10 Year Health Plan working group: data and technology

Co-chairs' report

Submitted to the Secretary of State: February 2025
Published: December 2025

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Executive summary

The 10 Year Health Plan will help the government to achieve its health mission and deliver a health and care system that is sustainable and fit for purpose for 2035 and beyond. The central ambitions of the plan will include helping people stay healthy and manage their health in a way that works for them, providing accessible and high-quality care, ensuring people's care is centred around their needs and guaranteeing that people are treated in a fair and inclusive way.

Vision

Successful transformation of the health and care system to meet these ambitions will require an unprecedented shift in the relationship between the public, the National Health Service (NHS) and health and care workforce. We need to help the public to get access to trusted information regarding their care to enable them to look after themselves and take decisions.

Technology will help to make this more meaningful. This shift will be underpinned by a digitally enhanced system, which uses the power of digital technology and data to make it much easier to interact with and navigate the NHS. Patients will have a consistent and seamless experience across all channels - face-to-face interactions, apps and online, and will be confident to navigate to, and access, the correct services.

Vision by 2035

The public will experience greatly expanded, digitally enabled health and care services that are more impactful and focused on prevention, with patient empowerment at the heart of this approach. Relevant information will always be available to patients, frontline staff across the health and care system, care providers and managers to support access, navigation, and co-ordination of all services.

Health and care professionals (HCP) will have easily available access to timely data to manage, diagnose, refer, monitor and co-ordinate person-centred, tailored care for people who use services, and services operate seamlessly across organisations.

Digital services will support and complement face-to-face care. For example, health and care delivery will be complemented by the use of robotics and artificial intelligence (AI) to identify opportunities to improve care; diagnose and inform people who need services, front-line staff, care providers and managers; and to boost productivity, safety and effectiveness.

AI will be integral to the NHS, enabling a future where proactive, personalised care is delivered seamlessly, empowering patients and easing pressure on health and care professionals.

Care will be digitally enhanced and inclusive; technology will improve equity and support those in the most vulnerable circumstances. Data will be used to enable health and care services to reach, and engage with, those individuals that are often socially excluded to ensure that no one is left behind.

Recommendations

Successful transformation of the health and care system to meet the ambition for data and technology will require an unprecedented shift in the relationship between the public, NHS and health and care workforce. We need to be honest about the data and technology fundamental capabilities required to enable this vision, especially recognising variability in the infrastructure across the system, to lay the foundations for successful implementation of advanced capabilities. However, we also want to be ambitious about our future; making the most of what technology has to offer, to make the life of our health care workers better and ultimately deliver better care for patients.

This report has outlined the required investment in key areas and significant changes to the system required to enable this, they are summarised as follows:

We therefore need to invest in:

- data and digital foundations - this includes access to universal devices and cloud services; standards for data sharing and interoperability; as well as security by design

- a single patient record - an omnichannel approach (unified and consistent across all channels) which unifies data touchpoints across all care settings; detailed requirements to be co-developed with the public and workforce

- neighbourhood health - ensuring that everyone can access the right care in the right place when they need it, making use of technology and delivering through multi-disciplinary teams

- maximising value from data - to support research and life sciences building out a health data research service

- an ongoing public engagement campaign - to 'humanise the value of data' and help maintain awareness of the value their data provides and how they can continue to engage with the NHS (learn from cancer), with investment in resources both centrally and at a local level to deliver the change

Changes to the system needed to enable the realisation of this vision

We need to transform the way we procure, use and adapt to technology development to ensure that investment in technology has the best chance of delivering change. This includes changing the way we procure technology to drive more standardisation. For instance, by using standards and policies to deliver to an enterprise blueprint that sets standards and options for technology and providing more modular components so that the NHS can take advantage of innovation and transition to a technology estate that is more flexible and interoperable.

We should use financial levers to deliver a consistent technology blueprint, meaning that the way we incentivise and hold systems and organisations to account will need to be different. Much of the variability in legacy systems is a result of poor market management and organisational architectural decisions on technology investment, and short-term funding windows. To maximise technology adoption, we will need to advocate for stronger controls on spend, clearer optionality in line with enterprise blueprint and multi-year funding cycles to incentivise investment.

We need to empower our workforce. This includes building the baseline digital capability across the whole workforce, as well as specialised technical capability. We should ensure that process change is achieved as part of technology and digital deployments and adopting continuous improvement methodology to support transformation will be key to success.

The legal framework is a key enabler. In particular, the data sharing framework to enable multi-disciplinary teams to effectively use the Single Patient Record (SPR) for all uses cases (direct care, planning, population health and research).

The changes proposed are designed to support a more patient centric view of health services and is aligned with a neighbourhood health service model. It will be important that the service model design maximises the adoption of data and technology so that omnichannel design of services are factored in at the beginning.

Next, many of the metrics used in performance management of the NHS are service centric. We have an opportunity to move this to being patient centric with the introduction of the SPR and the move to a person centric pathway using an omnichannel design. We should be able to measure patient outcomes at an individual level and capture patient feedback as part of a digital twin (virtual replicas of physical health and care systems). This means we will be able to have near real-time understanding of performance, rather than lagged processed data at a service level. This data will have a profound change in how we look at service improvement, performance and assurance. The data will be an invaluable source for research and innovation.

A focus on simplification is important to deliver costs savings and achieve productivity benefits from investment, alongside the switching off of legacy systems and services. There are currently too many ways to do similar things, all using different tools, creating huge complexity, cost and risk of service failure. The cultural change necessary to stop services and be rigorous on switching from old to new will require significant leadership and governance to maximise the benefit from new investments.

Finally, we must build the case for data usage to deliver the changes all use cases. We need to consider the way we control, process, and make available data for direct care, planning, population health and research. Each use case will have different levels of concern and mitigations from the public perspective. We will need to continuously reassure, and be transparent with, the public on all our work in data and technology to build public trust. This means we have to ensure that we have unified support from GPs, other clinicians, royal colleges, and cross government stakeholders. Our learning from the Federated Data Platform (FDP), was that we have to take time to test the programme narrative, assure and be open to challenge from stakeholders, and adjust and work with them in an inclusive way. This is a complex space with often conflicting interests; therefore, it requires clear positions and a focus on the benefit to patients to succeed.

Across all of these changes, we need to ensure equity of access, which will be enabled by inclusive digital design by default.

Developing the roadmap - some considerations

We need to be honest about the data and tech fundamental capabilities required, especially recognising variability in the infrastructure across the system, to lay the foundations for successful implementation of advanced capabilities.

The basics we need to get right include IT infrastructure, getting the technology stack onto cloud services, ensuring that endpoints are understood and managed from a cybersecurity perspective, and ensuring that we have a clear technology blueprint to help organisations move from where they are to a more integrated standardised blueprint. This can build on the work to date on frontline digitalisation, but progress with electronic patient records (EPRs) can be slow. We need to maximise the functionality available within FDP to connect systems to transition data to the cloud. More importantly we can use FDP to provide integrated data and workflows to enable the move to community and neighbourhood team faster. This will require clear communications, political capital and a willingness to overcome some of the objections from privacy campaigners regarding Palantir as a supplier.

We need to change the interaction between the public and the health and care system. This should be done to help the public access trusted information regarding their care to enable them to look after themselves and take decisions. Technology will help to make this

more meaningful. This will require additional work on the role of the NHS App, and how we create an omnichannel strategy to ensure we design integrated pathways rather than separate digital and physical services. Other industries are tackling this issue, and we have an opportunity to use this work to envision how the neighbourhood health service offering could deliver a totally different experience between the public and healthcare. This approach would allow for an experience that is transparent, that enables true measurement, which is personalised for the individual and which provides data for the optimisation and improvement of the service.

