information is captured in intuitive digital systems...”

Theatre Staff

“Technology can be used to preserve the extensive knowledge that a surgeon acquires over their career. Technology allows us to train large decision capable distributed computing networks which allow one system to achieve the experience of a lifetime, in a short space of time, whilst preserving the ability for an eternity.

Surgery and AI is an area of constant development and in the near to mid future these technologies will be utilised with the goal of maximising the outcomes for patients and improving the efficiencies of the surgeon.

Technology will work with the surgeons to create a distributed decision making framework with human intelligence at its core.”

Clinical Researchers

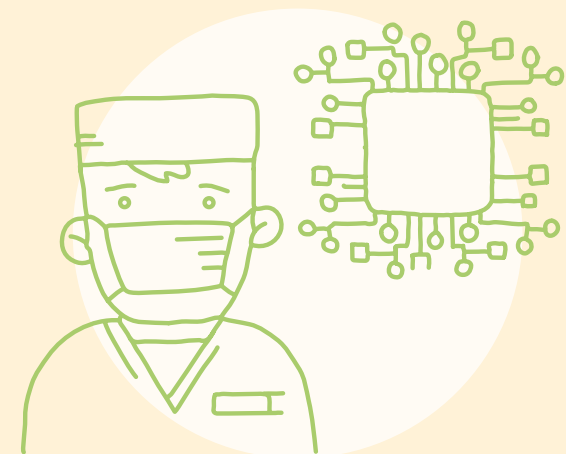
“The delivery of and participation in clinical research improves health outcomes for individuals and across a healthcare institution. Therefore, it is important that clinical research opportunities for patients and support for staff are made easy and efficient. By automating elements of patient selection, the electronic patient record is able to easily identify eligible patients for clinical trials.

Consent for research is administered and recorded digitally as part of the electronic patient record. This will ensure transparency and completeness of consent and also ensure that this information is clearly accessible within the patient record for regulatory purposes.

As well as supporting efficiencies by streamlining assessment of eligibility of children for studies, we can clearly identify children who are currently involved in a research study so that all clinicians working with this child are aware of this thereby improving safety. We can also use data collected to support risk prediction.

“Core outcome sets are part of the child’s electronic patient record, allowing us to clearly evaluate and capture outcomes...”

Alder Hey will also be part of network based technologies, to allow access to electronic records remotely for our partner Higher Education Institutes.”



4.3

The World's First Living Trust

It is widely reported that Digital Innovation, particularly artificial intelligence is set to bring a paradigm shift to healthcare, and there are already many applications in personal health, screening and diagnosis, decision making, treatment, research, and training for example. Alder Hey Innovation is looking to bring all these technologies together into a true Living Organisation.

Through a focus on visualisation, feeling and sensing, our living organisation will support advancements in immersive technologies, sensors and artificial intelligence. We will do now what Children and Young people need next with Digital Innovation at the Centre of Quality Improvement.

The unique combination of clinical innovators and entrepreneurs, academic experts in cutting-edge engineering and bio-science, technicians and the highly skilled innovation support crew, represents a powerful engine for exploration and transformational change. This combined with the children that inspire us all daily, makes for a genuinely unique and magical environment in which to innovate.

4.4

What Outcomes do we want to Achieve?

We know that with improved data, we can improve outcomes for children, young people, families, carers, staff and society as a whole. We have seen great examples of this in a number of clinical areas. We are passionate about adopting pioneering new approaches to care. We will build upon our long-standing local relationships across different settings to transform care for patients.

In terms of specifics, we will support the enablement of the following clinical and patient outcomes as set out in delivery of outstanding care and inspiring quality:



The safest Children's trust in the NHS:

- **Zero clinical incidents** resulting in moderate, severe or catastrophic harm
- Zero never events
- **Zero medication errors** resulting in harm
- Zero pressure ulcers
- All septic children receive their antibiotics within 60 minutes
- Zero children deteriorate unexpectedly
- **Zero readmissions** to PICU within 48 hours
- Zero hospital acquired infections

Put Children and Young People first in everything we do

- **Over 95% of children** report that we put them first
- **Over 98% of children**, young people and their families would recommend the Trust
- Under 5 complaints are received each month
- Under 80 PALS are received each month

Achieving outstanding outcomes for Children & Young People

- **Over 95% of children** report meeting the care goals they set
- **All children and families** received information enabling them to make choices about their care

4.5

External Accreditation

We will become Europe's most digitally mature children's Trust, as rated by staff and children, validated by an international digital maturity accreditation.

Based on the Healthcare Information and Management Systems Society (HIMSS) Europe Electronic Medical Record Adoption Model (EMRAM), an internationally recognised best in class maturity model will be utilised to measure and assess our levels of digital maturity HIMSS is a global, cause-based, not for profit organisation focused on better health through information and technology. HIMSS leads efforts to optimise health engagements and care outcomes using information technology.

Delivering HIMSS level 7 will give us complete universal coverage across inpatient areas. Clinically this will give us the ability to deliver three important functions which have an evidenced based improvement in patient care and reduced costs.

- 1. The ability to deliver** genuine clinical decision support delivers the ability to reliably integrate lab and demographic data which support the management of our patients. Not only does this shorten the time to diagnosis and alerting but it does so in a reliable manner. Integrated risk scores allow the use of order sets tailored to individuals.
- 2. Medication administration** is entirely digitised allowing for closed loop administration. This allows continuous stock control, eliminates wrong drugs being administered to patients and improves patient safety through alerting on critical medication omission and allergies. This technology also brings similar benefits for

