



BCS' Response: Help build a Health Service fit for the future

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BCS

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Who we are

BCS is the UK's Chartered Institute for Information Technology. The purpose of BCS as defined by its Royal Charter is to promote and advance the education and practice of computing for the benefit of the public.

We bring together industry, academics, practitioners, and government to share knowledge, promote new thinking, inform the design of new curricula, shape public policy and inform the public.

As the professional membership and accreditation body for Information Technology we serve over 70,000 members including practitioners, businesses, academics, and students, in the UK and internationally.

We also accredit the computing degree courses in over ninety universities around the UK. As a leading information technology qualification body, we offer a range of widely recognised professional and end-user qualifications.

Introduction

This is BCS' response to the consultation: *Help build a Health Service fit for the future NHS*. BCS has a very active and knowledgeable Health and Care specialist members group, who were consulted in the compilation of this response, along with a BCS Fellow, Hema Purohit, one of the founding members of the BCS Fellows Technical Assurance Group (FTAG) where she leads on all Digital Health & Social.

1 Q1. What does your organisation want to see included in the 10-Year Health Plan and why.

The consultation introduced the concept of the three shifts: The next questions related to 3 'shifts' – big changes to the way health and care services work – that doctors, nurses, patient charities, academics and politicians from all parties broadly agree are necessary to improve health and care services in England:

- Shift 1: moving more care from hospitals to communities
 - Shift 2: making better use of technology in health and care
 - Shift 3: focussing on preventing sickness, not just treating it
- In answering the following questions on the 3 shifts, we'd welcome references to specific examples or case studies.

The consultation asked respondents to indicate how they would prioritise these and at what level we would recommend addressing this at, i.e. a central approach or local approach. The next questions relate to 3 'shifts' – big changes to the way health and care services work – that doctors, nurses, patient charities, academics and politicians from all parties broadly agree are necessary to improve health and care services in England:

Shift 1: moving more care from hospitals to communities. This means delivering more remote diagnostics, scans, treatments and therapies nearer to where people live. This could help people lead healthier and more independent lives, reducing the likelihood of serious illness and long hospital stays, along with consideration for the environment and carbon footprints through the reduction of travel and footfall.

This would allow hospitals to focus on the most serious illnesses and emergencies. More health services would be provided at places like GP clinics, pharmacies, local health centres, and in people's homes. This may involve adapting or extending clinics, surgeries and other facilities in our neighbourhoods, so that they can provide things that are mostly delivered in hospitals at the moment. Examples might include:

- urgent treatment for minor emergencies
- diagnostic scans and tests
- ongoing treatments and therapies.

BCS' answer:

As the professional body for IT we recommend:

- A strategic plan for digital as an integral part of the NHS 10-Year Health Plan.
- The unified NHS health and care digital transformation strategy should have strong management at the local and regional levels.
- A framework for the development and management of standards should be provided as a central resource. It should be able to be applied locally and tailored to regional or community-specific needs.
- Make professional registrations for health informaticians as essential as investment in the technology they use. The NHS should support open public registers such as the Federation for Informatics Professionals in Health and Social Care (FEDIP)¹ Higher-level IT professionals should hold Chartered Information Technology Professional (CITP) status. These measures ensure technologists working with the health service are held to standards of accountability and ethics as well as competence.
- Data management practices across the NHS and social care must be improved in line with the DAMA Data Management Body of Knowledge principles, as reflected by the UK Government's Data Quality Framework². This recognises the imperative for more mature data management practices to be embedded in all areas as a precondition for effective use and repurposing of data across the entire data lifecycle.
- The goal should be establishing an infrastructure with interoperable systems that allow seamless communication and data sharing between hospitals and community health services. This could be mandated, as is the *Fast Healthcare Interoperability Resources (FHIR)* in the US - a standard for exchanging electronic health care data³

¹ <https://www.fedip.org/about>

² [UK Government's Data Quality Framework](#)

³ [https://digital.nhs.uk/services/fhir-apis#:~:text=Fast%20Healthcare%20Interoperability%20Resources%20\(FHIR\)%20is%20the%20global%20industry%20standard,setting%20care%20is%20delivered%20in](https://digital.nhs.uk/services/fhir-apis#:~:text=Fast%20Healthcare%20Interoperability%20Resources%20(FHIR)%20is%20the%20global%20industry%20standard,setting%20care%20is%20delivered%20in)

The findings of our recent BCS report 'Transforming adult social care through digitalisation'⁴ concluded adult social care could benefit significantly from digital transformation - directly within the sector and indirectly through a transformed digital healthcare system.

