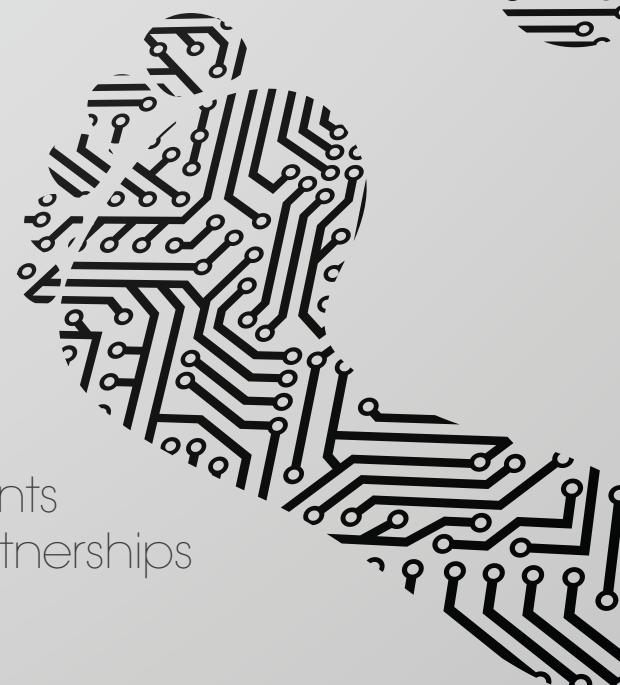




The Digital Future for Health and Social Care

Realising the Potential for Digital Footprints
in Sustainability and Transformation Partnerships

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With a foreword by Professor Lord Patel of Bradford OBE



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Foreword

We live an age when new technologies appear almost daily and the promise of a digital future seems ever more rich and abundant. Yet, despite being one of the most digitally enhanced and capable countries in the world, we seem to struggle when it comes to the development and adoption of new technologies in health and social care. There are of course, many examples of high quality digital health and social care initiatives that are transforming people's lives for the better and saving money. But while the scope and potential for a digital revolution in health and social care is great, it has yet to come to fruition. For that reason, I greatly welcomed the opportunity to take part in this review of the development and use of digital technologies in Sustainability and Transformation Partnerships (STPs) and I was very fortunate to be able to hear first-hand from leaders and practitioners from across the public, social and private sectors about the different ways in which they think digital technologies can contribute to realising the ambitions behind the STPs.

Much of the focus thus far on STPs has been on budget allocations, cost savings and large scale transformation of services, especially the physical infrastructure of estates and different ways in which services can be provided. There has been much less attention on the role of digital technologies as part of this process and the significant potential that these technologies can bring in terms of changing the lives of patients and service users. Too often we view the digital world as being about the technology rather than the transformative power that it brings to our lives and this is as true in health and social care provision as it is in leisure or the world of business.

What this review demonstrates is how digital technologies can be enablers of change and transformation, creating new opportunities for service development, improving health and social care outcomes and enabling NHS Trusts and local authorities to break down the organisational barriers that have prevented a truly integrated system for health and social care. The report also highlights some of the barriers to change including data systems that cannot communicate with each other across organisations or sectors and the limited understanding that service users, patients and the public have of the benefits that digital technologies can bring. The recent cyber-attack on the NHS only serves to demonstrate how important this is and this report emphasises the need for a robust and safe system for sharing data that recognises the rapid move towards greater integration of services. I believe that this is a very timely and important report that places a much-needed focus on digital technologies as significant enablers for STPs and as a consequence how strengthening our ambition, creating the space and environment for innovations and developing the capability and leadership of our workforces can help ensure that STPs deliver their promise for a much improved and integrated health and social care system.



Professor Lord Patel of Bradford OBE

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Executive Summary

The Sustainability and Transformation Partnerships (STP) programme is designed to provide the place-based route map for how the local NHS and its partners can realise the Five Year Forward View. It supplies the basis for operational planning and contracting within the available resource envelope to ensure service improvements in health and social care provision across 44 footprints in England. As intended, this process has led to the development of varied local approaches to resource allocation and delivering cost-savings and improved health outcomes.

The primary enablers for realising these savings and improvements are workforce, estates, and digital technology. Though understood as discreet processes, often with their own Senior Responsible Officers (SROs), these enablers will be most effective when their planning is integrated and each can leverage another – for example when a footprint's digital strategy fully supports its plans for estates rationalisation and maximising space efficiency alongside workforce development.

This paper provides the key findings from a review of the STP process from the perspective of the opportunities that can be provided from greater use of innovations in digital technologies, in particular how integration of digital technologies can contribute to achieving transformation across the health and care sectors. The review was completed by DragonGate Market Intelligence (DragonGate) as part of their ongoing Breaking Barriers programme¹ and was supported by Sopra Steria. The process culminated with a high-level round table discussion involving a variety of stakeholders and experts from the diverse worlds of health, social care, local government and the technology industry.

