

5 Year Technology Strategy

Technology enabling a world where every patient
receives the donation they need

Caring Expert Quality

Contents



Foreword 3

How the technology strategy enables the NHSBT strategy 4

Who we are and what we do 5

Our vision, strategic goals and guiding principles 6

Our drivers and technology priorities 7

Alignment of priorities with NHSBT strategy 10

Cultural change and digital skills..... 12

Accelerating innovation and collaboration 13

High-level delivery roadmap..... 14

Funding the strategy 15

Measuring progress 16

Foreword

Technology has revolutionised every aspect of our personal lives over the last decade, with the impact of COVID-19 accelerating the adoption of digital technologies in new ways. In NHS Blood and Transplant (NHSBT), we embraced the opportunity to deploy technology to support new plasma services, to enable new ways of working for our colleagues and to support our donors and key customers. Our strong track record of delivering national-level, high-quality digital and technology solutions meant we could move at pace.

Our ambition now is to build on our successes and deliver even better services for our donors, patients, customers and our people. Quite simply, we want to see technology enabling our vision of **a world where every patient receives the donation they need.**

Our 5-year Technology Strategy sits alongside our Data Strategy and sets the direction for our next big leap forward in capability. The strategy sets out six ambitious priorities.

- **True digital transformation** to grow our donor base, empower our people and automate everything we can
- **Technology for new businesses** developed with a start-up mindset to deliver outcomes at pace
- **Data sharing made easy** to improve patient outcomes, decision-making and operational management
- **Democratise technology** to empower our people to quickly build their own technology
- **Modernise core technology** to improve safety, resilience and agility
- **Zero trust security** to protect NHSBT's systems and data

The strategy has been written collaboratively with colleagues, industry partners and critical stakeholders and it will guide our annual and multi-year investment decisions.

Delivering on these priorities will also be a collaborative effort. To be successful we will continue our strong partnership with NHSE Transformation, strengthen our relationships with existing industry partners and build new partnerships to help us drive innovation.

Cultivating the right capability and culture within NHSBT is critical to our success and we will invest time to grow and recruit the digital leadership and technology talent we need to be successful.

We will know we've got this right when we have increased donor satisfaction, reduced barriers for our customers, improved patient outcomes, and simplified the lives of our NHSBT colleagues to have a highly engaged digital, data and technology workforce.

Rebecca Tinker
Chief Digital &
Information Officer



This Service Strategy will support the delivery of the wider NHSBT Strategy

As we look to the future, our ambition is to save and improve *even more* lives

To deliver this we will:



**Grow and
diversify our
donor base**



**Modernise
our
operations**



**Drive
innovation**



**Collaborate
with
partners**



**Invest in
people and
culture**

Our vision:

A world where every patient receives the donation they need

Technology at NHSBT: who we are and what we do

Our people



~**300** permanent staff in the digital, data and technology function with an engagement score of **7.9** out of 10

A growing number of **Digital Leaders** across NHSBT

>90 Data scientists, analysts and managers across the organisation

15 strategic technology supplier partners

Award-winning staff with accolades in Cyber, Information Governance and CIO functions

Our technology



Systems that are used by **6,400** staff across **90** locations and by **260** hospitals

Systems that enable **>30m** citizens to register as donors

App and portal that support around **2.5m** donor appointment bookings each year

Systems and **complex algorithms** supporting **4,000** transplants per year

~**3.5bn** cyber events monitored, analysed and addressed per quarter

Highly regulated safety-critical technology, multiple systems defined as **Critical National Infrastructure**

Multi-cloud environment, 1 on-premise datacentre and 2 co-located datacentres hosting **>500 Terabytes** of data

>6,500 mobile devices supported

Leaders in **accessibility** of donor facing technology

Systems that support a supply chain of **>1.8m units** of red cells, plasma and platelets each year

Provision of support to the **international community** for rare donors

National platforms such as Notify, NHS App and NHS Spine

We deliver technology that enables NHSBT's vision: **a world where every patient receives the donation they need**

Blood and Transplant

Our Strategic Goals

Simplify the life of our people > reduce frustration

Systems that make it easy for everyone to do their jobs wherever they are located, working collaboratively with colleagues and automating and simplifying tasks to free up valuable time.