The technology blueprint needs to create opportunities for new channels. This includes digital therapeutics and genomic medicines with information flows that drive enablement of people to look after themselves. For example, by using agentic AI as digital assistants to help them navigate NHS services, understand where, what and how they best interact with the service.

We need the core infrastructure in place to allow agents to close workflows in a productive manner. This means we need to build on data platforms such as FDP to enable integration and host AI tools to enhance experience and productivity for our workforce. In time we should have a digital twin (virtual replicas of physical health and care systems) of the NHS at a local, system and national level that will mean planning done in near real time and the ability to proactively optimise services.

Technology should be used to make the life of our health care workers better by simplifying the estate for our staff regardless of setting. This includes single sign on (SSO) and making sure productivity tools like AI and agentics can help the workforce to action and finish workflows as part of integrated working.

Next steps

Should our recommendations be accepted, we have proposed some next steps:

- building the case for change with the development of the business case for the work, aligning with SR timelines and the SoS steer on overall ambition for this work
- further work on single patient record, including scope work and discussions with industry partners to explore:
    - pace - how we can structure to accelerate delivery
    - cost - what are the options to build this functionality within a cost window
    - technology debt - how do we best manage the transition from current to future and what could we do to take cost out by switching off legacy systems

- scoping and discovery work on an omnichannel strategy, in partnership with neighbourhood teams on how this could be used to deliver a new model of care, undertaken with workforce group so that the thinking is included in the Long Term Workforce Plan (LTWP)

- the continued development of a legal framework for SPR for all uses of data, so that we have clear lines for all stakeholders

- tactical preparations to help with delivery of value by delivering quick wins such as:

    - the procurement of a consistent risk stratification tool nationally, available to all ICBs to enable the move towards risk assessed triage of patients and to support testing of a digital enabled option for episodic care, with multi-disciplinary team (MDT) visibility for complex and/or continuing care

    - continued development of the NHS App by making some appointments available through the app so as to increase the stickiness of the app with the public and get GPs services more integrated

    - building out the functionality of FDP to support more aspects of the community offer and deploy as national use cases for adoption, working with sites to expand the use of FDP for integration of trust data warehouses to move them onto the cloud

    - undertaking cyber-attack simulations to understand where we have most vulnerability across the NHS estate so that we can mitigate as a system

    - the development of the comms campaign to support the 10 Year Health Plan strategy and what we will need public support for

    - the development of a technology blueprint and operating model guidance, and consideration of how technology investment and purchasing will need to be aligned with blueprint to signal changes to internal NHS and external suppliers

Vision

Background

The 10 Year Health Plan will help the government to achieve its health mission and deliver a health and care system that is sustainable and fit for purpose for 2035 and beyond. The central ambitions of the plan will include helping people to stay healthy and to manage their health in a way that works for them, providing accessible and high-quality care, ensuring people's care is centred around their needs, and guaranteeing that people are treated in a fair and inclusive way.

Vision for data and technology

Successful transformation of the health and care system to meet these ambitions will require an unprecedented shift in the relationship between the public, NHS and health and care workforce. This means focusing on giving the people that use the NHS more agency and a much stronger and clearer voice in their own care and in decision making. The public will need to get access to trusted information that enables them to look after themselves and take decisions about their care. This shift will be underpinned by a digitally enhanced system, which uses the power of digital technology and data to make it much easier to interact with and to navigate the NHS. Patients will have a consistent and seamless experience across all channels - face to face interactions, apps and online, and will be confident to navigate to, and access, the correct services.

The required system capabilities that enable delivery of the vision can already be found in many places within the NHS and social care. The task before us is to ensure these capabilities are universally available and operate seamlessly across organisations.

The vision by 2035

The public will experience greatly expanded, digitally enabled health and care services that are more impactful and focused on prevention, with patient empowerment at the heart of this approach. Relevant information will always be available to patients, frontline staff across the health and care system, care providers and managers to support access, navigation, and co-ordination of all services.

The system needs to give every person using services 24/7 access to all their own personal records (from all digital sources), including delegated access for minors and those unable to care for themselves. To enable this capability requires the health and care sector to be digital by default. Information is distinct from data, with the former being data that has been processed, organised and interpreted to add meaning and value.

The system needs to give every patient continuous access to trustworthy guidance on self-management of personal health and care, through a combination of automated and in-person guidance.

Health and care professionals (HCP) will have easily available access to timely data to manage, diagnose, refer, monitor and co-ordinate person-centred, tailored care for people who use services, and services operate seamlessly across organisations.

The delivery of all health and care services needs to be documented in, and enabled by, digital platforms. This includes the use of electronic patient records (EPRs) by providers in both health and social care as well as other required systems for diagnostics, HR, accounting, and so on. All of these software platforms must be designed to record information using ambient technologies, in order to reduce the cognitive burden and time taken for clinicians to document clinical encounters and produce referral correspondence or tailored patient information.

The benefits of new technology can already be seen across the NHS. For example, ambient scribe technology, which uses large language models to generate clinical notes during primary care consultations, was deployed to over 200 clinicians working in their 53 GP surgeries across England as part of a trial roll-out. Information governance and digital clinical safety standard compliance were implemented at a national level to ensure a safe, secure and effective roll out. Over a 3-month period 9,000 consultations were undertaken and clinicians reported that using the technology saved time - an estimated time saving of 1 to 2 minutes per patient contact, reduced their cognitive load, enabled them to listen to and communicate more effectively with patients and improved the quality and consistency of clinical notes.

The system needs to give every clinician and caregiver immediate access to complete personal records of the person they are treating or supporting, no matter the source location of those records or the location of the clinician.

The system needs to give every prescriber the ability to prescribe online to the patient’s pharmacy of choice, and all patients must be able to renew prescriptions online.

Digital services will support and complement face-to-face care, for example, health and care delivery will be complemented by the use of robotics and AI to identify opportunities to improve care; to diagnose; to inform people who need services, front-line staff, care providers and managers; and to boost productivity, safety and effectiveness.

The system needs to give every patient 24/7 access to a care navigation tool that provides advice and guidance linked to future scheduled and pending services, available choices in their pathway as well as self-scheduling of appointments.

The system needs to give every patient access to their own personalised health risk assessment, as well as guidance for any actions they could take to lower their risk of future deterioration in health. This includes preventive services such as vaccines and screening, adherence to indicated medications and health behaviours.

AI will be integral to the NHS, enabling a future where proactive, personalised care is delivered seamlessly, empowering patients and easing pressure on health and care professionals. AI has the potential to improve the speed and quality of care for patients, assist health and care workers, and enhance NHS efficiency by using AI-enabled pathways in diagnosis, triage, treatment guidance, and treatment delivery (AI therapeutics). AI is currently used in the NHS, but changes are necessary to increase usage throughout the system and to adopt more advanced tools. This will see AI evolve from a tool for isolated improvements to the foundation of a more resilient and responsive health and care system.

Care will be digitally enhanced and inclusive and technology will improve equity and support those in the most vulnerable circumstances. Data will be used to enable health and care services to reach, and engage with, those individuals that are often socially excluded to ensure that no one is left behind.

By 2035 neighbourhood health services, will be implemented, providing tailored care for individuals locally, to meet the needs of the local population.

The NHS, local authority, the voluntary, community, faith and social enterprise sector (VCFSE) and independent sector providers will work as 1 team, enabled by interoperable technology systems and data sharing between organisations. This means ensuring most initial assessment, diagnosis and ongoing support will be delivered in the community or at home, with teams of professionals working together - and in partnership with patients and carers - to support people to stay well and manage their health conditions.

