advanced

The Path to 21st Century Healthcare

How technology is shaping the NHS, from the Five Year Forward View to the Long Term Plan

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About the author

Jo Best is a UK based, freelance health and technology journalist. Following a career writing about healthcare for such organisations as ZDNet, TechRepublic, BMJ and as an editor for the Guardian Government Computing, she is currently training to become a Doctor. In her spare time, whilst completing her studies Jo's recent work has seen her cover topics such as The NHS app, brain computer interfaces, along with how the NHS wants to fight diseases with data science.

Introduction

Technology and the NHS have historically not generated headlines for the right reasons, with monolithic centralised IT projects running overbudget and past deadline, while still not delivering the required functionality. While that may have been the historical picture, the NHS has since shown that it's ready for a fresh approach: one where technology is seen as an enabler, used to drive up standards in patient care, generate efficiencies, and provide a bedrock for confronting new health challenges and adopting different models of working.

In recent years, two key strategy documents - the Five Year Forward View and Long Term Plan - have set the direction for the NHS in the following years, and in so doing, opened up new horizons for IT within the NHS.

The Five Year Forward View

The background

The Five Year Forward View arrived in 2014, setting out an original vision for the NHS: better preventative care and public health, breaking down barriers in service provision, and establishing new, more integrated models of care - all the while allowing patients to have greater control over the stages of their healthcare journey.

Released in the closing stages of the Conservative Lib-Dem coalition, the Forward View was intended to shape the direction of the NHS for the half-decade to follow. While health service funding was protected from Chancellor George Osborne's austerity-driven spending cuts, the Forward View was nonetheless a reflection of the financial stresses being felt across the NHS and the wider public sector at the time.

In the Forward View's own words, 'service pressures are building': as well as mounting economic tensions, the NHS was experiencing growing demand for its services coupled with the need to deliver increased efficiencies.

Slow-burning health challenges were beginning to make their presence felt within the health service: obesity, mental health, an ageing population and the growing weight of comorbidities that can come with it all required an expanding slice of the NHS' time and resources.

Elsewhere, the NHS was being asked to deliver efficiencies to help bridge the gap between the cost of service provision and the available central government funding.

The Forward View was published to address these needs, and information technology was among the tools that could be used to help the health service meet the challenges ahead.

The NHS embraces digitalisation

While technology development within the NHS may have faltered in the years leading up to the Forward View, consumers were increasingly turning to digital channels for interactions with not only companies, but other public sector bodies, from local councils to central government departments.

While people were used to using apps and websites for day-to-day tasks from banking to booking a flight, arranging a GP appointment online remained the exception rather than the rule for most patients at the time of the Forward View's publication. The strategy acknowledged the fuller use of digital technologies, particularly in primary care, was inevitable.

During the tenure of the Forward View, one of the main shifts from face-to-face to digital channels was led by the telephone service 111, where callers could be triaged over the phone and directed to a GP, A&E or a pharmacist as needed. The aim of testing 'apps, web tools and interactive avatars' for 111, set out under 2017's Next Steps on the Five Year Forward View, was not achieved in the strategy's lifetime. However, it will likely be realised in the near future as the NHS increasingly relies on digital interactions with patients.

While the Forward View may have supported the aim of moving towards a more digital-first NHS, during its lifespan, technology change within the health service was incremental and slow-paced. The strategy called for both GP appointments and repeat prescriptions to be available online routinely across the NHS, an ambition more concretely realised under the Long Term Plan with its pledge to make 25 per cent of GP appointments available online.

For end users, the promise of having access to their online GP record made available 'through apps and digital platforms of their choice', established under Next Steps, is certainly getting closer with the advent of the NHS App and increasing numbers of practices opening up online access. However, the idea of being able to write to the record, or include wearables data, seems no closer, though perhaps with good reason - the vast amount of data that could be generated may end up swamping the signal with the noise. Nonetheless, it represents an important indication of how electronic patient records will develop in future.

One of the overarching healthcare trends crystallised within the Forward View was a move towards more patient-centred care. It allows those with long-term conditions to take greater control over managing their condition and become actively involved in decision-making, in concert with healthcare professionals.