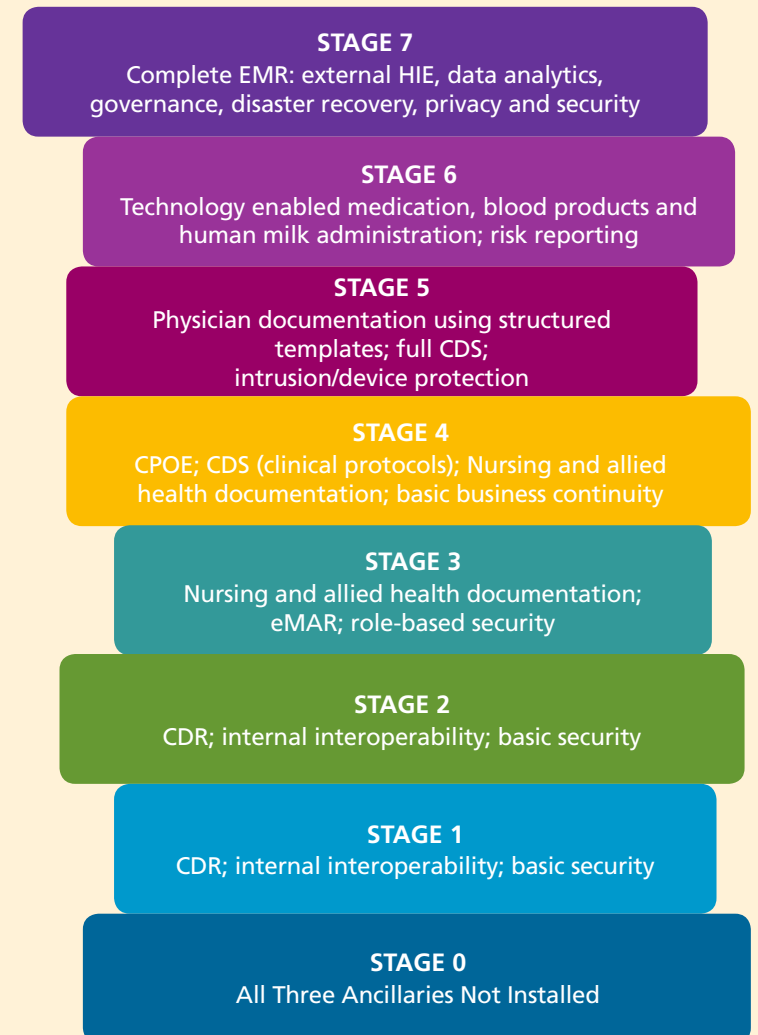
blood transfusion, pathology samples and implants. This improves efficiency but also improves patient safety.

- 3. Patient pathways** involve multiple handoffs between departments and providers. NHS England document 10,000 harms annually due to failures of handoffs.

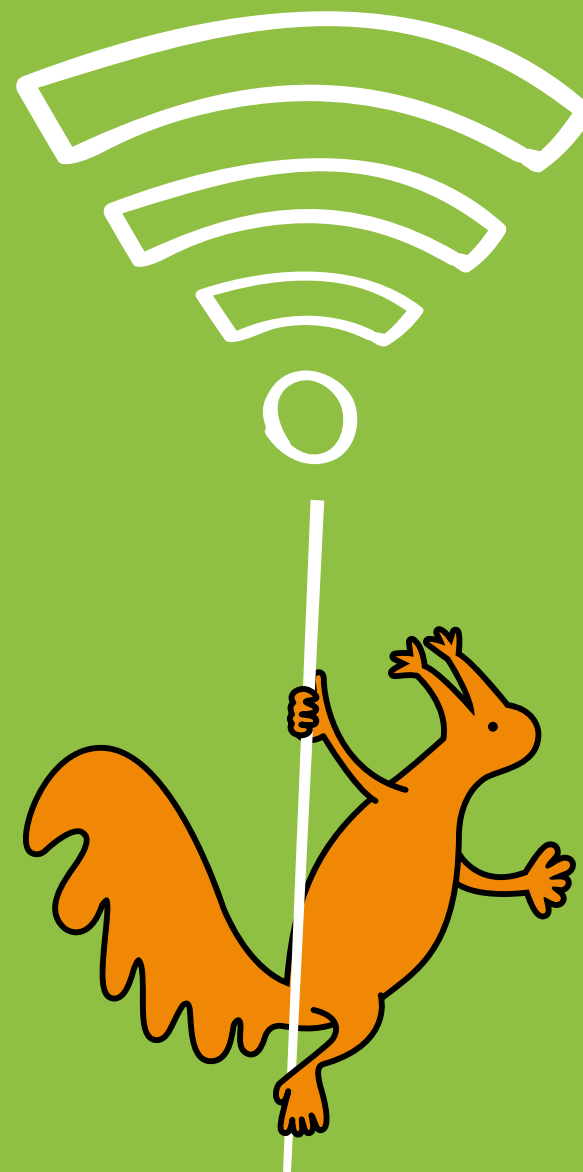
We will adopt the same standards and work with HIMSS with regards to outpatient and community care.

More locally, we will ensure we meet standards in terms of professionalism and staff development. We will work with the **Informatics, Skills and Development Network** to achieve the excellence in informatics accreditation.

The HIMSS Levels are from level 0 to level 7, with level 7 being the most digitally mature organisations. The content of the levels are:



The Nuts and Bolts of Delivery – Making IT Work



We will deliver Digital Futures through a set of interrelated themes, a portfolio of programmes, underpinning foundations and technology roadmap. We will have an integrated delivery model with key teams and divisions and a proactive approach to engagement, co-design, delivery and support.