Alternative access to care will be available to those that need it, ensuring that no one is left behind. The health and care system will continue to offer patients the choice in how they would like to receive care, as they already do today.

These services will be co-designed with the public, including underserved communities, to ensure that neighbourhood health services are responsive to everyone’s needs, including hyper-marginalised groups.

Principles to govern the delivery of the vision

In achieving this vision, we must embrace the opportunities stemming from data and technology, whilst ensuring we are cognisant of potential risks, including those associated

with the digital divide and inequity. Designing and delivering this vision will be governed by a set of principles to create the health and care system we all need in the future.

Access to services should be digital by default, offering alternative channels by exception where appropriate and offering patients the choice about how they engage with services to empower them and ensure care is inclusive and equitable.

Communications with people, patients and clinicians should be digital first through the NHS App, ending the sending of letters and SMS to the vast majority of the population, unless by reasonable exception.

Waiting lists and appointment availability should be published online and people should know at all times where they are in the queue and the estimated wait time until their appointment, across all care sectors and ambulances.

The NHS should be digitally inclusive by design, working in partnership with local government and VCFSE to design trustworthy services that enable better access and mitigate risks of social exclusion, with targeted interventions tailored to the diverse needs of the public, underpinned by:

- the principles and practices set out in NHS England's Digital Inclusion Framework (NHS England, 2023)

- the same obligations applying to digital health and care services as face-to-face health and care services

- understanding who is using what services, so we are not exacerbating health inequalities

Technology and data services should operate as a more centralised service, with national frameworks linked with the technology blueprint with choices for local deployment rather than being totally devolved to local health and care systems. This is to ensure we build a digital infrastructure that is resilient and secure, whilst allowing for flexibility and innovation. We will work towards a principle of a consistent data and technology architecture and set of functions available to people nationally.

Data structures for health and care information should be standardised to facilitate data sharing, and federated analytics with those standards set centrally and adhered to by the wider system

High volume, lower value tasks should be automated, including some aspects of data analysis and insights as appropriate. This will free up time for providers and administrators and enable more time to be dedicated to care.

Health and care information should be recorded and stored electronically, searchable and available for any authorised person to view whenever and wherever they need it. Additionally, anonymised health and care information, de-identified where appropriate, should be made available for research purposes by default, with opt out available by exception.

AI should be developed and deployed responsibly, building upon the strong foundations laid by the AI Opportunities Action Plan (Department for Science, Innovation and Technology, 2025). This means ensuring transparency, fairness and accountability in all AI-driven health and care solutions. We should prioritise patient privacy and data security, working collaboratively with experts and the public to create ethically aware AI products within the NHS.

Case for change

Digitalisation has the fundamental opportunity to revolutionise the public's relationship with their health and wellbeing, moving away from a paternalistic model of care and putting control in the hands of the public. This is a generational opportunity which must reflect the significant potential of technology to transform health and care. However, it should be acknowledged that this transformation will require the NHS to overcome some of the greatest challenges our health and care system has faced to date.

There are several aspects of the current provision that need to be changed as a priority to deliver the vision.

Legacy technology across the system is being inconsistently delivered. This results in different levels of digital maturity amongst providers and integrated care systems. To tackle this, a minimum standard of Digital Maturity Assessment, which helps providers and integrated care systems to understand their level of digital maturity, is needed as a consistent foundation (NHS England).

The system's cyber resilience is inadequate, primarily due to the presence of numerous legacy systems. The financial burden of maintaining these thousands of disparate systems compromises the security and resilience of the entire network, making upkeep challenging. Although extensive patching of legacy systems has been conducted, this approach is unsustainable as it impedes the achievement of additional benefits. The business case for replacing legacy systems and enhancing cyber security is based on cost avoidance, which is often not be perceived as sufficiently transformative to secure ongoing investment.

The high number of communications portals for those using services. This creates multiple ways to communicate with patients and results in a proliferation of integration effort. To ensure a seamless and consistent experience across all channels, there is a need to implement a consistent integration standard and streamline the number of communications portals. This would mean that applications communicate with each other more consistently to optimise patient care.

Patients do not have a consistent digital experience. They have to navigate multiple apps across different services as part of their care pathway. Although the NHS App integrates with services from around 30 different suppliers, patients still face a confusing and inconsistent experience due to the presence of additional patient-facing apps in the market.

Staff do not have a good digital experience. Staff are not able to use technology consistently or safely, which would otherwise enable them to be more mobile and productive, freeing up time to provide better care to patients. Addressing this challenge could:

- reduce the admin burden, for example, through use of ambient scribe technology to record information and minimise data entry and extraction required

- improve multi-disciplinary team (MDT) working by having the same information across MDTs to engender trust and to improve satisfaction and morale

- provide evidence to manage variation in patient care, and improve care, through collecting patient outcomes on pathways

There is a lack of a digital backbone to the NHS. Implementing the Single Patient Record presents an opportunity to provide a digital backbone and a means to replace many legacy core services such as PDS (Personal Demographic Service) and Spine. In addition, this would provide a longitudinal record with outcomes that would significantly reduce the data linkage needs of analysts across the NHS and provide better quality data for service improvement and research.

Data for research is not consistently available and often difficult to access and difficult to link consistently. Making the Single Patient Record data available to research would be a game changer, particularly if the SPR included the Unified Genomic record data.

The joint statement from the data sub-group of enabling working group 5 - research, life sciences and innovation, provided in the annex, details the importance of developing and utilising aggregated data.

What needs to be true to enable the vision

The health and care system is a complex ecosystem. In this section we consider conditions within which the health and care systems operate that will need to be true to achieve the vision, over and above changes outlined in this report. Numerous observers have pointed out how slow the NHS is to change and the multiple causes for this. Here we highlight just a few of the key barriers to implementing the vision and make suggestions for reducing the friction.

There is risk asymmetry. The tendency to avoid risks associated with new methods while overlooking the risks of the existing model of care. The NHS is often perceived as risk-averse, but there is a significant tolerance for unrecognised risks inherent in the system. Decision-making at a national level will always exhibit cautiousness; however, inadequate consideration of the status quo can be more hazardous than change. Ensuring that issues during implementation are addressed as part of the process is essential for success.

Next, the decentralised structure of the health and care system means that local organisations operate independently, decision-making authority is often contested and various special interests have considerable influence. Currently, data and technology

investment decisions are made by local entities, including NHS Trusts. The degree of co-ordination in these investment plans and strategies varies across different regions. When procurement decisions are not aligned with overarching policies and standards, they contribute to infrastructure diversity and result in numerous legacy systems that lack interoperability. This significantly hinders the realisation of a unified vision for services.

What we need to invest in

To achieve the vision, fundamental changes are necessary both for the system and in the development and implementation of data and technology. These changes will establish the foundations for successfully incorporating advanced capabilities. This entails modifications to the operations of health and care services, patient engagement with these services, and the manner in which the workforce delivers services.

We must focus on foundational capabilities to maximize the benefits of AI and robotics while ensuring their successful adoption. Public feedback during the Change NHS public and staff engagement, undertaken to help inform the development of the 10 Year Health Plan, highlighted the need to prioritise investment in these technologies for better future use. We need to leverage technology to improve health and care workers' lives and patient care.

To drive this change, we need to invest in 5 areas, noting the importance of investment both centrally and at a local level, in resources to deliver the change.

Data and digital foundations

Core data and technology infrastructure needs to be addressed first to support the implementation of advanced capabilities and ensure system resilience to risk. This requires improving the progress on basic data and digital integration within health and care services and with other services, which currently limits opportunities to enhance the health and care offerings.