Improve the donor experience > increase satisfaction

Digital services for all our donors that are beautifully-designed, inclusive to all and take full advantage of NHS and government shared platforms.

Simplify the lives of our customers > reduce barriers

Services that make it easy to collaborate and digitally exchange data and information with us from across the NHS, automating and simplifying tasks to free up valuable time.

Improve patient outcomes > right products

Digital, data and technology that enable the right products to get to the right people on time, provide the data required to understand the impact of our products and services and drive future innovation.

Increase capacity and capability > reduce bottlenecks

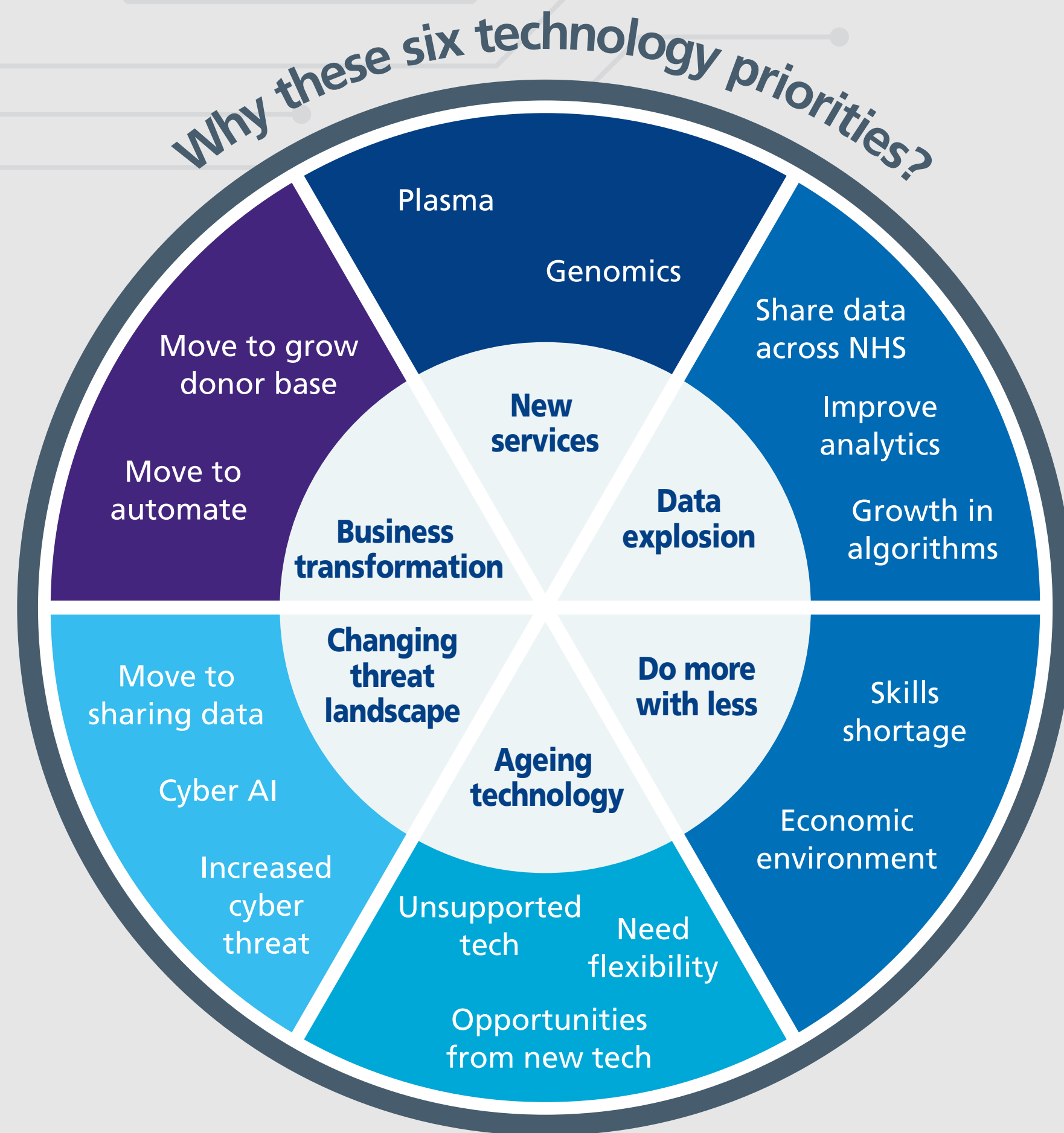
Work collaboratively with NHSBT's services to extend planning horizon so that we can build teams with the right skills, capabilities and capacity to deliver against strategic plans.