Against that background, the Forward View highlighted the introduction of the NHS Digital Apps Library, which offered 20 self-management apps for conditions including diabetes. The Apps Library has grown since the publication of the Forward View and there are now tens of apps available. However, there remains a lot of overlap between functionality of the apps in the library, and numbers remain small compared to those available through well-known app stores. While the apps in the NHS Digital Apps Library have arguably gone through more thorough testing compared to those available elsewhere, the disparity in numbers is inescapable. It's an issue the NHS does appear to be responding to, however, with the introduction in 2019 of a new digital portal for app developers to help streamline the process of having an app accepted into the Library.

The security and compliance challenges of embracing digitalisation

Under the auspices of the Forward View, the National Information Board (NIB) was tasked with creating a series of frameworks to help guide the NHS' adoption of future technology. The NIB went on to produce strategy documents including Personalised Health and Care 2020 and Paperless 2020, which set out in more detail how the NHS could use IT to achieve the Forward View's wider aims.

A paperless health service has been an NHS dream since before the publication of the Forward View, and remains so. However, significant progress has been made over the lifetime of the strategy, with paper notes increasingly disappearing from primary and secondary care. Although Personalised Care 2020 foresaw a future where all patient care records would be digital, real-time and interoperable by 2020, this laudable goal feels like it is unlikely to be achieved within the next year, as paper notes persist in parts of acute care, and data is still far from interoperable across primary, secondary and emergency services.

The Personalised Care 2020 framework also showcased the role that NHS data could play in improving health outcomes. However, the move to paperless, combined with the Forward View's drive to break down silos in data and IT systems, opened up patients' data to new security threats and compliance risks. As a result, data-sharing needed 'new approaches to security and trust', according to the Forward View, and could only happen if patients are convinced that their data is protected appropriately and accessed only on their terms.

The NHS Apps Library provided one illustration of the data challenges facing the health service. The library was intended to provide patients with a diverse set of apps to manage long term conditions, as well as generating datasets that could be used for population health research. However, with the advent of General Data Protection Regulation (GDPR) in 2018, a number of apps were pulled from the library after failing to meet a deadline for undergoing a GDPR assessment.
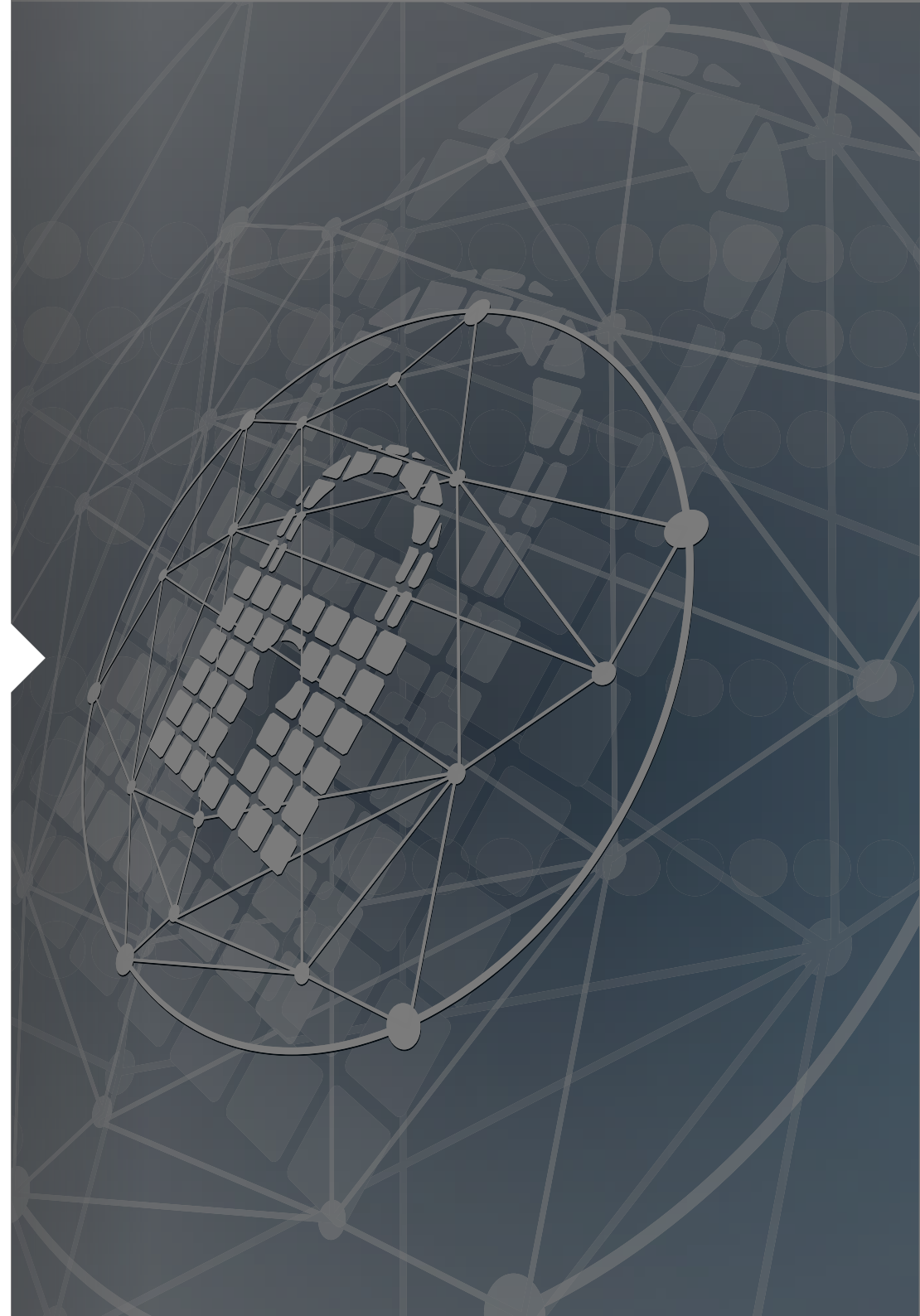
The effect of digitalisation on NHS culture