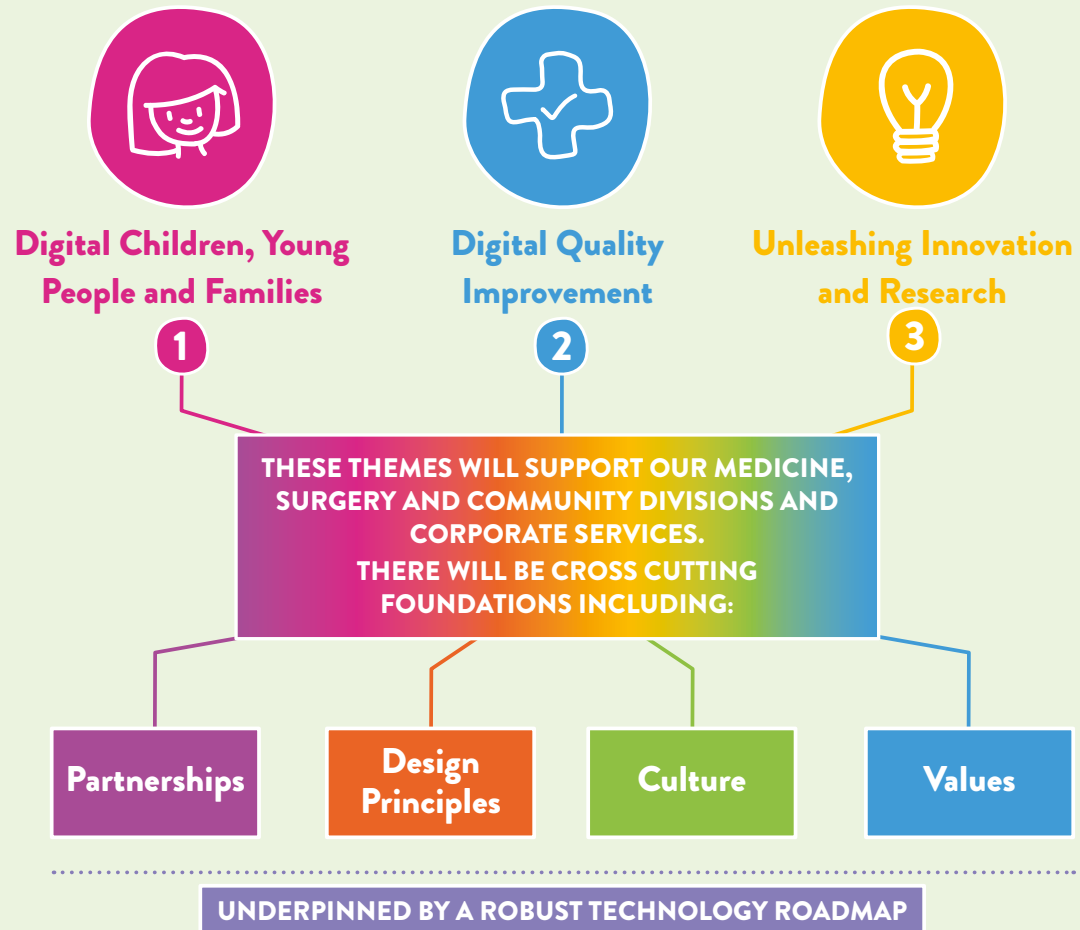
Our core themes are:

- Digital Children, Young People and Families
- Digital Quality Improvement
- Unleashing Innovation and Research

Our underpinning foundations are based on a set of design principles and a digital first approach set through the ethos of the Trust values.

We will deliver to an agreed plan and governance model.

WE WILL FOCUS DELIVERY ON THREE KEY TRANSFORMATION THEMES:



5.1 Theme 1:

Digital Children, Young People and Families - Putting Children First

Our Digital Children, Young People and Families theme is driven by our organisational approach of putting Children first. Through this theme we will deliver a range of capabilities to enable Children, Young People and Families to interact through a digital front door with Alder Hey.

We will work in partnership with the Children's and Young People's Forum to ensure that deliverables are in line with the way in which our Children and Young People wish to interact with us.

We will deliver this theme through 3 workstreams:

- **Digital Front Door**
- **Digital Communications**
- **Digital Services**

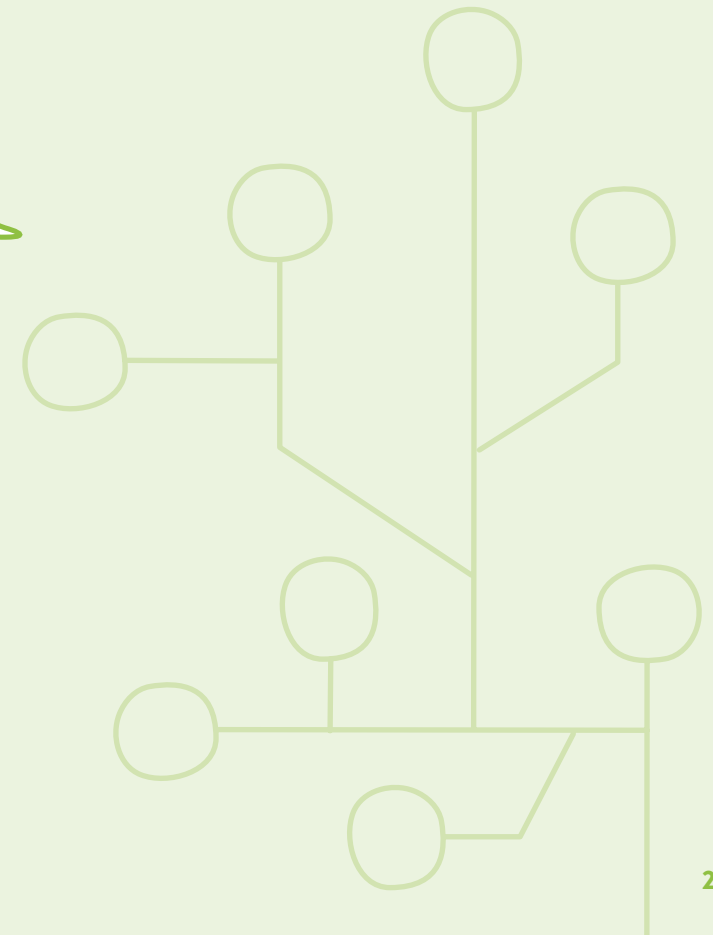
The digital front door will include development of our web presence and the Alder Play app, including access to key information. We will develop our augmented assistant and integrate key regional and national patient facing services with it.

We will implement digital communications with families and professionals, minimising the paper we send out. We will enhance our texting services to support best in outpatient care and brilliant booking.

We will develop a range of digital services including online consultations, telehealth and remote monitoring.

