

# Tech powered healthcare

A strategic approach to implementing technology in health and care

Getting the skills right



# Introduction

In response to the challenges that lie ahead for health and care organisations, the learnings from the COVID-19 pandemic and the unstoppable advances in technology that are propelling healthcare into a new era, we have distilled our research into a series of four essays. Each essay will seek to address key questions around how culture, money, skills and partnerships can play a role in transforming the health and care system.

To find out more and access the other essays in the series visit:  
[www.pwc.co.uk/tech-powered-healthcare](http://www.pwc.co.uk/tech-powered-healthcare)



# Getting the skills right



## The NHS needs to urgently invest in large-scale digital skills-building to support the health system to embrace tech powered healthcare

Technology is already changing what it means to deliver care, and the pace of change is increasing as the healthcare system grapples with COVID-19. Staff, patients and carers will all need new skills to ensure everyone involved in the patient journey can get the most out of new technology.

The NHS needs to urgently invest in a large-scale digital skills-building programme to build on the positive steps that have already been made, such as the creation of programmes like the [Technology Enabled Care Services \(TECS\) Resource for Commissioners](#) and the positive proposals within the [Topol Review](#). Continuing to invest in these types of resources and training programmes in the NHS will be integral to realising the full benefits of tech powered healthcare.

It is not overstating the case to say that the convergence of technologies – in the form of digital advances, AI, genomics, robotics – is set to revolutionise healthcare. For patients, it will mean having access to more of their own health data and therefore a more patient-led model of healthcare, but it will bring new risks, particularly around data security and accuracy.

It is now vital that staff and patients understand the technology and all its implications – and new roles are introduced where necessary – so they can make informed choices about these solutions.



## Technology will be an essential component of care for all: engagement and training will be needed for a truly patient-centric model of care

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In a 20-30 year period, we will probably be at the point where we can see the redefinition of healthcare become real to the point where it is no longer clinician and profession dominated, but it has at that point transitioned to being citizen centric.”

Director, NHSE/I

Technology has already triggered a seismic shift in traditional healthcare roles. Healthcare will rapidly move towards a situation where patients frequently have more data about their health to hand than their doctor, which will drive a shift in care delivery away from the current paternalistic model of medicine to a patient-led model. Already, we have seen huge progress in the field of personal medicine and medical devices to support this transformation.

As care becomes more patient-centric, patients will need the skills to understand all the health data available to them and how it could be used to manage their conditions. While a good user interface goes some way to provide this insight, patients still need support and training. An example of this kind of training is the [Widening Digital Participation Programme](#), which worked to reduce health inequalities among older people and disabled people by training them to use online health resources.

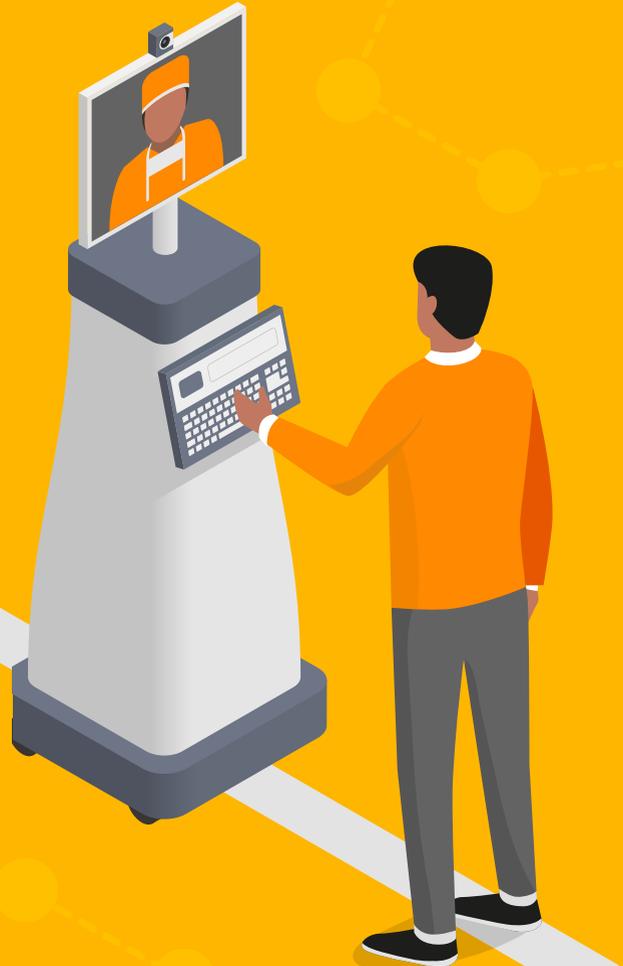
So far, more than 140,000 people have been trained, of whom 34% have fewer GP visits and 64% improved their diet. This type of training should not be limited to patients, but extended to their carers, as technology has the potential to hugely improve their quality of life by providing opportunities for both increased standards of care and more respite.