- Applying existing technology and digital innovations in home and care settings, such as wearable devices, could mean people can live more independent lives with better care outcomes. Our recommendations include:
- Promoting the use of such devices with secure, accessible data sharing, including patient records, across health and care settings to provide continuity of care. To achieve this, we recommend the government enforce interoperable standards for Electronic Patient Records (EPRs) suppliers. BCS' health and care expert members believe one of the big blockers to integration is the lack of engagement of the major Electronic Patient Record (EPR) system suppliers in implementing interoperability standards. This blocks data from being shared for patient care and research purposes and prevents implementing innovations due to limitations in exchanging data with these EPR systems.
- Data analytics could also improve social care in the community, thereby saving money and improving care delivery. Cross-organisational data sharing allows different organisations to develop a more holistic view of a person's needs and help plan services to keep them out of the hospital and treated in the community.
- Cross-domain information exchange must be supported, where information can be moved between healthcare providers and organisations supporting and delivering aspects of social care and wellbeing services in the community. This inevitably will require effective metadata management to enable this exchange of information.
- Mobile healthcare units and community hubs can decentralise care and improve accessibility in rural areas. However, their success is reliant on more joined-up systems; otherwise, further fragmentation will occur.
- Smarter procurement and the phased implementation of solutions tailored to specific community needs are needed.
- Cybersecurity and data protection must be robust in all partnerships with external and third-party entities.

Conclusion: We need to improve the digital integration and rationalisation of healthcare systems to create an intelligent, ecosystem-driven approach where primary, secondary, community, social and emergency care interconnect seamlessly. Social care must be integrated into healthcare, as it is critical in community-based prevention. Government should ensure that health informatics is recognised as a profession in its own right. Digital, data and tech professionals in health and care should be proud to appear on a public register and be held to independent standards; this is essential to build public trust in a digital NHS.

⁴ <https://www.bcs.org/media/umvjv3va/transforming-adult-social-care-through-digitalisation.pdf>

Data management practices remain immature across health and social care, and this deficit must be recognised, understood and rectified.

For this and similar moves to be successful, BCS strongly recommends a strategic plan for digital transformation as an integral part of the NHS 10-Year Health and Care plan. This will be created via a unified, bipartisan health strategy to withstand political shifts, ensuring consistency and adaptability over time. Regular review points in the 10-year plan are crucial to adapt to technological advancements, which should be iterative and include funding for technological advancement and adoption.

2 Q2. What does your organisation see as the biggest challenges and enablers to move more care from hospitals to communities?

Shift 2: Analogue to Digital Improving how we use technology across health and care could have a big impact on our health and care services in the future.

Examples might include better computer systems so patients only have to tell their story once; video appointments; AI scanners that can identify disease more quickly and accurately; and more advanced robotics enabling ever more effective surgery.

BCS' Answer:

All the examples mentioned above provide reasonable technological solutions to improve patient care. However, it is more complex than deciding which system to update or new equipment to buy. The problem lies here within the statement above of 'computer systems'.

Technology has advanced beyond computers, and the NHS 10-year plan should focus on 'solutions' rather than 'systems'.

Solutions are designed to flow end-to-end and solve several business problems, and the NHS could ensure that the right solutions are built by becoming more involved with vendors at the design stage. This would mean that what is purchased is integrated, solves the business problem and delivers the outcomes.

Barriers to be overcome: Whilst there are many success stories of how technology has revolutionised health and care services and provided brilliant solutions, there are ongoing common barriers to technological adoption.

These include: - antiquated IT infrastructure and software; lack of skills (or up-to-date skills); data quality issues; data availability issues; interoperability issues; ethics and governance constraints; lack of recognised standards across many aspects of digital health and Healthcare AI; well-intentioned but methodologically flawed approaches to the development of tools; data fragmentation; lack of clear career pathways for health informatics professionals.

Solutions: Adopt a holistic approach to managing the entire lifecycle of services and systems from procurement to retirement with input from competent, ethical, registered IT professionals, preferably with Chartered status. Their advice can help improve requirement analysis and avoid purchasing over-specified systems that lead to wasted resources and

unused functionality. Open Data Standards (such as OpenEHR) are essential and should be mandated across any supplier wishing to sell into healthcare.

This is critical for interoperability and integration from the onset rather than adding to the clinical technical complexity and debt that the NHS already has.