While it may have left the finer details of technology policy to the strategies that followed, the Forward View did mark a step-change in IT culture within the health service.

Previously, the Forward View said, there had been two attitudes towards IT within the health service: either highly-centralised implementations and a 'one size fits all' approach for all sectors of the health service, or letting each organisation go its own way on IT procurement, leading to systems that weren't interoperable and a failure to reap the benefits of technological overlap. The Forward View opted for an approach somewhere between the two: centrally-provided systems that formed a technological backbone to which organisations could connect their chosen systems, as long as they met particular interoperability criteria.

It was not the only change in attitudes towards IT that the Forward View inspired. In 2017's Next Steps on the Five Year Forward View, NHS England acknowledged that IT within acute, community and mental health was not meeting the required standards. Driven by both the Forward View and Personalised Health and Care 2020, in 2016 the first Global Digital Exemplars were launched, intended to become the blueprints for IT development that other Trusts could adopt. Based in acute, mental and ambulance care, the exemplars establish models that can be rolled out across the NHS, with a number of 'fast follower' Trusts already established.

The Forward View also led to the creation of the NHS Digital Academy, a finishing school for Chief Information Officers and Chief Clinical Information Officers. Set up in 2017, the academy is now on its third cohort, offering training in IT leadership within the health service with the aim of bringing NHS technology more into line with business and clinical needs.

The Clinical Entrepreneur training programme was also introduced, aiming to equip hundreds of health service staff with the abilities needed to introduce new technology - including digital health, genomics and analytics - to the health service. The programme sought to use training, coaching and placements to help staff develop next-generation innovations and build start-ups.

'The Forward View did mark a step-change in IT culture within the health service.'

Transitioning from Five Year Forward View to the Long Term Plan

The pressures that prompted the creation of the Forward View - greater demand for services, a need for increased efficiency within the NHS and flat levels of funding - continued throughout its lifetime. Consequently, NHS performance and finances found themselves suffering. In 2018, however, central government offered a new funding settlement, in return for the creation of a new strategy for the NHS. That strategy was realised in the Long Term Plan.