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We are still focused on the tech as opposed to the outcome, which is that the patient is in control... but that is going to require us to change the behaviour of the workforce and try to re-educate the population.”

Director, NHSE/I

This training should form part of a wider system plan, and the NHS will need to ensure that clinicians and health care professionals can adapt to their new role in this patient-driven system. Then training opportunities should be designed which bring long-term conditions management out of a medicalised setting. For example, digital training to improve health literacy could take place in libraries or leisure centres, instead of NHS estate, or training on how to make use of data about diet could happen in a supermarket cafe. Using the entire community and public estate reinforces the message that health choices should form a consistent part of life, rather than something addressed once a month in the GP's office.



## The future will require roles that do not yet exist in the NHS – bold workforce planning is critical

As system-wide training encourages the broader uptake of technologies, we will see a shift in the variety of roles required by the NHS. New technology will make some roles redundant, while others are created in their place. To prepare for this, the NHS needs a detailed workforce plan that caters to the needs of the future NHS. This will detail how the NHS can identify the future capabilities required of their workforce and outline how these can be recruited or built.

First, this plan should look to capture a detailed overview of the current skills mix in the workforce. In 2017, NHS Digital released the [Fit for 2020 Digital Capability Report](#), which laid out a plan to improve its digital capabilities in readiness for 2020. This plan was prefaced by a capability review, which identified clear capabilities gaps and strengths. Using this review, NHS Digital developed a detailed workforce strategy, which aimed to review its recruitment approach and develop targeted role profiles, use incoming recruits to uplift capability mix, and create clear training plans and career paths to strengthen their profile of technical roles.

The broader NHS could learn from this approach, which is touched on in the current [People Plan](#) of the NHS Long Term Plan, but which focuses on recruitment and retention and places minimal emphasis on technology capability building, which is only mentioned within the context of the medical workforce (excluding allied health professionals, pharmacists, and dentists).

The NHS now needs to be bolder and move faster to capitalise on the momentum from COVID-19. The role of Clinical Commissioning Groups (CCGs) needs to fundamentally change; as Integrated Care Systems (ICSs) and system working become more formalised a significant portion of their workforce should be dedicated to system-wide data analytics. In short, the NHS will need a data and analytics engine unlike anything in the current system. Workforce planning will, therefore, be critical, and will likely be uncomfortable for some as traditional roles evolve or disappear, other opportunities develop, and the skill mix would dramatically change. We reviewed job adverts in July 2020 to see which CCGs, ICSs and STPs were looking to employ data scientists, analysts and coders. Out of 128 jobs advertised nationwide, we found 14 which listed data, analytics or business intelligence as a major part of the job description. That's only 11% of new staff being brought in by these organisations. Compare this to organisations in the US focussed on care planning: in the same period, 20% of advertised non-clinical jobs at Centene were in technology or data (increasing to 25% when sales and marketing are removed). At Kaiser Permanente, 30% of advertised non-clinical roles were technology or data driven (take out sales and it jumps to 35%). We're falling behind for a modern health system.