There are also relatively quick options, such as rationalising software to optimise using enterprise licences (e.g., Microsoft tools) to reduce waste and improve cost efficiency.

Training and Professionalism solutions. Developing a cohesive strategy for the training, professional certification, and standardisation of digital skills among health informatics workers will maximise the utility of technology investments. This will need protected, ring-fenced funding for the training, empowering those working in the NHS and care setting to identify and implement digitally enabled process improvements. There should also be built-in reviews to assess the impact of tools, with a particular focus on accidentally widening health inequalities.

Training would consist of a) basic digital skills and AI literacy across all those working in NHS roles, both clinical and non-clinical; b) tailored training for those using digital and AI tools within their roles to understand how to use them appropriately and avoid accidental misuse. c) Advanced training is needed to develop significant technical and improvement skills amongst clinical and non-clinical professionals within the wider NHS ecosystem. d) Training for senior management in the commissioning and leadership of large-scale digital transformation initiatives.

Addressing the digital divide, which also affects patients, is vital and a recommendation is implementing the existing Inclusive Digital Healthcare: a Framework for NHS Action on Digital Inclusion⁵

We would advise that training organisations also need to be accredited and monitored for quality to ensure the delivery of learning of the highest standards. This is especially important for Clinical Safety Officer and CCIO roles.

It is essential to build in progression to professional registration of health informaticians. We recommend that health and care services have the government's support for professional registration to be, at the very least, a desirable requirement at the recruitment level and as part of continuing professional development.

We would advise the adoption of open public registers such as the Federation for Informatics Professionals in Health and Social Care (FEDIP) and for higher-level IT professionals to be chartered⁶. These measures ensure that everyone working across roles with a defined and significant IT component in the NHS are accountable, ethical, and competent.

⁵ <https://www.england.nhs.uk/long-read/inclusive-digital-healthcare-a-framework-for-nhs-action-on-digital-inclusion/>

⁶ [Chartered IT Professional \(CITP\) | BCS.](#)

Keeping up standards: There can be issues around trust and wariness regarding digital adoption in health and care settings. In addition to having suitably skilled staff, the promotion and awareness of the many standards, both UK and global ones, can build trust and boost the chances of the success of digital transformation. Key to that is safeguarding the sharing of information and patient data—which needs to be robust, as does cyber-security.

Access and use of data and information: Support should also be provided for high-quality, up-to-date knowledge delivery and access by patients and professionals at the point of need to counter misinformation and promote the uptake of evidence and national guidance from NICE and other bodies.

Data-driven insights can link population health, social science, and economic data for a holistic understanding of health trends. We believe that closer integration of research and care should be encouraged. Promoting collaboration between healthcare providers and clinical and life sciences can lead to leveraging technological advancements for predictive and precision care. Sources of advice include the Health Foundation’s Report Developing learning health systems in the UK: Priorities for action.⁷

Ensuring Patient Safety For instance, we encourage the implementation of standards that set the requirements for the effective application of clinical risk management of Health IT systems, DCB0129⁸.

3 What does your organisation see as the biggest challenges and enablers to making better use of technology in health and care?

The consultation stated that spotting illness earlier and tackling the causes of ill health could help people stay healthy and independent for longer and take pressure off health and care services.

BCS’ Answer:

As explained in Q2 - digital transformation can improve health and care outcomes and services; however, there are barriers to adoption and implementation.

Biggest Challenges:

- Lack of a coherent plan for the digital transformation of health and care across the nations and regions

⁷ <https://www.health.org.uk/publications/reports/developing-learning-health-systems-in-the-uk-priorities-for-action>

⁸ <https://digital.nhs.uk/data-and-information/information-standards/information-standards-and-data-collections-including-extractions/publications-and-notifications/standards-and-collections/dcb0129-clinical-risk-management-its-application-in-the-manufacture-of-health-it-systems>

Response – final version

- The adoption of inconsistent, disparate technologies that have varying levels of maturity,
- Lack of expertise or support at the leadership level to make informed decisions on technology.
- Inconsistent adoption of technologies and data sharing across regions and nations.
- Poor procurement processes that focus on large enterprise systems without sufficient requirements analysis.
- Legacy systems
- Lack of coherent plans to train staff in the health and care setting to use technology and utilise its benefits
- Digital exclusion for those unable to access or manage online health services.
- Fragmented data systems and a need for a cohesive national framework for deploying foundational technologies like interoperable care records.
- The lack of metadata strategies in health and care provider organisations limits their ability to maximise the use of data that they generate, use, or repurpose.