Our Guiding Principles*

- 1 Make things accessible and inclusive** Ensure our technology caters for all user needs and meets accessibility guidelines and standards.
- 2 Make things safe** Ensure our technology is safe by taking a risk-based approach to validation.
- 3 Be open and use open source** Use and create open-source technology where possible to enable re-use, easier and more cost-effective upgrade roadmaps.
- 4 Make use of open standards** Use open standards for hardware and software which enable standardised upgrade paths and avoids vendor lock-in.
- 5 Use cloud first** Consider cloud technology first, which will reduce our costs, reduce our environmental footprint, and speed up delivery of digital solutions.
- 6 Make things secure** Keep systems and data safe by applying the right levels of security and managing risk to reduce the impact of security threats.
- 7 Make privacy integral** Ensure user rights are protected by integrating privacy as an essential part of our systems and data flows.
- 8 Share, reuse and collaborate** Leverage existing pools of knowledge, know-how, technical resources, including data, APIs and services to expedite, simplify and de-risk.
- 9 Integrate and adapt technology** Design solutions that enable seamless interoperability within NHSBT and the wider network.
- 10 Make better use of data** One version of the truth, with data leveraged as a highly-valued organisational asset.
- 11 Make technology sustainable** Improve the management of our technology resources through re-use, reduced waste, and procurement of sustainable technology and digital services.

*Principles align with Government DDaT Functional Standard 005 and NHS Vision for DDaT

We have identified **six technology priorities** that respond to key internal and external business drivers



1 **Business transformation drives** true digital transformation

Transforming the way we work is at the heart of NHSBT's strategy and much of that transformation will have to be underpinned by thinking and working differently. Digital transformation has already delivered significant benefits by digitising organ transplantation pathways, donor experience and blood collection sessions, but the work is not complete and many areas are still operating off paper processes.

2 **New services drive** technology for new business

New products and services such as plasma and genomics will require the right digital and technology infrastructure. To deliver benefit at the pace required we must deliver new technology with a start-up mindset, capitalising on the opportunity to leapfrog existing systems and build the technology of our future.

3 **Data explosion drives** data sharing made easy

The explosion of data, and increased digitisation of systems, creates opportunities to improve patient outcomes, increase productivity and improve operations. Data needs to be in the hands of people who need it, when they need it, and not locked away in systems, spreadsheets and proprietary databases.

4 **Do more with less drives** democratisation of IT

A challenging economic environment and growing worldwide technology skills shortage, coupled with the emergence of new 'low code' technologies make the democratisation of IT an attractive and necessary option. This will create a digital workforce of business technologists equipped with powerful tools and supported by adequate guard rails, so that we can drive greater productivity.

5 **Ageing technology drives** modernise core technology

In common with many other organisations, legacy systems create security risks and stop us innovating at pace. Building unique technology only used by NHSBT is expensive and slows us down. Modernising core technology and moving to shared platforms to free our data and enable agility is essential. We still have a lot of heavy lifting to do to modernise Critical National Infrastructure.

6 **Changing threat landscape drives** zero trust security

New 'work from anywhere' habits, the increased cyber threat to healthcare, and ageing technology create a perfect storm that puts zero trust security firmly into our top 6 priorities. With over 5 trillion cyber events in 2021 and a 3 million person shortage in the global cyber workforce, we must embrace AI analytics.