Will Weston, Associate Chief Operating Officer, Medicine

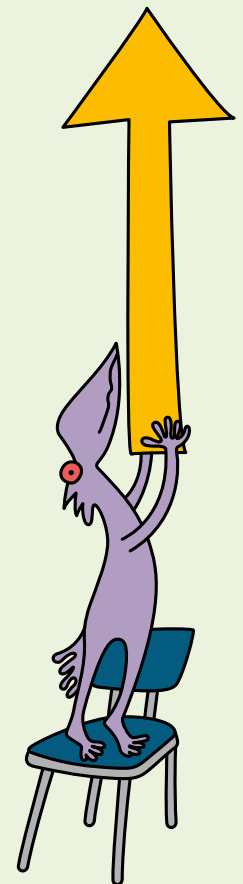
"Children and Young People are spending more time on digital, and healthcare and health care professionals need to adapt. We're integrating information technology, healthcare, wireless and mobile - an era of digital medicine. Even recording an ECG is digital. And of course, there's an app for that."



5.1 Theme 1:

Digital Children, Young People and Families - Putting Children First

WORKSTREAM	DELIVERABLES/PROJECTS	WHEN
Digital Front Door	• Website	19/20
	• Alder Play	19/20 – 20/21
	• Patient Portal/NHS App	19/20 – 20/21
	• Augmented Assistant	19/20 – 20/21
Digital Communications	• No more letters other than by exception	19/20 – 20/21
	• Email/Txt contact	19/20 – 20/21
	• Online booking and scheduling of appointments	19/20 – 20/21
Digital Services	• Digital Consultations	20/21 – 21/22
	• Telehealth/Care including remote monitoring	20/21 – 21/22
	• Digital Outpatients	19/20 – 20/21
	• Paediatric App Library	20/21 – 21/22



5.2 Theme 2:

Digital Quality Improvement

Our Digital Quality Improvement theme builds on much work delivered to date and underpins our Brilliant Basics ethos. It will enable our aspirations in terms of Inspiring Quality, and support our staff to do their best work in delivering outstanding care to children and young people.

This theme focuses on 6 themes:

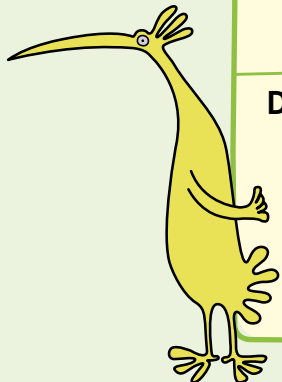
- Digital Hospital
- Digital Community
- Inspiring Quality – Continuous Quality Improvement
- Intelligence Led Care
- Digitally Enabled Staff
- System Wide Developments

Our digital hospital and digital community themes will deliver a range of capabilities to support our vision of outstanding digital

excellence. These will accelerate where we are now and increase our capability to significantly develop further.

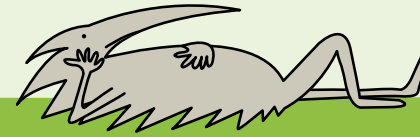
Our intrinsic link to support and enable inspiring quality is essential to underpin this change in culture across Alder Hey.

Our workstream in terms of digitally enabled staff is critical to the success of the whole digital strategy. Without core basics in place in terms of technology and processes, we will not achieve our aspirations. A continuous approach to service improvement is a major component of this work.



WORKSTREAM	DELIVERABLES/PROJECTS	WHEN
Digital Hospital	• Paperfree	19/20 – 20/21
	• GDE Accreditation	19/20
	• HIMSS Level 7 Accreditation	19/20
	• EPR Upgrade	19/20 – 20/21
	• Electronic Anaesthetics Charts	19/20 – 20/21
	• Integrated observations	19/20 – 20/21
Digital Community	• Paperfree	20/21
	• Maximise EMIS	19/20 – 20/21
	• Community service improvement plan	19/20
	• Digital Outpatients	19/20 – 20/21
	• Teleclinics	20/21 – 21/22

5.2 Theme 2:

Digital Quality Improvement (continued)

Workstream	Deliverables/Projects	When
Inspiring Quality - Continuous Quality Improvement	• Ongoing development of clinical pathways	19/20 – 21/22
	• Service improvement plans linked to divisional operational priorities	19/20
	• Remove Faxes and Pagers	19/20 – 20/21
	• Digital Huddle Boards	19/20
	• Online Collaboration Tool	19/20
Intelligence Led Care	• Clinical Intelligence Portal	19/20
	• Ward to Board Intelligence	19/20 – 20/21
	• Outcomes at our fingertips	19/20 – 20/21
Digitally Enabled Staff	• Digitally enabled staff – give them the right tools, empowering staff to continually improve care	19/20
	• Hardware Right	19/20
	• Processes right	19/20
	• Tailored training	19/20
	• Continuous Service Improvement	19/20 – 21/22
	• ESR Maximisation	19/20 – 20/21
	• NHS Jobs/Recruitment Tool	20/21
	• Extranet	19/20 – 20/21

5.2 Theme 2:

Digital Quality Improvement (continued)

Workstream	Deliverables/Projects	When
System Wide Developments	<ul style="list-style-type: none"> • Rapid deployment of clinical prediction models between Trustworthy Research Environments (TRE) and clinical workflow systems 	19/20 – 21/22
	<ul style="list-style-type: none"> • Deployment of Share2Care Programme 	19/20 – 20/21
	<ul style="list-style-type: none"> • Improved Diagnostics Sharing across Cheshire and Merseyside 	19/20 – 21/22



**John Grinnell,
Deputy CEO/Director of Finance**

“Digital Futures sets out a compelling and inspiring vision for Alder Hey with the experience of staff, children, young people and families at the heart. This is exciting as it will continue to develop us as digital leaders and importantly ensure we always focus on those receiving digital and technology services as part of Alder Hey.”

5.3

Theme 3: Unleashing Innovation and Research

The Unleashing Innovation and Research theme supports our strategy in terms of growing the future.

Based in our dedicated innovation lab at the heart of the Alder Hey campus, we aspire to be an innovation incubator capable of taking the problems and challenges that we face on the ground on a daily basis and solving those with cutting-edge technology and innovation. We look to create rapid proofs of concept and prototypes that are market ready much more swiftly than is traditionally the case. In partnership with the innovation and research teams, we look to trial innovations on-site as part of our full cycle innovation development and evaluation process.