Data and digital foundations include good access to universal devices, networking and Wi-Fi for all service locations, accommodating for the increasing digital footprint and cloud compute; standards for data sharing and interoperability; and finally, security by design.

Fixing the core data and technology infrastructure first should enable extensible digital infrastructures at the ICS scale, to enhance local service provision and improve resilience by shifting to cloud services.

The digital infrastructure will require significant transformation to meet several required characteristics.

Resilience is crucial to prevent service interruptions. Public trust in the NHS relies on consistent, secure, and accurate health and care services. Thus, all digital and data products must adhere to privacy and security principles by design. Building a resilient and secure digital infrastructure requires central control over technology deployment across the NHS. Since NHS infrastructure investment is public money, the delivery system must follow a consistent technology framework and architecture. Compliance with standards will

be strictly controlled through commercial and financial approvals at both local and national levels.

Cyber protection is needed so that data is safe and secure from internal and external threat-based risks. The system should meet exemplary response and recovery standards. We should plan for services being attacked or suffering (non-cyber) outages and put the necessary mitigation plans in place to increase resilience and minimise exposure to risk:

- privacy controls, so that personal information cannot be accessed with authorisation and all services will be secure by design
- proxy access controls to enable patients and carers to interact on behalf of others
- data sharing and consent, with a consistent framework and approach for managing data-sharing and consent to data sharing across all NHS and adult social care services, including direct patient care consent and research consent, ensuring compliance with relevant legislation
- user access controls with a self-service method for managing digital access permissions across all digital and data platforms
- core platforms - the number of core platforms and end-points should be reduced to enable better management of cyber security risks and realisation of benefits from advanced capabilities

We should ensure full data interoperability between private care providers and the NHS. This includes alignment with international standards, universal use of the NHS number, interoperability regulation, DTAC (Digital Technology Assessment Criteria), and supplier adherence to agreed standards. Data interoperability supports the effective use of health and care data for various purposes, as fragmented systems can impede care continuity and data sharing. Standardising health and care data makes it shareable and useful across different systems by ensuring its meaning is clear and consistent. This allows data to be separated from its originating digital systems without losing context and enables seamless integration with other digital infrastructure.

All organisations in health and care need automation of such interoperability using standardised yet flexible ontologies, data schemas and semantic inference like natural language processing. This is essential for real time and onward use of the unified data for patients and will allow for real-time use of unified data for patient care. NHS in-house, open-source and vendor-sourced technology already exist for these which needs scaling. Achieving this level of automation will greatly increase the value and use of health and care data and improve patient outcomes.

Single Patient Record

An omnichannel (unified and consistent across all channels) approach unifies data touchpoints across all care settings, providing a universal record such that relevant personal information is accessible to authorised workers with agreed levels of access. These workers have permission to access the information through any agreed means of access. Access is determined by role and activities, ensuring that permission to access the SPR is auditable and explainable to the public.

The Single Patient Record collects data from various users to inform the record and shares data with multiple users based on their needs. It will transform how clinicians, patients, and researchers access and experience information. Key elements of the program include communication, consultation, and behaviour and culture change. Detailed requirements will be developed with input from the public and workforce.

Providers will have access to a unified patient record that includes all events and interactions patients have with the health and care system, along with any other personal data relevant to their care (for example, pain diaries). With all health and care professionals using the same set of information, members of a multidisciplinary team (MDT) will work from an agreed and continuously updated care plan, thereby reducing duplication and miscommunication, and supporting coordinated care and improved clinical and social care outcomes.

Data can be captured through the SPR, including from remote monitoring devices like blood pressure monitors to track non-medical interventions and inform care plans. Patients can also self-record and submit data from wearables or personal information such as phone number, next of kin and demographic details. The Single Patient Record will provide a foundation for maintaining curated patient demographic information, such as ethnicity, aiding in improved equality monitoring and equity of access.

Investing in a SPR will involve establishing a standardised modular digital infrastructure. This approach ensures that data is federated and available at the point of use, enabling the NHS to deliver information services as local services within a consistent framework of data and technology accessible nationwide. This infrastructure will leverage microservices, wherein software comprises small, independent services communicating over well-defined event-based APIs. This facilitates easier scaling and development of applications. Such an investment will foster greater collaboration across the system’s architecture, allowing seamless transitions for data captured and utilised by staff across various organisations and treatment settings.

To ensure the success of this investment, spend controls will need to enforce national standards for a modular enterprise architecture so that new spend incrementally reduces

technical debt and improves resilience. This approach would require greater commercial expertise and capacity to be implemented successfully.

Additionally, the SPR should evaluate how the suite of microservices could replace core legacy infrastructure to reconfigure services such as the National Record Locator, NHS Spine and PDS. This change could phase out core legacy systems while providing increased resilience, reduced operational and maintenance costs, and associated resources. It would also offer greater flexibility for core critical systems.

The single patient record will include data captured as part of the social risk score. This can be shared appropriately with other relevant parts of the health system to ensure patients continue to receive personalised support as they navigate the system and will improve continuity of care. The SPR will collate this data through an omnichannel approach, providing relevant information to and receiving information from researchers, social care providers, primary and secondary care operators, clinicians, patients and non-clinical settings. Non-clinical environments will help allow for the curation of red flag or risk data where appropriate and ultimately contribute to an individual's social risk score.

Omnichannel strategy

Ensuring uniformity in interactions across the health and care system is crucial. Digital and technological solutions must be implemented to provide everyone with access to appropriate care at the right time and place. Users should be empowered to navigate the care pathway effectively, enabling self-care, while care delivery is managed by multi-disciplinary teams. An omnichannel strategy must also address equity of access by bridging the digital divide through strategic resource allocation, providing education and support to patients, and ensuring services are accessible in both digital and non-digital formats. Nevertheless, access is the first step; bridging the digital divide also enhances patient experience and drives superior outcomes, ensuring every individual receives seamless, high-quality and personalised care.

This change will be enabled by the NHS App, which will be reconfigured to act as an enabler to the digitally enhanced system, where the user journey is consistent across all channels and future positive technology changes can be embraced.

The NHS App will be available 24/7 as the source of clear, reliable and comprehensive information, to support self-service. These interactive services allow users to see their entire health record, receive personalised advice and navigate services. Patients will use the NHS App to request, book and amend appointments, as well as having access to other local services and support provided by VCFSE organisations.

Work is already ongoing on the NHS App to deliver this change, including active work on hospital referrals and appointment management, join up appointments for national

prevention services such as vaccinations and screening, and offering appointment booking into GPs, where GPs permit.

The NHS App will also enable the input of patient generated information, including symptoms, wearable remote monitoring data or image data, to facilitate rapid problem resolution. Users will control a personalised prevention ‘notification’ system, supporting each person’s own effort to improve their health and care and lower their modifiable health risks. Additionally, patients will be able to provide feedback on their experience of the NHS after every interaction.

The NHS App will operate within a clear interoperability framework and security standards, so that consenting patients can link to technology developers and researchers, giving those patients access to cutting edge life-style support apps, care improvement analytics and biomedical research, including clinical trials.

Maximise value from data

Using the data generated to support research and life sciences building out a health data research service. Recommendations to deliver this change are detailed in the data and digital for research paper being generated by enabling working group 5 (EWG5), research, innovation and life sciences.

These recommendations include the following.

A National Health Data Research Service should be created. The government should commit to the delivery, and sustained ringfenced funding, of an internationally competitive National Health Data Research Service (NHDRS). This service will provide a platform for researchers and innovators that realises the full potential of UK health data to create solutions that benefit patients and the public.