Our **six technology priorities** are aligned with key outcomes in the NHSBT strategy



True digital transformation

to grow our donor base, empower our people and automate everything we can

- Processes are digitised and automated, no more paper
- Ethically apply algorithms, machine learning and AI to solve key problems
- All donors access NHSBT from a single front end



Technology for new businesses

with a start-up mindset to deliver outcomes at pace

- Plasma unshackled by using new technology where possible
- The value of new technology can be quickly assessed by the innovation hub



Data sharing made easy

to improve patient outcomes, decision-making and operational management

- Data skills and technology are improving decision-making and driving insights
- We can support genomics data platforms
- We have NHS-wide data sets, without compromising privacy



Democratise technology

to empower people to quickly build their own technology

- Our people can automate their own processes and manual tasks without DDTs
- People can safely use their own devices
- Self-service infrastructure



Modernise core technology

to improve safety, resilience and agility

- All IT platforms are stable and secure
- Shift from bespoke to standard platforms
- Our technology is in the cloud, increasing flexibility and capacity
- All our people can access digital services wherever they are



Zero trust security

to protect NHSBT's systems and data

- Industrialise our use of cyber AI
- All regulatory security needs met
- Everything secure by design
- Enabling people to work securely wherever they are

Not all priorities are new but they will all be delivered using **new approaches**

3

Do it better to release value quicker



True digital transformation

Transformation underpinned by principles, **delivering more** than digitising existing ways of working



Democratise technology
Unleash the power of all tech expertise

2

Make the problem easier to solve by doing the right things first



Data made easy

Build the data platform early and support with the right governance



Tech for new business
Build new services on the right platforms

1

Future-proof the foundations



Modernise core tech

Must include a shift to **shared platforms** to avoid future cost and preserve agility



Zero trust security
Built on **automated solutions** and leveraging national capabilities

...and they enable the delivery of NHSBT's five strategic priorities



To enable delivery of the “Grow and diversify our donor base” NHSBT priority we will...



Digital transformation

- Deliver a marketing platform with all required data feeds
- Deliver behavioural insight technologies with rich data sets
- Create a single NHSBT front end for all our donors
- Integrate NHS channels for donor registration – NHS Login and App
- Enable transformation of donor experience inc. consent, blood typing at home, share back donors’ data



Data sharing made easy

- Use our new data platform to provide rich internal and external data sets to drive marketing and improve donor insights



To enable delivery of the “Modernise our operations” NHSBT priority we will...



Modernise core technology

- Complete the modernisation of blood technology and core platforms
- Move to cloud to increase flexibility, and reduce costs and carbon



Digital transformation

- Build a digital transformation capability to automate everything we can (human-centred design)
- Explore the value of automation technology such as RFID, robotics, AI, monitoring and digital twins



Data sharing made easy

- Implement a data platform with the tools to enable performance monitoring and analysis
- Empower users to build their own dashboards and analytics



Zero trust security

- Secure our systems and data through cyber IT

...and they enable the delivery of NHSBT's five strategic priorities



To enable delivery of the “**Drive innovation**” NHSBT priority we will...



Data sharing made easy

- Use cloud technology to manage very large genomic data sets
- Use our new data platform to provide access to an integrated NHS-wide dataset
- Adopt data standards to support sharing and joining up of data



Digital transformation

- Digitise OTDT donation pathways
- Establish innovation framework and hub



Democratise technology

- Deliver democratised IT services to empower our people to build their own solutions – do more with less



To enable delivery of the “**Collaborate with partners**” NHSBT priority we will...



Technology for new businesses

- Unshackle Plasma and Tissues by using new technology, not legacy
- Define approach to delivering education and training to partners



To enable delivery of the “**Invest in people and culture**” NHSBT priority we will...