This theme focuses on 3 key workstreams:

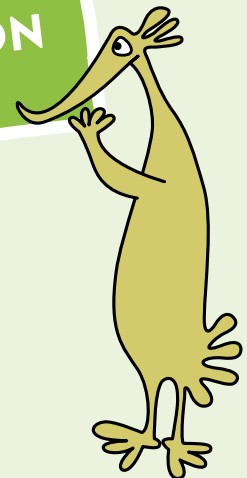
- Living Trust
- Innovation Hub
- Research and Evaluation



**Claire Liddy,
Operational Director of Finance
and Innovation**

“Spread of innovation through our culture is a critical element of our strategic plan at Alder Hey. It’s fantastic that ‘unleashing innovation’ is one of the three transformational themes in Digital Futures. This further demonstrates the aspiration we have to become a global leader in open innovation that will bring new digital health tech into Healthcare and ultimately improve outcomes and enhance experience for Children, Young People and their Families.”

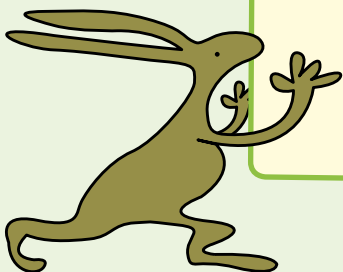
CO-CREATION



5.3 Theme 3:

Unleashing Innovation and Research (continued)

Workstream	Deliverables/Projects	When
Living Trust	• Sensors	19/20 – 21/22
	• Artificial Intelligence	19/20 – 21/22
	• Immersive Technology	19/20 – 21/22
Innovation Hub	• Maximise the opportunity of the Bat Cave	19/20 – 21/22
	• Evaluation & Clinical utility Test bed	19/20 – 21/22
	• Linkage with research methodologies	19/20 – 21/22
	• Global Innovation Thought Leaders	19/20 – 21/22
	• Accelerator of New Product/Solution	19/20 – 21/22
	• Development	
Research & Evaluation	• Studies led by Alder Hey clinical academics to be online wherever possible	19/20 – 21/22
	• Create an Artificial Intelligence hub with local universities to improve the diagnosis and management of paediatric illness	19/20 – 21/22
	• Development of an evaluation principles framework	19/20 – 21/22
	• Development of an evaluation regulatory framework	19/20 – 21/22



5.4

Technology Roadmap

From a technology perspective, Digital Futures will be underpinned by a robust technology roadmap.

Alder Hey will undertake a review of its current data centre operating model and how this should be refreshed when it comes to end of life. Cloud technologies will be reviewed

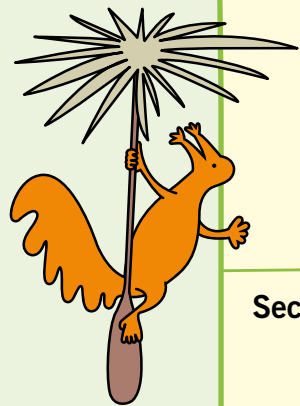
and where appropriate will form part of the overall data centre strategy. We will look where possible to maximise opportunities in partnership with other local NHS organisations.

With regards to Cyber Security, significant investment has already been made to improve the level of cyber defence. We will look to achieve Cyber Essentials +.

Desktop/Device Strategy: We will develop a no wrong device ethos. This will be supported

through a device strategy to ensure staff always have a fit for purpose device that is refreshed at an appropriate stage.

We will ensure full move to Windows 10 and move to Office 365, maximising the opportunities of functionality for staff.



Workstream	Deliverables/Projects	When
Interoperability	<ul style="list-style-type: none"> • Open standards, interoperability and data access 	19/20 – 20/22
Service Improvement Plan	<ul style="list-style-type: none"> • Microsoft Product Refresh 	19/20
	<ul style="list-style-type: none"> • Remote Access Standardisation 	19/20
	<ul style="list-style-type: none"> • Self-Service Password Reset 	19/20
	<ul style="list-style-type: none"> • Automated Account Requests and Share Drive Access 	19/20
	<ul style="list-style-type: none"> • PC/Device strategy and refresh 	19/20
	<ul style="list-style-type: none"> • Office 365 	19/20
	<ul style="list-style-type: none"> • Core and Clinical Infrastructure strategy 	19/20 – 20/21
Security and Resilience	<ul style="list-style-type: none"> • Disaster Recovery enhancements 	19/20
	<ul style="list-style-type: none"> • Cyber Essentials 	19/20
	<ul style="list-style-type: none"> • Cyber Essentials + 	19/20 – 20/21

5.5

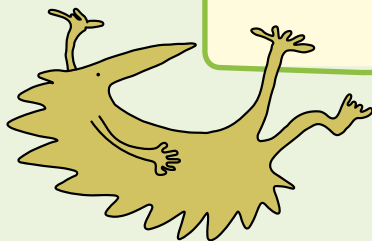
Design Principles, Values & Culture

Our design principles, values and culture importantly set out how we will achieve our ambitions.

We will adopt the values pledge set out through the Digit@LL strategy and champion a collaborative leadership approach where our shared values are at the heart of how we deliver, develop and behave.

We also include some specific principles and behaviours pertinent to delivery in Alder Hey.

The totality of these principles are highlighted below, linked to our core Trust values of **Excellence, Innovation, Respect, Together, Openness.**



TRUST VALUE	DESIGN PRINCIPLE/VALUES PLEDGE
<p>Excellence</p> 	<ul style="list-style-type: none"> • Simplify – we will create a great experience for staff and our population by keeping things simple and not unnecessarily overcomplicating our approaches or duplicating effort • Work with Empathy • Customer focused service model with feedback loop and confidence in resolution
<p>Innovation</p> 	<ul style="list-style-type: none"> • Unleashing Innovation Culture – create mindset shift as part of Trust OD strategy • Licence to Succeed, Permission to Fail – we will create an environment and culture where we encourage innovation and learning and accept that with innovation there can be projects. It's ok to be a geek or a nerd – unleash the inner nerd!
<p>Respect</p> 	<ul style="list-style-type: none"> • No 'Badges on Speedos' – we will not use our credentials or level of hierarchy to undermine the views of others, we will be respectful of all opinions and input, and work together for our population • We are digitally responsible – for the Children and Young People we are here to serve, we will operate a digitally responsible environment
<p>Together</p> 	<ul style="list-style-type: none"> • One Team Ethos – we will work together as 'one team' with our divisions in order to provide a joined up service to staff. We will work together, not in silos • Do With not To – our service needs should drive the system • Co-Design and Co-Produce with the Person at the Centre – We will work with our population and staff to ensure that the services we develop are designed around people not organisations