The Long Term Plan set out to tackle the biggest issues facing the NHS, including providing better preventative medicine, offering more personalised care and reducing pressure on emergency services.

The Long Term Plan, which will ultimately shape NHS technology priorities over the next decade, was published this year and deals with IT more specifically and in more depth than its predecessor. With technology having moved on significantly both inside and outside of the NHS over the lifetime of the Forward View, an overhaul of health service technology policy was fast becoming due.

In several significant ways, the Long Term Plan builds on the vision that the Forward View set out and made progress towards, but was ultimately unable to achieve in full. From a paperless NHS, to a more joined up patient journey (complete with data that travels with an individual rather than being locked down in discrete systems) and more patient choice about how to interact with the NHS and how to manage their own condition, the Long Term Plan revisits the themes of the Forward View - with a more concrete plan for achieving them using IT.

Rather than purely a redux of the Forward View, the Long Term Plan also positions the health service to embrace a whole new suite of technologies that were in their relative infancy when the Forward View was published and have since been more widely piloted and adopted. The Long Term Plan seeks to capitalise on such innovations.

"Digitally-enabled primary and outpatient care will go mainstream across the NHS."

The next wave of digitalisation

'Digitally-enabled primary and outpatient care will go mainstream across the NHS' is listed in the Long Term Plan as one of the five major changes that will take place over the next five years, underscoring just how important digitalisation is for the NHS of the future.

According to the Long Term Plan, the NHS will move to a 'digital first' model of care, while 'digital tools' will help people identify and manage conditions, and be cared for as much as possible within their own home.

Although the development of the NHS App predates the release of the Long Term Plan, the App will become the 'standard online way for people to access the NHS', according to the strategy.

Launched to the wider public earlier this year, the App was intended to provide a way for patients to book GP appointments, access their electronic health record, express preferences and sign up to be part of research projects. Like the NHS Apps Library before it, the App was conceived with a worthy goal in mind, but has yet to achieve its full potential. After it was released and key functionality subsequently added, further developments to the NHS App have been left in the hands of third party organisations, with the NHS hoping those outside of the health service will build appropriate bolt-ons.

The Long Term Plan also foresees the NHS App as a way of triaging patients, allowing them to book appointments not only with their GP but also urgent care if needed. The plan suggests that in future, artificial intelligence (AI) will be able to assist with such triage. It's a move that can't be too far away: some health services are already using AI-enabled chatbots to direct patients to hospital if required, based on their symptoms.

Elsewhere, the Long Term Plan returns to the Forward View's theme of encouraging patients to have a larger role in managing their own care, with technology more explicitly cited here. Monitoring devices and smart home tech, for example, are mentioned, along with condition-specific apps developed both by the NHS and other parties. Interestingly, the Long Term Plan also mentions the introduction of functionality that will allow patients or their carers to contribute directly to Personal Health Records, and again suggests that ultimately external sources of data such as wearables will provide data to patient health records.

The NHS App could also play a role in another of the more eye-catching promises of the Long Term Plan, enabling 'virtual outpatient appointments' within the next five years, and allowing patients to consult with their GP by phone or online.

While the NHS App and related efforts may put the weight of the NHS' digitalisation focus on primary care, secondary care providers are also being targeted to become more digital, albeit over a longer timescale. Under the Long Term Plan, by 2024 secondary care providers will need to be fully digitised, including their clinical and operational processes. Acute, community and mental health settings will be expected to achieve 'a core level of digitisation' by the deadline - a move that is expected to finally spell the end of the fax within the NHS.

Security and compliance at the heart of policy

While the Forward View highlighted the need for greater work around prevention of disease, the Long Term Plan uses a broader lens, emphasising improving overall population health. According to the strategy, data will lie at the heart of population health improvements, with 'depersonalised' information used to fuel research into better population health management.

It's here that the challenges of good data security and information governance will likely be felt. The need to extract data from local records while making it non-identifiable, as well as sharing it with developers and companies through 'frictionless APIs', will likely require a great deal of cross-party work to make the data as shareable as possible, while still hitting the most stringent security and compliance standards. Consequently, the strategy also commits the NHS to developing APIs and governance models to facilitate data sharing with organisations outside of the NHS.