Enablers:

- We recommend that a strategic plan for digital is an integral part of the NHS 10-Year Health Plan⁹. This would entail creating a centralised health and care blueprint to align national, regional, and local initiatives in technology Improve integration of IT systems across care settings and the four nations to facilitate seamless service delivery.
- To improve data sharing across regions and nations, we recommend the adoption of the International Patient Summary to enable cross-border data sharing between the four UK nations. This was a commitment made by the G7 but has not yet been implemented in the UK¹⁰.
- Procurement and workforce planning must promote the inclusion of competent, ethical, accountable, professionally registered IT staff in roles such as systems architects and business analysts to design and implement new tech solutions. (and see Q5)
- We advocate for prioritising legacy system upgrades, focusing on efficiency, and addressing technical debt to ensure new infrastructure works effectively.

⁹ <https://www.longtermplan.nhs.uk/>.

¹⁰ <https://assets.publishing.service.gov.uk/media/61d82fbd8fa8f505893f1c93/G7-international-patient-summary-roadmap.pdf>

- Develop a coherent yet flexible strategy for training staff at all levels in the digital skills their jobs require.
- Promote and adopt professional registration.
- Build the digital skills of all citizens to take advantage of all public services available, including health.
- Promote, adopt, and unify the standards and protocols that already exist for data sharing, electronic patient records, risk management for medical devices, health IT networks, etc.

4 Q4. What does your organisation see as the biggest challenges and enablers to spotting illnesses earlier and tackling the causes of ill health?

Ideas for change

The consultation invited everyone to share their ideas on what needs to change across the health and care system. These could be:

- Ideas about how the NHS could change to deliver high quality care more effectively.
- Ideas about how other parts of the health and care system and other organisations in society could change to promote better health and/or improve the way health and care services work together.
- Ideas about how individuals and communities could do things differently in the future to improve people's health.

BCS's Answer:

Challenges:

- Insufficient integration of social care, which plays a critical role in community-based prevention.
- Inequities in access to health technologies, particularly for disadvantaged groups. Dental care is a stark example of that where limited access to NHS dentists can exclude those who can't afford private care.
- Fragmented data management and unclear governance prevent early identification of at-risk individuals.
- Limited access to primary care exacerbates delays in diagnosis.
- Evolving patient lifestyles and self-education lead to delayed care or mismanagement of symptoms.
- Insufficient emphasis on preventative measures like social prescribing and lifestyle-based health interventions.
- Slow integration of advanced research and technology into everyday care.
- Insufficient predictive tools to pre-emptively identify health risks.

Response – final version

- Fragmented healthcare data systems that prevent seamless patient information sharing.
- There is a need for more focus on preventative measures, such as social prescribing or real-time health monitoring.
- Digital exclusion among disadvantaged populations.

Enablers:

- Incorporate Adult Social Care into the NHS 10-Year review (see our report [Transforming Adult Social Care Through Digitalisation](https://www.bcs.org/media/umvjv3va/transforming-adult-social-care-through-digitalisation.pdf)¹¹)
- Better training and maturity in data management practices to inform data governance approaches, enable improved metadata, data modelling and data quality management, and utilise predictive analytics effectively to realise Learning Health Systems across the NHS.
- Develop a unified, interoperable, secure data system that integrates healthcare and socioeconomic indicators and can be used for early intervention. For instance, analysing the millions of liver function tests held by the NHS could help identify asymptomatic people at risk of alcoholic-related liver disease.
- Address the concerns around the security and privacy of Electronic Patient Records to develop a robust, secure system trusted by the public and professionals.
- Encourage partnerships between the NHS and life sciences to adopt cutting-edge innovations.
- Expand home monitoring devices and wearable technologies for real-time data monitoring.
- Expanding community care to take the pressure off primary care
- Training and educating healthcare workers with technology tools that identify risks and intervene early and effectively.
- Strengthen community health programs to focus on proactive well-being, such as social prescription initiatives that encourage healthier lifestyles and early check-ups by patients.
- Promote patient engagement by enabling individuals to contribute to and interact with their health records.
- The promotion of digital skills courses for disadvantaged and marginalised groups, as proposed by Skills England

¹¹ <https://www.bcs.org/media/umvjv3va/transforming-adult-social-care-through-digitalisation.pdf>

5 Q5. Please use this box to share specific policy ideas for change. Please include how you would prioritise these and what timeframe you would expect to see this delivered in, for example:

- Quick to do, that is in the next year or so
- In the middle, that is in the next 2 to 5 years
- Long-term change that will take more than 5 years