PARTNERSHIPS

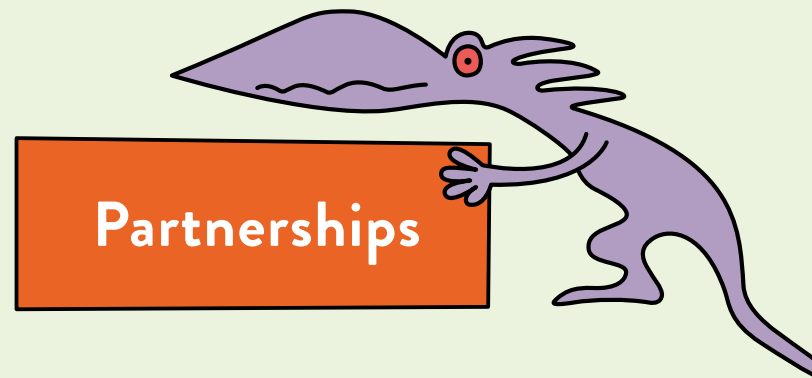
We will work proactively and collaboratively with external partners to achieve Digital Futures.

We will encourage a world leading health IT industry in England with a supportive environment for software developers and innovators.

Partners will be from a range of organisations and will include:

- **The Children and Young People’s Forum**
- **Local Health and Social Care Organisations**
- **Liverpool Health Partners**
- **Cheshire and Merseyside Health and Care Partnership**
- **Academia**
- **National Regulators**
- **NHSX**
- **NHS Digital**
- **Industry Partners**
- **SMEs**
- **Connectors**

TRUST VALUE	DESIGN PRINCIPLE/VALUES PLEDGE
<p>Together</p> 	<ul style="list-style-type: none"> • Work in Partnership – we will work together as a collaboration, build and lead our digital programmes together. Digital leaders will ‘walk the walk’ with their clinical colleagues and vice versa, to ensure a deep level of understanding of the impact of their work • Pool efforts and assets – working together to leverage best value, drive economies of scale, avoid duplication and unnecessary competition
<p>Openness</p> 	<ul style="list-style-type: none"> • Share our Learning – We will share our work openly and transparently with one another and with external colleagues, creating learning from best practice approach. We will contribute to blueprints locally and nationally. Where appropriate, we will share, co-commission or jointly procure systems • Open Standards – our approach is based on open standards and being vendor agnostic, with principles of working together to implement through this approach, including agreed standards for collaboration



5.6

Service Model, Partnership and Customer Service

Integration

Our service model and approach will have a relentless focus on integration, partnerships and customer service. This will include a principle of operating in 'one team' without silos.

We will work in an integrated way with divisions with identified digital leads for each division.

There will be intrinsically close working between digital, innovation and research teams.

Core Clinical Team

We will have a core clinical digital team with a range of expertise. Roles within this team will include the Chief Clinical Information Officer, Divisional Chief Clinical Information Officers, Chief Nursing Information Officers and individuals working in Trust programmes with digital leadership or activities identified as part of job planning or objectives.

This team will work together supporting day to day activities across the Trust in terms of operations and advice on more strategic developments.

Digital Clinical Experts

The core clinical team will be enhanced by a range of digital clinical experts and those with an interest in digital across the Trust. This group may include, but not be limited to, nurses, allied health professionals, trainees, individuals working on key digital systems and practice education facilitators.

It is critical that this group is recognised as a group of experts to support the ongoing work of digital within Alder Hey.

Nik Barnes, Consultant Radiologist/CCIO

"Digital Futures provides us with an excellent guide on how we can use the skills and knowledge in Alder Hey to put us at the forefront of modernisation of healthcare in the region, country and further afield. We have a framework to decide how we can make sure that quality of care and experience for our patients and staff are foremost in everything we plan. We also have the basis to design a system in which we will work together to the same aim, with good clinical guidance, using the best ideas from all areas in a single plan."

Digital Genius Bar

It is critical that we aim to get the experience of digital brilliant for staff. In order to do this, we need a different approach to support and engagement. We will look to move from a

reactive to proactive approach to supporting staff, through a digital genius bar type ethos. This includes proactive approaches to problem solving and training, tailoring needs to individuals.

We will proactively work with services, wards and departments to ensure that day to day services shift to a proactive service model ensuring we give the best service possible. We WILL deliver brilliant basics for clinical teams and strive to get it right first time, ensuring timely and proactive support.

We will look to provide a personal service. In order to do this we will automate a number of tasks and empower staff to have the ability for issues to be resolved in a more streamlined way, like they can when interacting with technologies at home.