**The NHS needs to create systems and structures that bolster and celebrate the successes of emerging digital talent**

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**The workforce crisis will not be solved by recruitment and retention. Boards must have innovators that can change their approach to leverage new AI and robotics being launched to deliver care.”**

**Director, NHS commissioning support unit**



With the described workforce plan, we expect to see an increase in the number of technical roles in the NHS, including data scientists, bioinformaticians, and coders. To successfully modernise the NHS, it's vital that this community of technical staff is properly represented, trained and valued as an essential part of the workforce. This requires both a cultural and structural solution (see 'Getting the culture right'). New technological roles within medicine – including geneticists, coders, engineers, data translators – who choose to specialise in healthcare should be supported by a dedicated faculty that represents, supports and advocates for them so that others understand their roles and is given the same level of prestige as clinical Royal Colleges and Faculties. The Academy for Healthcare Science (which holds a [professional register of around 1,500](#) of the estimated 50,000 healthcare scientists working in the NHS) and the Academy of Medical Science go some way to providing aspects of this, but there is more to be done to increase the prominence of their work.

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**We're not producing a workforce equipped for the 21st century. Clinicians are trained to have clinical understanding, however, this skill set is not built out to support the development of a broader skill base that encompasses wider, inter-linked problems, including multi-disciplinary working and technology.”**

**Director, NHSE/I**

To support these structures, the incoming clinical workforce needs to be trained to understand how these roles operate and where they can be used to support healthcare delivery. When we interviewed junior doctors about their current training schedules,

they told us they did not feel equipped to work closely with advanced technology, nor with the people who would be using these tools.

This must change rapidly so that any student leaving medical school can ask the right questions about big data, AI and informatics; they should recognise the health opportunities in bioinformatics and population health management; they should have as good a foundational understanding of genomics as they do anatomy. Intercalation in health science based degrees should be strongly encouraged and trainee healthcare professionals should also be equipped with the skills to conduct innovation and research projects.

This sentiment is echoed in the '[The Topol Review: Preparing the healthcare workforce to deliver the digital future](#)' and has since been put into practice by Health Education England's '[Future Doctor](#)' programme which outlines the incorporation of 'digital and technological solutions' into training and education as one of the central tenets to creating a workforce that is fit for the future, and on a small scale through [Topol digital fellowships](#). Taking this further, the NHS should develop detailed planning for integrating and embedding these technology programmes into medical, nurse and allied health professional training programmes, as well as setting national targets for this type of training.

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**My training at the moment hasn't really touched upon the development of technology in the NHS. I think this topic is one that I look into on my own accord after having frustrations with the current systems.”**

**NHS clinician**

# Recommendations

1

**The NHS needs to urgently embark on a massive upskilling programme for patients, their carers and the broader medical community.**

This programme should focus on supporting these stakeholders in adapting to the everyday use of technology in healthcare.



2

**Detailed workforce planning is required to prepare for the future. Here, CCGs and ICSs should review their workforce to ensure they are recruiting people with the right skills.**

As ICSs become more formalised they should become a data-driven system integrator. This body should look to recruit people who are highly trained in using big data to create and drive population health management, and to understand system demand and capacity.



3

**Technological roles should be actively supported as crucial to the NHS.**

Essential roles such as coders, geneticists, engineers, data translators should be bolstered and celebrated by structures and systems.



4

**Medical education needs to evolve to create a future fit workforce.**

In collaboration with HEE and the Royal College of Medical Schools, medical schools need to adapt their curriculums to support the creation of a future workforce with the technological and digital literacy to work as part of a modern NHS.



