UK Government's policy paper on the digitalisation of health and care

On 17 October 2018, the UK Department of Health and Social Care (DHSC) published a policy paper entitled “The Future of Healthcare: Our vision for digital, data and technology in health and care” (the Policy Paper). This follows the publication of NHS Digital’s Initial Code of Conduct for Data-Driven Health and Care Technology in September, reiterating the government’s continued push towards the digital transformation of the NHS.

While the Policy Paper acknowledges that this digital transformation will face challenges, in particular “legacy technology and commercial arrangements”, “complex organisational and delivery structures”, “a risk-averse culture”, “limited resources to invest” and “critical need to build and maintain public trust”; it only briefly set out how it proposes to address (most of) these challenges (see below).

Instead, the Policy Paper sets out 4 guiding principles for the delivery of this digital transformation, namely:

(i) user need (services designed around users’ needs (whether patients, clinicians or others) in order to improve uptake, thereby reducing cost and helping obtain better outcomes);

(ii) privacy and security (maintaining public trust in the way the NHS holds, shares and uses data via appropriate data standards, guidelines and frameworks mandated across the NHS based on the General Data Protection Regulation);

(iii) interoperability and openness (ensuring open technology and data standards to allow innovators to develop products more easily and improve data quality);

(iv) inclusion (designing services for everyone including people with different physical, mental health, social, cultural and learning needs, low digital literacy or poor access to technology).

These guiding principles are supported by a number of “architectural principles” which should be adhered to, namely: (i)
“putting tools in modern browsers”; (ii) “internet first”; (iii) “public cloud first”; (iv) “build[ing] a data layer with registers and APIs”; (v) “adopt[ing] the best cyber security standards”; and (vi) “separat[ing] the layers of patient record stack: hosting, data and digital services”.

Given the size of the task in hand, the DHSC has identified four key digitalisation priorities, namely: infrastructure, digital services, innovation and skills and culture.

**Infrastructure**

The first priority is to address the current IT architecture which is inappropriate for an entity aiming to be a global leader in digital health. In particular, ensuring the interoperability of medical record data. Not only would this ensure that healthcare professionals have access to all the information they need to provide care and improve the patient experience; it is also needed to facilitate large scale data mining to generate new medical breakthroughs which is a key endpoint for the DHSC. However, data safeguarding and cybersecurity must be assured through standards and toolkits, many of which already exist. The DHSC is also developing open standards on data, interoperability, privacy, real-time data access, cybersecurity and access which will be mandated across the NHS. Detailed specifications for each standard will be published over the coming weeks, starting with data. Notably, these will reflect minimum standards which must be complied with, but trusts will continue to have flexibility on the procurement of their IT infrastructure. In addition to interoperability, modularity is identified as another key infrastructure change which is required. Open standards should permit a modular approach to IT systems, allowing tools to be “pulled and replaced” with better alternatives when they are developed. This in turn should drive innovation by encouraging industry to develop the best tools possible.

To improve the IT infrastructure, the NHS also needs to ensure that it has the agility to be able to buy the best technology available, from streamlining the procurement process, shortening contract durations and avoiding lock-in provisions, to encouraging the purchase of appropriate off-the-shelf software (which is continually updated) rather than bespoke software.

**Digital Services**

The second priority is the development of digital services to help free up healthcare professionals’ time for care.

Public-facing digital services should support and empower people to stay healthy and independent for longer. In order to do this, patients will have secure online access to clinicians, personalised and relevant health information, digital tools and advice, as well as having the ability to communicate with healthcare institutions by email, SMS and apps. NHS staff should also be empowered to develop these digital services, particularly where the need is niche, or they have a better understanding of the issue that needs resolving than industry.

**Innovation**

In order to “make the UK the world leader in...healthtech” a “world-class ecosystem” must be developed by the use of clear standards (eg around data privacy and interoperability), communicating user needs, helping access to finance and encouraging collaboration between the NHS and industry. Indeed, the DHSC envisages that partnerships between the NHS and industry will become the new normal building on existing programmes such as the NHS Test Bed programme, Health Catapult and Academic Health Science Networks.

Notably, the DHSC envisages the development of a healthtech regulatory sandbox, working with the Information Commissioner’s Office, the National Data Guardian, NICE and other regulators, to allow the NHS to test, iterate and
de-risk the most promising innovations. This will also allow innovators to demonstrate and evidence the success of their technology which is so often a requirement before a new technology is adopted.

The DHSC intends to complement this new ecosystem by removing barriers to market access and improving its procurement function (building on the existing G Cloud Digital Marketplace) in order to enable the NHS to buy the best innovations.

**Skills and culture**

For this type of digital ecosystem to exist, staffing in the NHS will need to change by recruiting specialist non-clinical professionals, such as data science and analytics specialists, IT specialists and contract managers.

At a more fundamental level, busy clinicians and other staff will need to be trained to use data and technology in their work and have time to learn the skills they need.\(^2\)

As part of this transformation, the NHS will need to shift to an agile and iterative approach to adopting new technology. This transition will be facilitated by a new innovation hub called the Healthtech Advisory Board (reporting to the Secretary of State for Health and Social Care) comprised of technology experts, clinicians and academics which will act as an ideas hub for how to transform digitally the NHS.

In a bold move, the DHSC has provided a list of stretching endpoints which, if met, would demonstrate a successful project, including “world-leading research…from our massive body of health data, is not only possible but is producing ground-breaking new clinical treatments”.

Interestingly, the DHSC is choosing to avoid a fully centralised “top-down” approach to the digitisation of the NHS. Rather, it is looking to rely on basic minimum requirements across key areas, but to allow trusts to procure and adopt that technology as appropriate. While understandable (particularly given the challenges faced by the NPfIT programme in the past), there is a risk that this approach may perpetuate a fragmented approach to digitalisation depending on leadership values, budget and key operational priorities across different NHS Trusts and delay reaching the DHSC’s stated endpoints on a national scale.

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1 For example, NHS Digital’s Data Security and Protection Toolkit, Initial Code of Conduct for Data-Driven Health and Care Technology, and Data, Digital and Technology Standards Framework.

2 This is already underway. Dr Eric Topol is leading a review looking at what training and skills clinical staff will need to make the best use of AI, robotics, genomics and digital medicine. In addition, there exists the NHS Digital Academy and Skills for Care to support digital skills for the adult social care workforce.

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