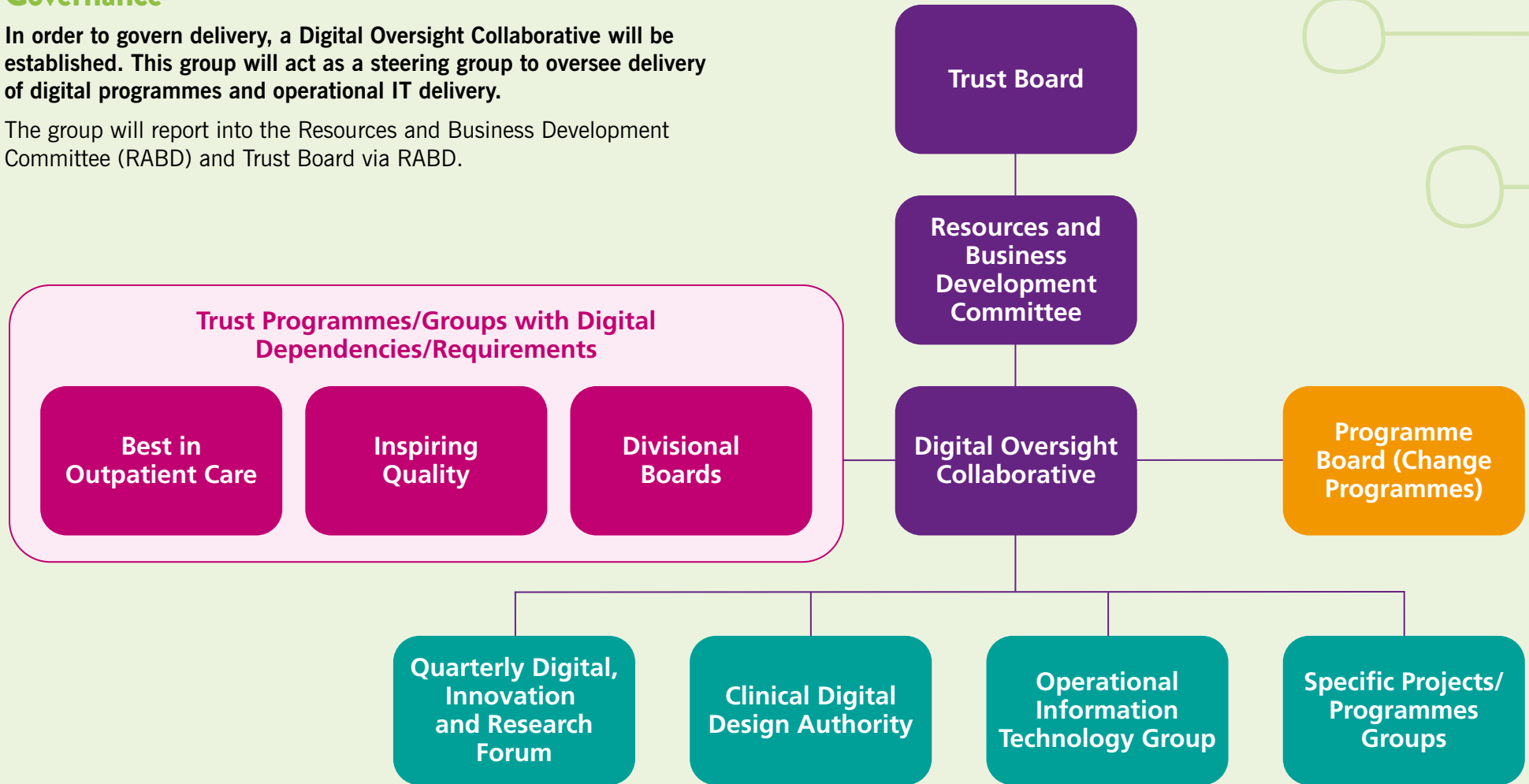
We will ensure assurance that our staff are part of a continuing programme to update/refresh their knowledge profile of our clinical digital systems. This will be achieved through the publication of events and sessions and on-line teaching through a digital portal. Available through a desktop icon or extranet staff will be able to apply for, book, receive training and complete quizzes allowing the DigiTal Clinical Systems Training team to support staff training proactively.

5.7

Governance

In order to govern delivery, a Digital Oversight Collaborative will be established. This group will act as a steering group to oversee delivery of digital programmes and operational IT delivery.

The group will report into the Resources and Business Development Committee (RABD) and Trust Board via RABD.





Due to many of the factors of the strategy supporting/serving key clinical programmes, there will be a close relationship and lead officer identified with regards to clinical programmes including Inspiring Quality and Best in Outpatient Care.

Major change programmes will be operationally managed through the Digital Oversight Collaborative and associated sub groups, but will report formally to the Trust Programme Board.

A Clinical Digital Design Authority will be established to support and underpin a range of programme areas, taking a view on clinical

prioritisation. This group will be clinically led and report to the Digital Oversight Collaborative.

A range of groups will be established as necessary throughout the lifetime of the strategy to oversee key programmes of work.

An Operational IT group will be established with divisional leads to support day to day operational delivery.

A quarterly forum will be established to bring together areas of overlap between digital, innovation and research functions.

5.8

Investment

It is clear that to deliver Digital Futures, a significant level of investment is required.

External sources of investment will be identified and proactively progressed. Internally, the trusts capital plans support a level of investment in IT business as usual, resilience and digital advancements over the next 5 years. Additionally, from a sustainability perspective, revenue budgets are in place to support our ambitions which include a level of efficiency across the organisation.

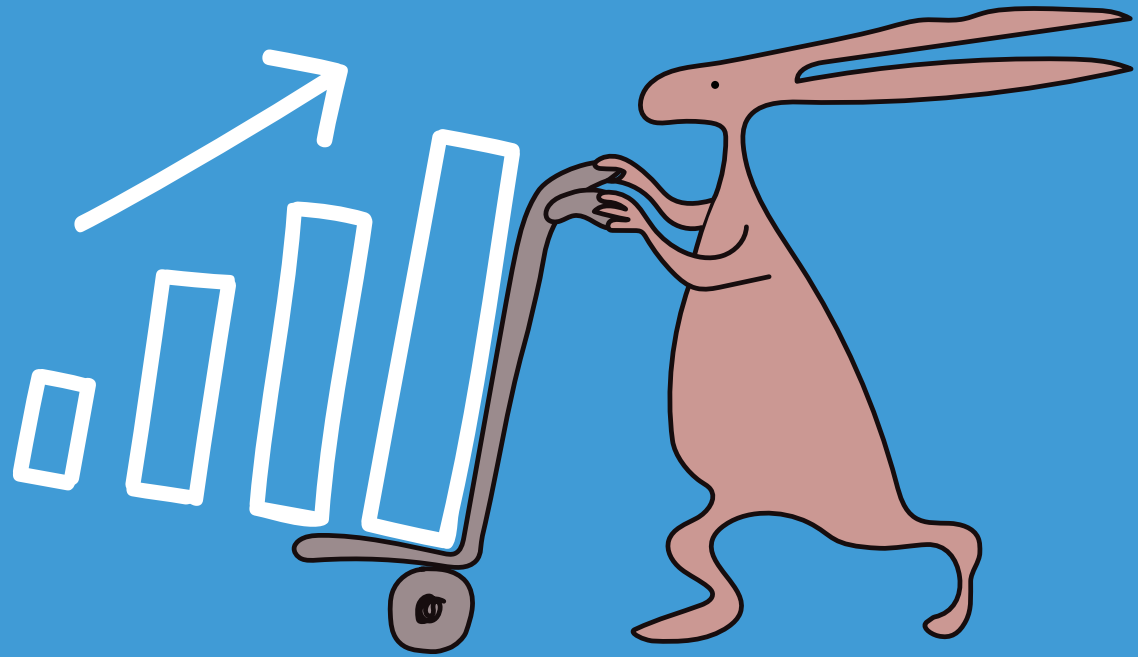
Digital Futures will allow bold investments into digital that will differentiate Alder Hey as a global leader. It will support radical changes that will improve quality and productivity that will drive efficiencies to reinvest in services. A robust approach to benefits realisation will be in place, reported through the Trust's programme governance arrangements.