Technology for new businesses

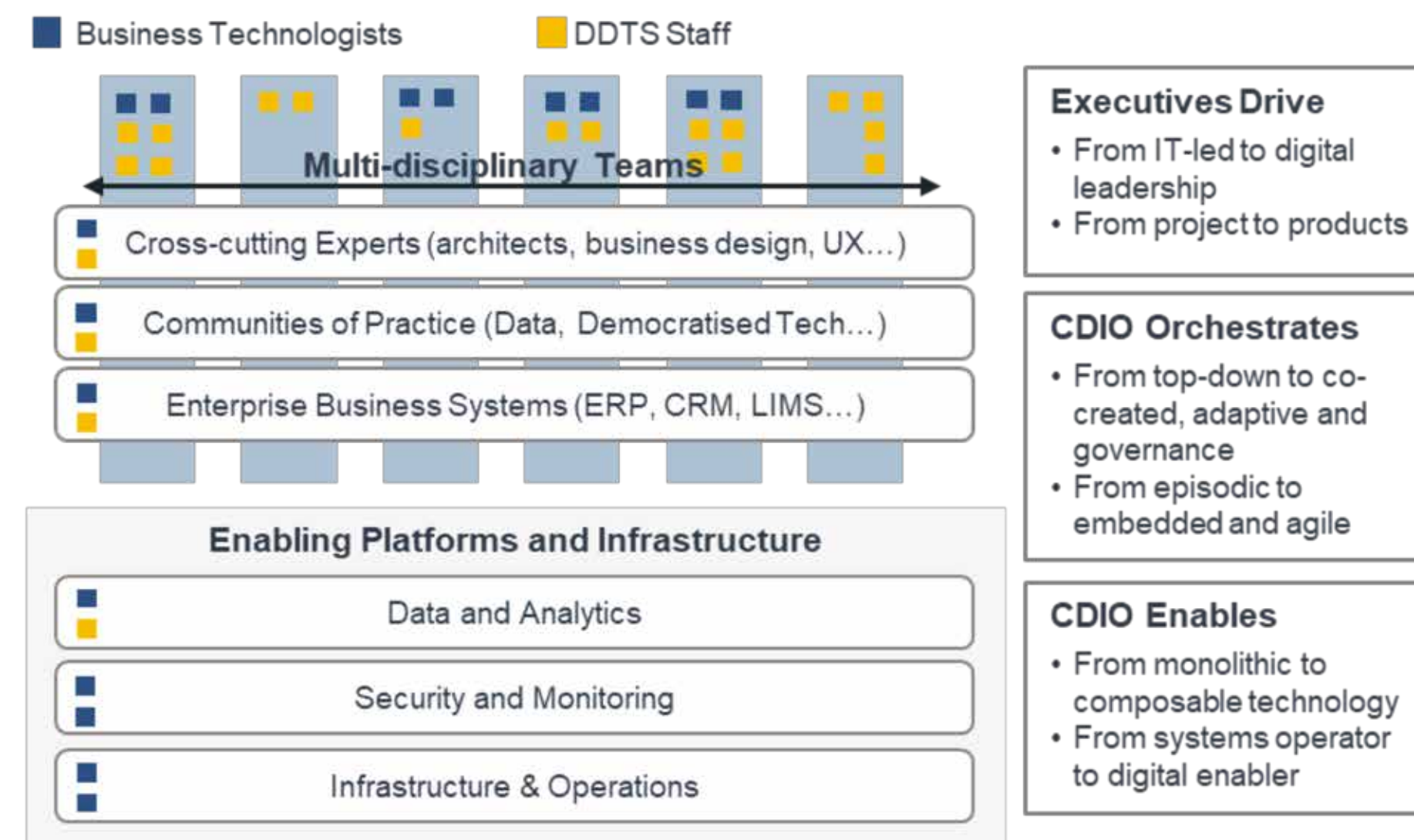
- Deliver a workforce planning and recruitment platform and data
- Provide technology to ensure all NHSBT workers are engaged and informed on a level playing field

To deliver successfully, we need to **deliver cultural change** and **strengthen digital skills** across NHSBT

1. Creating a cultural shift

- We need to create a shift towards technology and data transforming ways of working, not just digitise old ways of doing things. This will drive change to jobs and skills across the organisation.
- Cross-NHSBT Digital Leadership working in equal partnership with DDTS is critical to success.
- We're not trailblazers on this, it's a new and recognised way of working by organisations.