BCS' Answer:

Quick fixes (1 year):

- **Establish a long-term health and care strategy** with bipartisan support to ensure consistency across political changes. We recommend that a strategic plan for digital is an integral part of the NHS 10-Year Health Plan.
- **Establish a Technology Industry Steering Committee to oversee and govern.** All hyperscalers and tech vendors should be represented here and expected to work together for the NHS, not as individual companies. Doing so would benefit the NHS, and an agreement could be brokered.
- **Mandate technologists at senior levels of healthcare organisations** to guide technology integration. Improve curriculum for NHS senior managers in Agile Digital Transformation.
- **Simplify NHS funding and procurement processes** to enable faster implementation of solutions.
- **Partner with technology vendors instead of keeping them at arm's length.** The best designs and solutions happen with co-design and innovation, with open communication about requirements. Adopting telehealth solutions and strategies, rural and mobile health solutions, etc., can only happen if the partnership works.
- **Rationalise IT infrastructure,** establish end-of-life strategies for legacy systems and optimise software licensing to reduce waste.
- **Plan coherent digital health educational programs** to help patients and professionals better utilise innovative tools.
- **Community Awareness Campaigns:** Promote healthy lifestyles, mutual care, and the benefits of decentralised, digital support for healthcare.
- **Adoption of Cross-Domain Metadata Standards:** Work with CODATA to implement metadata standards compatible with the Cross-domain Interoperability Framework (CDIF) to enable the integration of health and care data with other data domains.
- **Midterm (2–5 years):**
- **Commit to professional registration,** such as FEDIP, and Chartered status for health informatics staff.

- **Systematic Deployment: Roll out core technologies (e.g., interoperable records, NHS apps)** to ensure universal adoption and unified, interoperable digital ecosystems regionally, enabling seamless transitions across care settings.
- **Launch coherent Digital Skills** certification programmes to improve digital literacy among healthcare staff and patients.
- Establish robust, trusted systems for **managing personal digital** health profiles and power of attorney.
- **Develop and deploy tools to disseminate relevant, up-to-date, actionable knowledge** in appropriate standards-based formats to patients and professionals at the point of need to promote national guidance, trust and counter misinformation.
- Focus on **early interventions** through advanced analytics and wearables to prevent illnesses and reduce hospitalisations.
- **Community-Focused Infrastructure:** Build infrastructure to support decentralised care and remote patient monitoring.
- **Mobile Healthcare Expansion:** Deploy units in underserved areas to provide decentralised diagnostic and minor emergency services.
- **Streamlined NHS Procurement:** Simplify procurement processes to enable agile implementation and updating of new solutions.
- **To eliminate waste, replace outdated infrastructure** and rationalise software usage.
- Foster closer collaboration between healthcare and research for predictive care advancements.
- **Shared repository:** Establish a repository of sharable architecture artefacts, e.g. data and process models (using open standards) and requirements, as well as crucial ISO/BSI standards documents.
- Raise awareness and training in the vital enterprise architecture concepts described by the Open Group's collection of standards (TOGAF, ArchiMate & Open Agile Architecture).

Long-term (5+ years):

Intelligent Healthcare Ecosystem: Integrate primary, secondary, community, and adult care into a predictive, data-driven continuum.

Partnerships with Research Institutions: Collaborate with clinical and life sciences to adopt predictive analytics and precision care tools.

Enhanced Public Access: Address digital exclusion through improved access to wearable devices and inclusive health platforms.

Integrated Social Care: Incorporate social care into all healthcare planning to improve community health outcomes.

Build a comprehensive community care infrastructure with a data-driven approach to various health and socioeconomic domains.

- Enhance interoperability and remove barriers across regions and systems in the UK.
- Transition to an intelligent continuum of care that integrates all healthcare components.
- Foster greater collaboration between care providers and research organisations for innovation in precision medicine.
- Transform the NHS into an agile organisation capable of efficiently implementing changes.
- Transform NHS and partner organisations into agile entities capable of seamless change and innovation.
- Shift towards a simplified and patient-centric digital healthcare environment that enables proactive care.

Prioritisation:

- Immediate focus should be placed on addressing inefficiencies in IT infrastructure, data management capabilities, and staff training.
- Mid-term goals include rationalising resources, improving cross-regional integration, and focussing on scalable, interoperable technologies and infrastructure.
- Developing a fully integrated, agile, technologically advanced healthcare ecosystem should be a long-term aspiration.