The document is strewn with plans to link up NHS bodies and information with third parties in both the public and private sector, presenting a range of compliance challenges, which will ask NHS bodies to strike an important balance between openness and privacy moving forward. It's a balance the authors of the Long Term Plan are aware of: the document lists both capturing data as a 'by-product of care' in order to help reduce the burden on clinicians, and protecting patients' privacy among its priorities for driving NHS digital transformation.

The Long Term Plan also highlights the lessons that have been learnt after the WannaCry outbreak, stating that 'security and monitoring systems' must be rolled out across the NHS, security standards must be implemented and staff need to receive security training.

The Long Term Plan has also recognised a shift in the NHS' security mindset has occurred, but the health service will still need to become more security-aware in future. The document emphasises that the NHS must work towards 'creating a secure and capable digitally literate workforce' and sets a deadline for having 100 per cent of the NHS complying with mandated IT security standards by the summer of 2021.

'The Long Term Plan also highlights the lessons that have been learnt after the WannaCry outbreak.'

'Data will lie at the heart of population health improvements.'

Responding to culture change

The Long Term Plan paints a refreshingly clear-eyed picture of the challenges facing IT within the NHS: 'too much of the technology in the NHS is a burden on our staff – slow to log in, clunky to use and unreliable in moments of crisis', it said. It acknowledges difficulties in accessing data when and where needed, particularly in the community, and sets out a commitment to introduce mobile devices and digital services for community-based staff.

The Long Term Plan states: 'Staff report technology often delays access to the information they need, and that the personal technology in their pockets is more useful and functional than the technology they are provided at work'. In a move that will presumably be a relief to staff across the NHS, the Long Term Plan mandates that NHS software will need to meet usability standards in future, to ensure the systems staff work with are no more arduous to operate than those they use at home.

As well as pledging to improve the technology that staff interact with, the Plan equally sets the stage for changing how staff approach IT.

Perhaps one of the most significant changes highlighted by the Long Term Plan is the move to adopt artificial intelligence within the clinical environment. The use of AI within the healthcare context has been gaining both headlines and uptake in recent years, and the Long Term Plan acknowledges the future will see clinicians increasingly handing over certain tasks such as reading scans to AI systems. As ever, the document concludes that automating clinical work with AI will allow healthcare staff to spend more face-to-face time with their patients.

The Topol Review, which was published in February 2019 and largely fleshes out the goals of the Long Term Plan, provides a vision of how the NHS workforce will need to develop to take advantage of next-generation technologies, including remote medicine and robotics.

The Review stipulates that staff will need to become more 'digitally competent and confident' across the board, and a new balance of skills is required throughout the workforce. As such, as well as covering clinical and professional skills, staff development in future will need to embrace digital capabilities as well.

A culture of innovation and learning around technology must be put in place, according to the Topol Review, alongside more partnerships with industry and patients, the development of educational resources and the expansion of the Digital Academy.

The Topol Review's key takeaway, then, is that a wholesale culture shift has to take place throughout the NHS, from clinician level to board level, to adopt learning behaviours around new technology that will ultimately pave the way for a more digitally-enabled NHS.

Conclusion

Perceptions of IT within the NHS have historically been coloured by the failure of parts of the National Programme for IT, along with other tales of technological strife such as the continued use of Windows XP, the WannaCry outbreak and the endless hours clinicians spent battling with systems that simply weren't fit for purpose.

The Five Year Forward View and its subsidiary strategies sought to harness technology to deliver improvements within the NHS. However, despite a few notable successes, overall technology development during the lifespan of the Forward View has arguably failed to live up to the strategy's ambition.

Compared to the Forward View, the Long Term Plan benefits both from a longer timescale and a more concrete vision around technology deliverables. The Long Term Plan, aided by the Topol Review, has taken a broader and more direct approach to technology development within the NHS. With an appreciation of how technology is being used both within the health service and outside of it, the Long Term Plan has set a new course for IT in the NHS, placing adoption within the context of improved security, interoperability and transparency.

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