An industry standard approach for the Digital Enterprise



2. Important principles

1. Continued investment in **professionalisation** of Digital Leaders (including Executive), Business Technologists and DDAT (Digital, Data and Technology) staff is essential.
2. Digital skills become part of our **employee offer**.
3. Keeping in step with **DDAT pay and reward** across Government and NHS is a minimum requirement to remain competitive.
4. Strong networks across Government, NHS and private sector required to ensure we can reach the **best talent**.
5. Partnerships with **strategic suppliers** to enhance and extend internal capabilities will become even more important.

3. Essential skills and capabilities



All people

- Essential digital skills



Business Digital Leaders

- Service design and ownership
- Digital transformation
- Agile and product thinking mindset
- Accredited Senior Responsible Owners



Business Technologists

- Report and analytics – i.e. Power BI and SAS
- App creation – i.e. Power Apps, Monday.com, low code platforms
- Data scientists – algorithm development



DDAT Staff

- Product Management, Agile, Leadership and regulatory
- Cyber security and data privacy
- DevSecOps skills
- Development skills (full stack, React JS...)
- Cloud (Azure, Oracle...)
- Platforms (Marketing, ERP, HR...)
- Data (Data scientist, AI, Power BI...)

Additionally we will explore **accelerating innovation and collaboration** by bringing together problem solvers and technologists from across NHSBT, partners and industry in an innovation hub, taking inspiration from others who have done this really well

Establish an NHSBT-wide innovation hub

An innovation hub is made up of a few dedicated people, some tools, processes, collaboration partners and a small budget. Hosting the hub in the Strategy function would ensure that it focusses on the most important problems and opportunities.

Identify problems to solve

The innovation hub is there to support leaders in solving complex or simple cross-organisational problems that require multiple disciplines – data, tech, process, people. All problems should have a sponsor.

Bring people together to collaborate

The hub provides the space (virtual or physical), some tools and processes, and will help convene people to work together internally and with external partners to solve problems quickly, using events like hackathons.

Give people the tools and get out of their way

To run a successful hackathon people need the tools to do the job, once they have them there should be few restrictions as to what they can do in the innovation environment.

Move fast, fail and adapt

Not everything will work, the emphasis should be on failing fast and moving on.

Create innovation theatre to encourage participation

It's important to celebrate both success and failure through telling the stories that create a movement that people want to be part of.

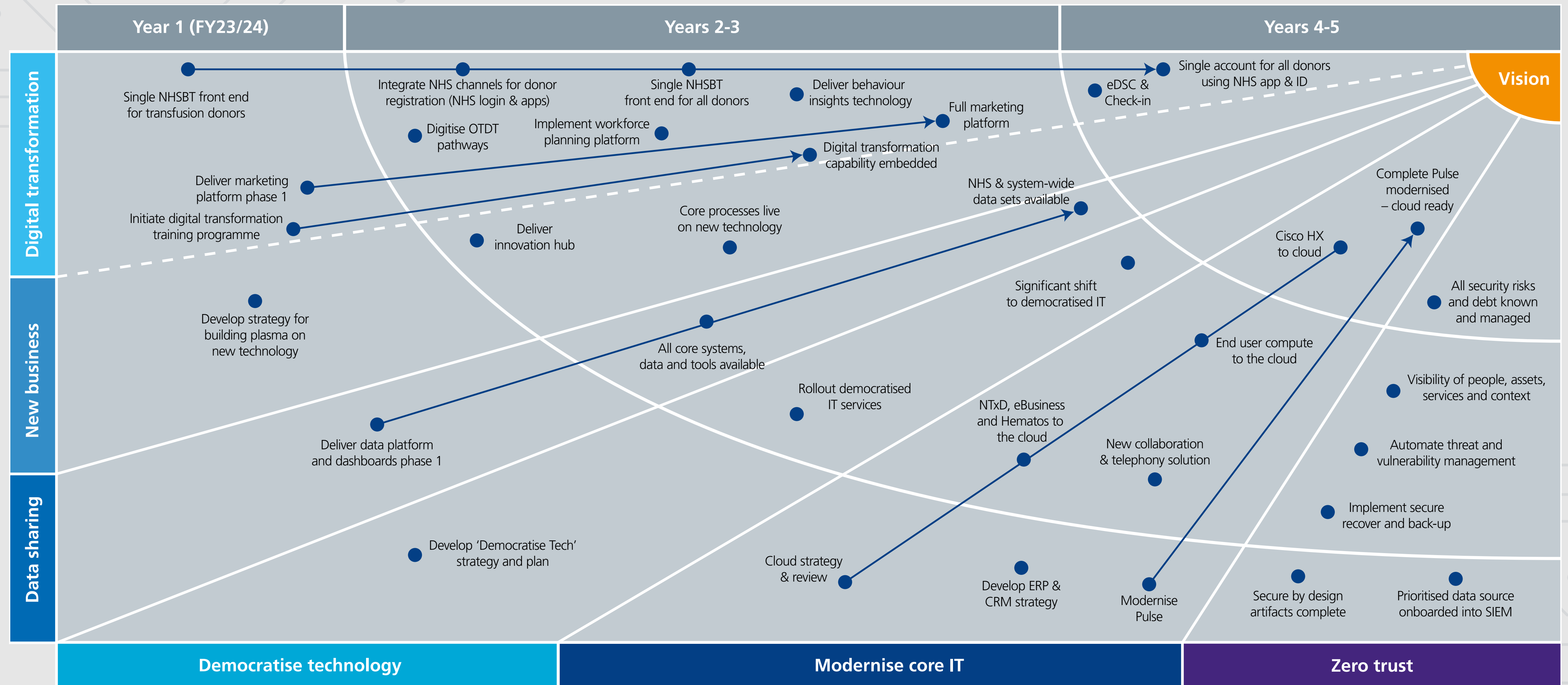
Put in place processes to scale innovation