# Authors



**David Morris**

david.x.morris@pwc.com



**Dr Luke Solon**

luke.solon@pwc.com



**Jude Simpson**

jude.f.simpson@pwc.com



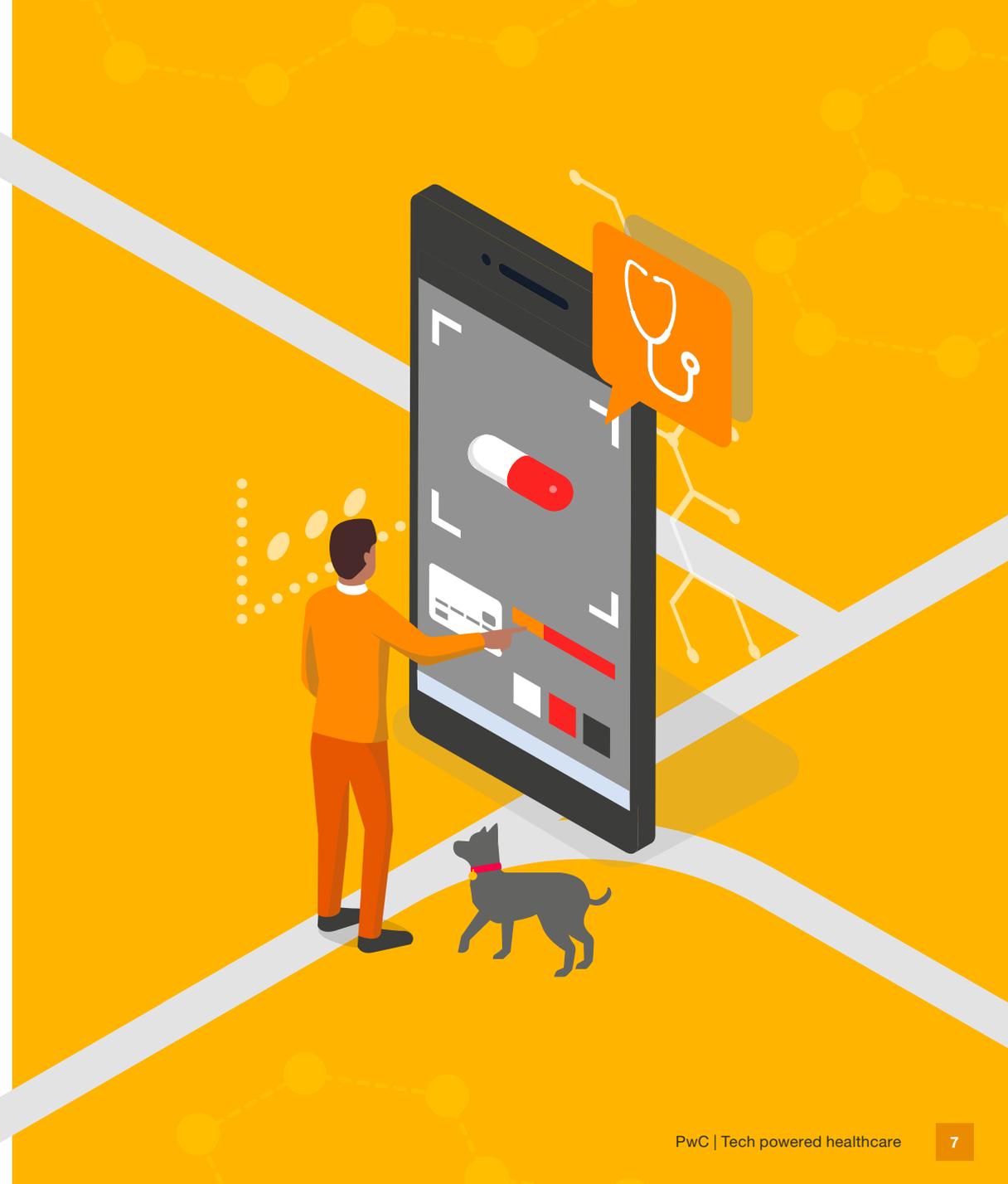
**Olivia Read**

olivia.read@pwc.com



**Jess Abel**

jessica.abel@pwc.com



# How we can help

At PwC, we're helping to lay the technology foundations for healthcare. And we're working with the industry to create the innovations that will transform healthcare for the future.

From supply chain analysis and management, to cyber security. From data and analytics, to experience design. Our teams bring together business understanding, real-world human insight, and cutting-edge technological capabilities. All built on our heritage of building trust in society.

At the heart of it all are our healthcare experts. They use their industry expertise to curate and convene the best of PwC, to create the technology innovations that will transform healthcare.

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## Contact



David Morris

Health Services Sector Leader,  
PwC

david.x.morris@pwc.com  
+44 (0)7841 784180



Quentin Cole

Leader of Industry for Government  
and Health Industries, PwC

quentin.r.cole@pwc.com  
+44 (0)7770 303846



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