A programme of public, patient and health and care professional engagement should be delivered. A National Health Data Research Service must build confidence and demonstrate trustworthiness from the outset. There should be a co-ordinated and sustained programme of public engagement involving the public, patients and health professionals in meaningful and transparent discussions and decisions about acceptable uses of health data for research and innovation. This should aim to create a shared understanding of the benefits and safeguards required to maintain confidence.

Legislative clarification and reform should be undertaken. The legal position around health data should be clarified and where necessary reformed to facilitate the timely provision of health and social care data for research, including for participants recruited into ethically approved observational research cohorts and clinical trials.

Appropriate cost recovery for the health and care system should be undertaken. Government should ensure that the publicly funded health and care system fully recovers the costs of the effort and resources used in providing data and services for research and innovation, alongside provision for investment in secure data infrastructure.

Ongoing public engagement

Public and staff trust in, and support of, technology and data will be critical if we are to bring about the changes needed to deliver the vision. Experience from national data and technology initiatives indicates that where this trust and support is lacking, it can severely limit or even halt progress. And there are examples of where public trust in the health and care system has been damaged and needs to be rebuilt.

Investment is therefore needed into an ongoing public communications campaign to 'humanise the value of data' and help maintain public awareness of the value their data provides and how they can continue to engage with the NHS.

The health and care system should make a concerted effort to engage meaningfully with the public and staff to co-design tech-enabled health and care services of the future and take them on the journey of using more advanced technologies. This means understanding the differences between different patient groups and engaging locally on the specific technology-enabled changes with patients, including any trade-offs that they would be willing to accept (for example between the speed and accuracy of diagnosis enabled by technology compared to the status quo).

By designing new digital services to be inclusive from the outset, the NHS will be better able to meet the needs of the widest cross section of society, while also recognising the importance of providing non-digital alternatives for those who need them - all of which will help to build trust. Digital platforms available today can enable this to happen iteratively with a wide pool of people, as well as working in partnership with local government and VCFSE.

The NHS should work in partnership with local government to ensure the success of the neighbourhood health service approach. For example, councils partnering with local ICBs will mean that the system can best serve the local population as they can take advantage of the extensive knowledge held by councils on local residents to inform care plans.

Building and maintaining public trust in the NHS’ management of data in its entirety is a key enabler to ensuring equity of access, especially for those who are socially excluded. There are legal and regulatory controls in place which enable this, including freedom of information requests and subject access requests, however work must be done with VCFSE to build and maintain public trust in data on an ongoing basis.

Data should also be used to enable neighbourhood health services to target those that are socially excluded, working with VCFSE and local authorities to determine how to work better with the socially excluded. This could include investment in facilities such as local community cafes, to increase access to technology, with in-person support to navigate care pathways and increase engagement and trust in the health and care system.

What we need to change in the system

We will need to change the system to enable the realisation of this vision.

Transform the way we procure, use and continuously adapt to technology development

The technology landscape has evolved significantly, necessitating changes in our approach to technology procurement. Technology platforms now operate most efficiently at larger scales, both regionally and nationally. Consequently, our procurement and standards policies must adapt accordingly. To ensure our system is configured to purchase innovative technology, we must implement strategic and fundamental changes in our procurement processes. The ambition is to adopt cutting-edge solutions that enhance operational efficiency and patient care. This requires shifting from traditional methods to a more agile approach, we can identify emerging technologies that align with our goals.

This will involve modifying our procurement strategies to encourage greater standardisation, by utilising established standards and policies to deliver an enterprise blueprint that defines technology standards and options, while providing more modular components. This approach will ensure that the NHS can leverage new and emerging technological innovations, facilitating the transition to a more flexible and interoperable technology estate. Mandated specification for interoperability standards is required to enable this.

Commercial incentives and value for money must be integral to new technologies and digital solutions. Dialogue is required with industry to enable a shift in how we procure technology, with a centralised approach. Establishing strong partnerships with technology innovators and startups will keep us ahead of the curve.

We must create the knowledge and broker with suppliers to enable innovation within the system. It is imperative that all platforms and procurement vehicles, must always provide for safe, unhindered access to promote innovation, collaboration and competition to ensure we have a vibrant and invigorated, hungry market. This will mean that small and new vendors are able to contribute alongside bigger players.

No single company, solution or contract should commercially limit access or control to the proliferation of good technology creation or adoption. Additionally, the NHS should procure under contract terms that ensure there is no lock in or out of opportunism for product upgrades, replacements and openness to newer technologies and inventions, indeed provision should be made for experimentation, knowledge sharing and co-creation.

Collaboration between public and private sectors is to be encouraged with risk sharing and gain sharing to be explored. Learnings from the public sector coupled with exploration and investment with the private sector should be mutually beneficially, with a by-product being that industry growth at home in the UK and internationally can come from partnership and contribute to our country's economic position with our technologies given the opportunity to exemplified on the world stage.

We need to invest in training our procurement teams, updating policies and integrating advanced software for real-time decision-making. These changes will streamline our procurement processes and ensure we remain at the forefront of technological advancements in health and care.

To achieve this, we recommend the establishment of a commercial centre of excellence, to build understanding of, and the capability to, work commercially with suppliers to get the best contract terms and manage contracts effectively. This will include developing best practice contracts and clauses that can be implemented as appropriate across the system.

Financial levers

Delivering a consistent technology blueprint will require different approaches to incentivising and holding systems or organisations accountable. Variability in legacy systems often stems from market management issues and organisational decisions regarding technology investments and short-term funding periods. To enhance technology adoption, it will be necessary to implement stronger controls on spending, provide clearer options aligned with the enterprise blueprint, and establish multi-year funding cycles to encourage investment.

A modification in the funding approach is necessary, as the current treasury treatment of business cases does not effectively facilitate strategic spending on technology. For instance, changes could allow for phased releases of funding through greater adoption and successful implementation of agile business cases for technology investment. Furthermore, funding streams should be a) specifically allocated for technology and data to ensure they are not used for operational costs, and b) designed with flexibility that permits local NHS organisations to determine how to plan and execute their digital transformation initiatives.

There are several other issues with current funding.

This includes the way that funding is applied for specific services makes it difficult to make the case for investment of system-wide infrastructure where benefits cannot be neatly attributed to specific programmes of work, and the accountability for delivery is dispersed.

Further, spend on digital innovation and infrastructure cannot be categorised as capital which inhibits allocation of funding. For example, capital funding is important for purchasing kit, as well as one off revenue funding for training and implementation of technology and data changes. Alongside this, recurring revenue funding is required for optimisation, training, maintenance and software licensing.

The cost of operating thousands of different legacy systems means that security and resilience of the entire network is placed at risk and makes it very difficult to maintain. Significant patching of legacy systems has taken place to date, however it is not feasible to continue this approach, as it hinders the realisation of further benefits. The business case for replacement of legacy systems and cyber security is one of cost avoidance, although it is often not considered transformational enough to attract ongoing investment.

Finally, investment in data and technology intrinsically requires multi-year funding and requires certainty of continued funding with programmes being multi-year.

Empowering our workforce

The NHS stands on the brink of a digital transformation, but to realise our ambitions for data-driven health and care, we must address a critical need: our workforce. This isn't simply about increasing staffing numbers, but about strategically reshaping and augmenting our capabilities.