Make sure that successful experiments have a route to scaling and industrialisation.



A high-level roadmap will support collaborative technology planning with key stakeholders, ensuring the right foundations are delivered in the early years

Blood and Transplant



Delivery of the strategy will be funded through four main sources

1. Transformation fund

The majority of investment will come from Blood and Group, OTDT, Clinical and Capital transformation portfolios.

Many of the specific capabilities mentioned are already baked into the NHSBT strategy and service strategies that exist. As service plans are fleshed out it will become clearer whether existing transformation funding levels are sufficient.

Provisioning platform capabilities (e.g. data) and moving to cloud-based services early will enable much greater agility and accelerate our journey.

2. Annual budget

Some, but not all, new capabilities will drive increases to Digital, Data and Technology costs. However, business-led digital transformation should increase productivity, reduce manual effort and enable cash-releasing savings. Additional rigour will be introduced to business cases to draw this out as investment decisions are made.

Some parts of the strategy will require modest amounts of additional central investment in order to deliver them:

- Digital leaders and skills development training
- Establishment of an innovation hub capability
- Areas like automation that could be accelerated if we invested in a central capability.

3. External investment

Historically, we have committed minimal leadership effort to secure external funding and we've been missing out.

Funding is available from multiple sources if we are well networked and commit to delivering strategic partnerships. For example:

- Use of national platforms and capabilities (NHS App, Login, Notify, Cyber etc)
- Tech partners willing to invest in innovation and new capabilities
- NHSE/I Transformation funding e.g. AI lab
- Government funding e.g. legacy technology.

4. Efficiencies

The technology priorities are designed to drive efficiencies. Primary sources are lower cost, cloud-based shared platforms, use of national platforms and capabilities, taking work out of the system through automation and mature demand and contract management capabilities.

Delivery of the strategy will be tracked through some **key metrics** and progress against delivery plans

Our Strategic Priorities



Digital transformation



Tech for new business



Data made easy



Democratise tech



Modernise core tech



Zero trust security

Our key metrics

Automation – 50% fewer paper based systems/processes

Digital workforce – 5% increase in Our Voice engagement, 20 digital transformation leaders (accredited), measure satisfaction with new digital capabilities

Satisfaction – Greater than 4.5 for all on Apple/Google stores

Data – 100% of core data safely available in the data platform

Democratisation – 100 licenced users

Architecture – 50% increase in 'open' API-enabled systems

Cloud – 80% of core systems in the cloud

Security – 100% of core systems in support

Funding – 10% recurring savings on 2020/21 baseline over 5 years, £1m annual external investment

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