All major cases will undergo business case and approvals, linked to the corporate processes and structures in place across Alder Hey.



6

Digital Futures



6



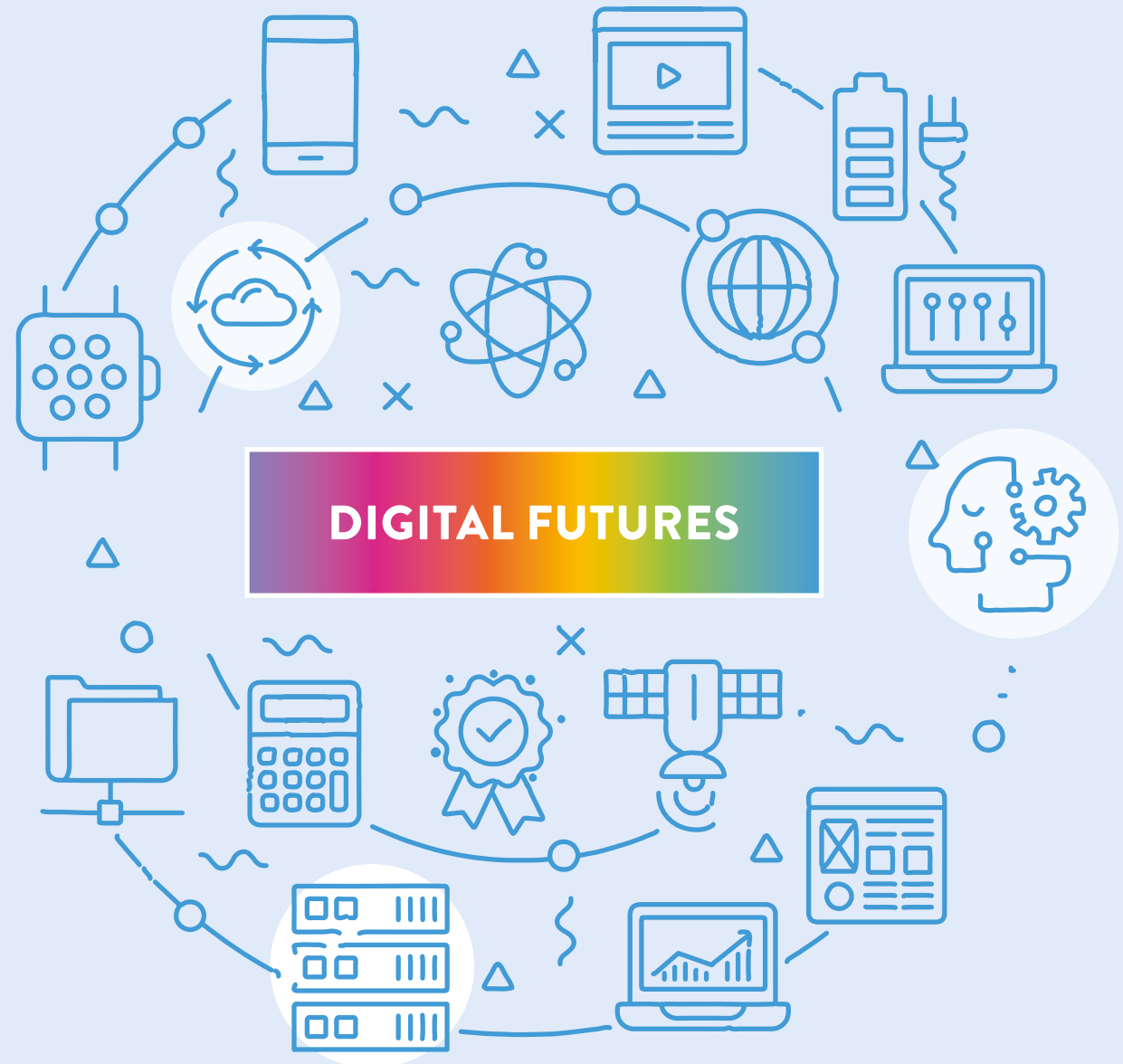
Alder Hey is a wonderful place. We deliver world class services to our Children and Young People. Building on our digital and technology developments and investments, it is a pivotal time for our next stage of delivery through Digital Futures.

The alignment of key strands of work will ensure we maximise the sum of many parts. It will both liberate and disrupt our ways of working to improve the care we give to Children and Young People. It will put us further at the forefront of global digital leadership. We believe that our relationships, support, leadership and talents of our staff will enable us to deliver our aspirations.

We will create an amazing experience and deliver fantastic outcomes with outstanding digital excellence at the heart.

Kate Warriner, Chief Digital and Information Officer

"Alder Hey is a major jewel in Liverpool's health system, delivering fantastic services to children, young people and their families. Alder Hey has delivered some major change programmes over recent years, putting us in a great position in terms of digital care and innovation. Digital Futures provides a clear vision for us to make a further step change on our exciting digital journey ahead."



Find out more...

You can download a copy of Digital Futures from our website www.alderhey.nhs.uk

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Liverpool L12 2AP