The people who work in and with our health and care services, including those in the VCFSE sector, should be empowered to drive forward and take ownership of the process of change. Together we need to build a workforce with the skills and culture to be a trusted partner to people and communities, capable of delivering radical changes in the way care is designed and delivered, and ready to take advantages of new technology and innovation. This includes:

- building the baseline digital capability across the whole workforce
- building specialised technical capability
- ensuring that process change is achieved as part of technology and digital deployments

- adoption of continuous improvement methodology to support transformation per the first section on transforming the way we procure, use and continuously adapt to technological developments

The workforce across the system needs to meet a baseline digital capability to utilise evolving technologies and support the public in navigating and using data and technology for their care. Staff need new skills to adapt to digital transformation and multidisciplinary care models. Having the right staff with appropriate digital and technology skills is essential to achieving this vision. To accomplish this, the health and care workforce will require digital literacy and leadership training integrated into the clinical pathway. Improving the quality of patient interactions through digital technology should be a key measurable outcome. This requirement will be further detailed as an interdependency with the people working group.

Specialist data and technology capability will also need to be developed, only in a small number of organisations, to drive forward and take ownership of the change. This will need to be built internally, or contributed by partners, such as academic institutions. This includes building a dedicated digital, data, and technology (DDaT) workforce, with an integrated digital, data and improvement profession at credible scale across the system, but also creating career paths that allow clinicians to specialise in digital health care and AI.

The health and care system must also enhance its overall capability and capacity to implement technology-enabled change, as well as continuously improve to realise the associated benefits. Achieving this requires significant time and effort and is often underestimated. By learning from successful examples of widely adopted innovations, the health and care system must develop greater expertise in areas such as quality improvement, change and project management, data analytics, service design, implementation and evaluation, among others. This breadth of expertise and capacity is equally important as the technical knowledge necessary for developing and adapting innovations.

To enhance the dissemination of proven technologies and data innovations within the health and care system to maximise patient benefits, it is imperative to cultivate a robust culture of improvement, innovation, implementation and dissemination. This involves incentivising and promoting the adoption and spread of innovations within clinical professions, which currently lack career and development motivation compared to academic research. Additionally, it requires allocating time for staff at all levels to participate in improvement and innovation activities. Leaders play a crucial role in this effort - whether at the local, regional, or national level - by emphasising the importance of spreading innovation and providing necessary support. This requirement will be further articulated as an interdependency on the managing change working group.

As well as empowering the workforce with the skills and culture to be a trusted partner to people and communities, data and technology must be utilised to enable clinical and operations workforce to work more effectively and enhance productivity, in order to take advantage of the change.

Automated administrative tasks will free-up time for providers and administrators, minimising data entry tasks and maximising the information they have at their fingertips to make the best possible decisions for patients and the HCP workforce. Together with an interactive single patient record to enable proactive clinical risk management, this will mean that the NHS can support more proactive and preventative care.

Staff will be supported by innovative technologies, such as AI, robotics and virtual reality, to augment decision making across a range of settings spanning diagnosis, planning, and treatment. Care models will be reshaped by supportive technology to prioritise high-impact target interventions for those most in need. Risk prediction tools will inform both primary care and community outreach, to create a connected patient profile and allow a robust understanding of the patient pathway. Remote interactions will give staff greater reach and allow specialist expertise to support their colleagues in community settings in real time.

Agentic AI offers a powerful solution, moving beyond simple automation to a paradigm of human-machine partnership. Imagine, for example, an AI-enabled clinical coder. This isn't about replacing our skilled coders but about empowering them with an AI agent that handles routine tasks, freeing them to focus on complex cases. This augmentation increases their capacity, expertise, and ultimately, job satisfaction.

Legal frameworks

The advancement of technology also brings about more solutions that may not require human involvement or where users may not fully understand the decisions being made. Consequently, it is imperative for the government and NHS to invest in ensuring the responsible adoption of these solutions. To expedite this process, it is essential to establish a solid foundation for a health AI ecosystem. This involves appropriate commercialisation and funding mechanisms, technical viability, and fostering the confidence and capabilities necessary to drive demand for these technologies, as outlined in the AI Opportunities Action Plan (NHS England, 2025).

In particular, new legal frameworks are needed to ensure that the health and care system is set up to deliver the vision for 2035. Data sharing frameworks particularly need to change, to enable multi-disciplinary teams to effectively use the SPR for all uses cases (direct care, planning, population health and research). It will be necessary to work with the National Data Guardian (NDG), Information Commissioner Office (ICO) and legal teams to understand the policy position and options for data sharing.

Simplifying information governance controls is also critical, in addition to reviewing the legal framework. It would be beneficial to have more clarity and guidance for a consistent approach for data sharing between organisations to enable information sharing for direct care purposes and support patient self-service. Recognising that the ability for organisations to change will vary across the system, and support will be required to enable this; this is an interdependency with the work of the managing change working group.

There are also ethical and safeguarding implications that must be considered. To enable the secure implementation of new and emerging technology capabilities, the appropriate ethical and safeguarding frameworks must be in place to ensure the safety of patients and HCPs. For example, with ambient technology, there are ethical and data protection considerations to be addressed to enable further roll-out, such as to ensure that patients have a clear understanding on how their data is being managed and processed, and who has access to it.

Capitalising on the potential of technology and data will also require regulators - Medicines and Healthcare products Regulatory Agency (MHRA), Care Quality Commission (CQC) and National Institute for Care and Excellence (NICE) in particular, as well as professional regulators, to adjust and evolve their approach. This should be done to achieve several aims.

This includes ensuring sufficient capacity and effective processes so they can make timely decisions. As technology advances, not only is regulation becoming more complex, but regulators are struggling to cope with the volume of new technology products emerging onto the market and coming to grips with the regulatory implications - delaying technology deployment.

Further, it is also important for their staff to stay up to date with technological developments, including through greater involvement in trialling new technologies in providers and setting up local regulatory ‘sandboxes’ to understand regulatory implications, so that technology enabled improvements are encouraged rather than held back.

Regulatory pathways should be developed, where traditional devices, diagnostics and digital care platforms are increasingly converging. For example, a smart inhaler linked to apps that alert patients to high pollution, send reminders, check inhaler technique, record inhaler use, and thus help overall clinical decision making.

The link between regulation and commissioning, implementation and spread of technology enabled care models should be strengthened, including to close the gap between NICE approvals and NHS deployment.

On AI specifically, regulators will need to get to grips with the regulation of adaptive models and technologies with diverse use cases (such as large language models), as well as post-market surveillance requirements. MHRA should continue to update its medical device regulations for AI, including for algorithms that continuously evolve or are specific to local data sets.

More generally, the government should clarify the mandate for regulators on how to balance their approach between protecting the quality and safety of care while supporting innovation and providing clarity for industry. This should be part of an open conversation about the balance of risk in deploying new technologies, and how the NHS should manage it. This conversation must include public, patients and staff about what risks and trade-offs they are and are not willing to accept from the introduction of new technologies and AI.

Neighbourhood health service model

The changes proposed are designed to support a more patient centric view of health services and is aligned with the neighbourhood health service model. It will be important that the service model design maximises the adoption of data and technology so that omnichannel design of services are factored in at the beginning.

Neighbourhood health services should deliver services in the local community or at home. The NHS, local authority, VCFSE and independent sector providers should work as one team, enabled by interoperable technology systems.

Access to home-based technologies to support people with long-term and multiple conditions, and where appropriate their carers, will be universal, with a range of episodes of care previously only delivered in acute settings now manageable within the home.

These services should include mobile digital diagnostic capabilities including smart phones images and remote monitoring sensors. Greater access to diagnostics and support in the community through digital systems will focus on inclusion; enabling earlier diagnosis and reducing the number of interactions required to receive timely intervention for those who need it.

Alternative access to NHS care should be available to those that need it, ensuring that no one is left behind. This would maximise the capacity of hospitals and other physical health and care facilities to provide emergency and specialist treatment. When face-to-face services are necessary, access to distributed services will be enabled by an integrated single patient record allowing people to select the most accessible and convenient place of care.

Metrics and improvement of care

Much of the metrics used in performance management of the NHS is service centric. We have an opportunity to move this to being patient centric with the introduction of the SPR and the move to a person centric pathway using an omnichannel design. We would be able to measure patient outcomes at an individual level, capture patient feedback as part of a digital twin. This means we would be able to have near real-time understanding of performance, rather than lagged processed data at a service level. This data will have a profound change in how we look at service improvement, performance, and assurance. The data would be an invaluable source for research and innovation.

We must transform our approach to continuous improvement by establishing learning health systems across the delivery system. This ensures that tools and digital products are part of a continuous learning process. Adoption is challenging without a standardised framework and clear priorities, though local flexibility is essential. The health and care system needs external support like peer learning, training, guidance and standards. Increased capacity and funding for rapid evaluation can help determine how to spread innovations effectively, considering both their effectiveness and clinical safety, and guide subsequent investment or commissioning.

Performance data should be transparent and accessible for all managers, as well as comparative outcomes data using the same metrics. This allows managers to benchmark and understand impacts of performance variation. The data should be collected through automated processes, with monitoring information available at national, regional and local ICS levels, as well as for constituent organisations including local government. Consistency of data enables the service to continuously improve through support improvement analysis and realise benefits from technology investment. It also provides the flexibility to respond to local requirements using consistent and scalable digital and data modules that can be updated as technology and processes advance.

To monitor improvements in health care delivery, a consistent measurement system should be implemented for every ICS, enabling benchmarking and fostering a culture of continual improvement. This requires the use of a ‘model health system’ or ‘digital twin’ (virtual replicas of physical health and care systems) to monitor service delivery at the ICS level in real-time. The adoption of digital twin technology allows for real-time simulation, analysis, prediction and corrective measures. This approach aids in optimizing hospital operations, resource management and patient flow, potentially leading to improved efficiency and reduced unnecessary costs.

Focus on simplification

To deliver costs savings and achieve productivity benefits from the investment will require a focus on simplification and switching off legacy systems and services. There are

currently too many ways to do similar things, all using different tools, creating huge complexity, cost and risk of service failure. The cultural change necessary to stop services and be rigorous on switching from old to new will require significant leadership and governance maximise the benefit from new investments.

Building the case for data usage

To deliver the changes and use of data for all use cases, we need to consider the way we control, process and make available data for direct care, planning, population health and research. Each use case will have different levels of concern and mitigations from the public perspective. We will need to continuously reassure and be transparent with the public on all our work in data and technology, to build public trust. This means we must ensure that we have unified support from GPs, other clinicians, royal colleges, and cross government stakeholders. Our learning from FDP, was that we have to take time to test the programme narrative, assure and be open to challenge from stakeholder, adjust and work with them in an inclusive way. This is a complex space which often conflicting interests requiring clear positions and keeping focus on the benefit to patients are critical for success.

Recommendations

Successful transformation of the health and care system to meet the ambition for data and technology will require an unprecedented shift in the relationship between the public, NHS and health and care workforce. We need to be honest about the data and technology fundamental capabilities required to enable this vision, especially recognising variability in the infrastructure across the system, to lay the foundations for successful implementation of advanced capabilities. This report has outlined the required investment in key areas and significant changes to the system required to enable this, they are summarised as follows:

What we need to invest in:

Data and digital foundations, including access to universal devices and cloud services; standards for data sharing and interoperability; as well as security by design. Building out functionality in FDP to accelerate connectivity.

A Single Patient Record, with an omnichannel approach which unifies data touchpoints across all care settings; detailed requirements to be co-developed with the public and workforce.

Digitalising neighbourhood health, ensuring that everyone can access the right care in the right place when they need it, making use of technology and delivering through multi-disciplinary teams.

Maximising value from data, using the data generated to support research and life sciences building out a health data research service.

What we need to change in the system:

Transform the way we procure, use and adapt to technology development, bringing our procurement and standards policies in line with the current technology landscape.

Empowering our workforce, including building the baseline digital capability across the whole workforce, as well as specialised technical capability.

A legal framework, particularly the data sharing framework to enable multi-disciplinary teams to effectively use the Single Patient Record.

Ongoing Public engagement - through investment in an ongoing public communications campaign to 'humanise the value of data' and help maintain awareness of the value their data provides and how they can continue to engage with the NHS (learn from cancer).

Next steps

Should our recommendations be accepted, we have proposed some next steps:

- building the case for change with the development of the business case for the work, aligning with SR timelines and the SoS steer on overall ambition for this work
- further work on single patient record, including scope work and discussions with industry partners to explore:
    - pace - how we can structure to accelerate delivery
    - cost - what are the options to build this functionality within a cost window
    - technology debt - how do we best manage the transition from current to future and what could we do to take cost out by switching off legacy systems
- scoping and discovery work on an omnichannel strategy, in partnership with neighbourhood teams on how this could be used to deliver a new model of care, undertaken with workforce group so that the thinking is included in the Long Term Workforce Plan (LTWP)
- the continued development of a legal framework for SPR for all uses of data, so that we have clear lines for all stakeholders
- tactical preparations to help with delivery of value by delivering quick wins such as:
    - the procurement of a consistent risk stratification tool nationally, available to all ICBs to enable the move towards risk assessed triage of patients and to support testing of a digital enabled option for episodic care, with multi-disciplinary team (MDT) visibility for complex and/or continuing care.
    - continued development of the NHS App by making some appointments available through the app so as to increase the stickiness of the app with the public and get GPs services more integrated
    - building out the functionality of FDP to support more aspects of the community offer and deploy as national use cases for adoption, working with sites to expand the use of FDP for integration of trust data warehouses to move them onto the cloud
    - undertaking cyber-attack simulations to understand where we have most vulnerability across the NHS estate so that we can mitigate as a system

- the development of the comms campaign to support the 10 Year Health Plan strategy and what we will need public support for

- the development of a technology blueprint and operating model guidance, and consideration of how technology investment and purchasing will need to be aligned with blueprint to signal changes to internal NHS and external suppliers

Interdependencies on other working groups

Work to date has identified interdependencies with other 10 Year Health Plan working groups, recognising that the data and digital technology vision is dependent on other working groups.

- people: requirement for an integrated digital, data, and improvement profession, at credible scale, as well as for baseline digital capability across the wider workforce

- financing and contracting: requirement for the delivery models to enable the vision. Consider the way data and technology are funded and how SaaS (Software as a Service) products and cloud computing can be capitalised

- physical infrastructure: requirement to roll-out infrastructure to take advantage of the technology to deliver the vision, including IT estate infrastructure to maintain security and have the required digital estate

- research, life sciences and innovation: investment in infrastructure for health data research service, building on the use of operational data flows and ensure appropriate level of aggregation of SPR data is available for research purposes

- accountability and oversight: mechanisms to govern delivery of the vision including instances where national approaches or standards are required, as well as the required performance data to enable improvement and assurance, and a requirement for review of regulatory function, as part of the Dash Review

- mobilising change: delivery of the culture and behaviour change to enable the vision, implementation of a system approach to sustainable funding for transformation and change management activity, as well as the development and implementation of learnings systems to facilitate continuous improvement

Developing the roadmap - some considerations

We need to be honest about the data and technology fundamental capabilities required, especially recognising variability in the infrastructure across the system, to lay the foundations for successful implementation of advanced capabilities.

The basics we need to get right include IT infrastructure, getting the technology stack onto cloud services, ensuring endpoints are understood and managed from a cybersecurity perspective and ensuring we have a clear technology blueprint to help organisations move from where they are to a more integrated standardised blueprint. This can build on the work to date on frontline digitalisation, but progress with EPRs can be slow. We need to maximise the functionality available within FDP to connect systems to transition data to the cloud. More importantly we can use FDP to provide integrated data and workflows to enable the move to community and neighbourhood team faster. This will require clear communications, political capital, and a willingness to overcome some of the objections from privacy campaigners regarding Palantir as a supplier.

We must change the interaction between the public and the health and care system to provide access to reliable information about their care, enabling individuals to make informed decisions and manage their own health. Leveraging technology will play a crucial role in achieving this goal. This necessitates additional efforts to define the role of the NHS App and develop an omnichannel strategy that integrates both digital and physical services seamlessly. By examining how other industries address similar challenges, we can reimagine the neighbourhood health service offering, resulting in a markedly improved experience for the public and the health and care sectors. This new approach will foster transparency, enable precise measurement, offer personalised experiences, and generate data for optimising and enhancing service delivery.

The technology blueprint needs to create opportunities for new channels such as digital therapeutics and genomic medicines with information flows that drive enablement of people to look after themselves, using agentic AI as digital assistants to help them navigate NHS services, understand where, what and how they best interact with the service.

We need the core infrastructure in place to allow agents to close workflows in a productive manner. This means we need to build on data platforms such as FDP to enable integration and host AI tools to enhance experience and productivity for our workforce. In time we will have a digital twin of the NHS at a local, system and national level that will mean planning done in near real time and ability to proactively optimise services.

Technology should be used to make the life of our health care workers better, simplify the estate for our staff regardless of setting. This includes single sign on (SSO) and making sure productivity tools like AI and agentics can help the workforce to action and finish workflows as part of integrated working.

Annex 1: enabling working group 4 engagement

Individuals engaged (to note this does not include engagement with 10 Year Health Plan working group co-chairs and broader team members)

- Charlotte Bettley, Head of Health Mission Policy Team, DHSC
- Nicola Byrne, National Data Guardian for health and adult social care
- Helen Clifton, Executive Director of Products and Platforms, NHS England
- Mark England, Chief Executive Officer, HN
- Felix Greaves, Director for Digital Transformation, DHSC
- Emily Henderson, Director of Innovation, NHS England
- Louis Kamfer, Deputy Chief Executive, Cambridge and Peterborough ICS
- James Kent, National Advisor, NHS England
- David Lawson, Medical Technology and Innovation Director, DHSC
- Emily Lawson, Chief Operating Officer, NHS England
- Emily Middleton, Director General for Digital Centre Design, DSIT
- Sonia Patel, Director of Technology, Architecture and Standards, NHS England
- John Quinn, Chief Information Officer, NHS England
- Ed Renshaw, Managing Director, Accenture
- Lee Rickles, CIO, Director and Deputy SIRO, Humber Teaching NHS Foundation Trust and INTERWEAVE
- Matthew Swindells, Director of Provide Collaborative, London region
- Paul Wilmott, Non-Executive Director, DSIT

Events

Developing trusted and inclusive digital healthcare, The Kings Fund, 25 February 2025

Annex 2: AI use cases for the 10 Year Health Plan

Our ongoing work developing an AI product development lifecycle and the FDP platform within NHS England has already positioned us to spearhead the recommendations made under the AI opportunity action plan for AI adoption across the entire NHS.

FDP is purpose-built for AI at scale:

Unparalleled opportunity: with over 70 identified AI opportunities, the NHS has an unprecedented chance to lead in health and care AI. FDP, through itsfFoundational AI ambitions, provides the single, unified environment for these use cases to flourish, avoiding the fragmentation and inefficiency of siloed AI technology stacks. (Recommendation 31. Appointing an AI lead for each mission to help identify where AI could be a solution)

Horizon scanning embedded: we are not waiting for the future; we are actively scanning the horizon. Our existing capability, already scanning global medical literature for AI advancements, ensures FDP is at the forefront of health and care AI innovation. (Recommendation 32. A cross government, technical horizon scanning and market intelligence capability)

Rapid pilot to deployment: FDP, with its robust infrastructure and streamlined processes, is perfectly positioned to rapidly pilot and scale promising AI solutions.

AI enabled products: as we enter the next wave of AI-enabled products with examples like AADS, FDP will be crucial for overcoming scaling challenges. We can leverage the government's proposed scaling service to ensure smooth transitions from pilot to full deployment within FDP's secure and interoperable environment.

FDP: delivering on the 'Scan > Pilot > Scale' vision:

The government's 'scan > pilot > scale' approach is inherently aligned with FDP's capabilities:

- scan: FDP's centralised nature and pre-established partnerships with NHS England D&A and AI vendors make it the ideal hub for identifying high-impact AI opportunities

- pilot: FDP's robust infrastructure, data access and rapid prototyping capabilities provide the perfect environment for piloting AI solutions quickly and efficiently

- scale: FDP's national reach, interoperability standards through our common data model, and potential for a scalable AI technology stack are precisely what's needed to deploy successful AI solutions across the NHS

AI use cases - patient and support networks

AI tools are transforming patient access to health and care services by utilising AI-enabled chatbots and automated appointment systems, which significantly reduce administrative burdens and enhance the patient experience. These technologies facilitate predictive modelling to forecast patient outcomes, identifying individuals at risk of deterioration or hospital readmission.

This enables earlier interventions and personalised care plans, improving patient outcomes and reducing strain on health and care services. AI-enabled triage and patient navigation systems, including digital assistants for patients and carers, are being developed to assist in navigating health and care services, from symptom checking to appointment scheduling.

These digital assistants provide timely information and support, empowering patient self-management 24/7 and improving access to care, thereby freeing up resources for non-digital users. Additionally, AI-driven early warning systems are being deployed to predict risks and enable targeted interventions, with a focus on co-designing culturally relevant prevention programmes with local communities and embedding preventive care pathways into digital platforms.

AI use cases - clinical and operational teams

AI is increasingly embedded in clinical decision support tools, assisting health and care professionals in diagnosing and treating patients more accurately. By analysing vast data sets, AI provides faster, evidence-based recommendations, ensuring consistent and personalised patient care across various delivery channels.

AI can automate routine tasks, increase productivity and free-up time for direct patient care. This includes AI-enhanced clinical coding, which improves the accuracy and consistency of patient records, and automating back-office functions like finances, estates, HR and hospital administration.

AI-enabled digital assistants support health and care professionals by managing routine tasks, providing clinical and non-clinical alerts, and facilitating documentation management. This reduces cognitive load, allowing clinicians to focus more on patient care and managers on high-value tasks. The integration of AI in these areas streamlines operations and enhances the efficiency of clinical and operational teams.

AI use cases - corporate and strategic operations

Agentic AI software programmes offer the opportunity to independently make decisions and take actions to achieve specific goals, combining various AI techniques with features like memory, planning and environmental sensing. These systems co-ordinate care plans and integrate data across health and care infrastructures, streamlining workflows and maximising resource efficiency. Agentic systems process vast datasets, including clinical notes, patient histories, lab results and diagnostic imaging, to extract actionable insights, enabling clinicians to focus more on patient care and improving outcomes.

In a health and care system transformed by these capabilities, silos are broken down, and applications communicate with each other to optimise patient care. Structured testbeds and UK endpoints are being developed to enable the successful implementation of agentic AI, with national guidance on safe and secure implementation.

This includes creating learning systems as part of the mobilising change working group. Agentic AI can handle routine database maintenance tasks and data analysis requests, allowing skilled DBAs and analysts to focus on more complex tasks, fostering innovation and creating a continuous cycle of emerging AI-enabled products.

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