¹ More about the Breaking Barriers programme can be found here: <http://www.breakingbarriers-nhs.co.uk/the-report/>

Digital Technologies as Enablers of Change

The realisation of the ambitions behind the STPs constitutes a significant challenge. However, the potential of digital technology as an enabler of change is also significant – and in many cases unrealised. Greater recognition of this potential and the broader application and use of digital technologies as key enablers in STPs could ensure benefits across a range of areas. For example:

- ensuring more intelligent and better use of data, in particular improving the interoperability of data system to enable greater sharing of patient and service user data across systems, organisations and sectors;
- supporting service users, patients and public to adopt and use new technologies that can enhance their ability to manage their own care and live independently;
- strengthening integration across health, social care and related public, social and private sectors, whereby digital innovations can be used to break down organisational boundaries;
- improving procurement systems as a means of supporting greater flexibility and choice in health and social markets;
- supporting NHS and social care leaders to increase capacity to innovate and develop and adopt new digital technology solutions as part of their strategic implementation plans.

The Barriers to Change

The review identified some significant barriers to achieving digital integration in the health and social care sectors, including:

1. **Lack of Interoperability of Data Systems:** the failure to link and connect data across systems and between organisations is a significant barrier to realising the potential of data sharing. Although there is a superabundance of rich data around the health and social care system, it is not linked or shared effectively with other parts of the public and private sector.
2. **Limited Public Engagement:** the support of the general public needs to be enlisted in the sharing of data and adoption of new technologies. This is essential for the development of more effective prevention and moving health and social care outcomes upstream. The role of service users, patients and public in the use and application of their personal information must be explained in order to ensure their buy-in and for successful democratisation of data to occur.
3. **Historical Closed Health Procurement Systems:** the new market place for health and social care requires flexibility and freedoms for innovative practice and digital development. Historical closed systems have previously hindered these developments and prevented growth of a stronger health and social care economy that has the empowerment of its users at the heart.
4. **Restricted Capacity for Digital Innovation:** the significant pressures on leaders in health and social care has often resulted in short-termism in thinking and strategy that has stifled innovation and creativity. Long term, sustainable transformation will only take place when there is sufficient head room and capacity to effect change and enable innovation that delivers results on cost savings and health and social care outcomes.

Conclusions

It is clear from this review that there is significant potential in greater use of digital technologies as an asset to change and transformation. Rather than viewing digital transformation as purely a technological issue, it needs to be recognised as a fundamental building block in realising the ambitions of STPs. In particular, the review into digital innovation in the context of the STP programme revealed:

1. Delivering digital innovation in the health system is not, primarily, an issue of developing or commissioning new technology. The tools are already available and proven. Instead, successful digital innovation in health and social care will require a cultural change, not only of individual health and social care providers, but across the entire interdependent network of public, private and third-sector partners.
2. The significant depth and breadth of data generated, collected and stored by the public sector is potentially the greatest asset for driving digital innovation in the health and social care sectors. To make the most of this latent potential, health and social care services should, with sufficient and robust data protection, be more open in sharing their wealth of data with the wider public sector and commercial providers.
3. Perceived and actual financial challenges in the health and social care sectors need not impede the much needed investment of effort and resources into digital technologies, which have the capacity to alleviate financial pressures and lead to the delivery of more responsive and personalised and cost-effective health and social care services.

The following recommendations arose from the stakeholder and expert round table and are suggested as a practical means of supporting the process of STP realisation and implementation through enhanced and more focused use of digital technologies and innovations:

Recommendations

Recommendation One: Strengthening the Digital Ambition within STPs

Digital and technological development and innovation should be seen as a fundamental building block to the realisation of STPs and not solely as a technical issue. NHS England and Public Health England in particular, should seek to provide greater support to local areas to strengthen the ambition of the digital aspirations within STPs and related health and social care plans. This could be achieved through a series of high level events intended to promote and showcase the best and promote learning. STP digital leaders with the strongest grasp of the potential use and application of digital technologies could share their experience and expertise with those that lack confidence in this area. In addition, NHS England and Public Health England could jointly issue guidance and how to strengthen the offer that digital technologies can provide in supporting and enabling transformation.

Recommendation Two: Supporting Digital Innovation

While there is a wealth of evidence to demonstrate the value of digital innovations, there is also a reluctance to develop and adopt digital innovations that may be untested. NHS and social care leaders need to develop specific strategies for advancing digital innovations that include greater flexibilities in procurement. For example, longer time frames are required for digital innovations to be embedded in practice and to fully realise outcomes in improved service user and patient care. There is also a need to ensure appropriate safeguards exist to ensure the safe application of digital technologies.

Recommendation Three: Creating a More Flexible Digital Market

Central government and national commissioning bodies could support the greater use of digital technologies within STPs by creating a more flexible and adaptive market and regulatory structure for data sharing. This does not mean relaxing the necessary and appropriate protections for digital security, rather, it would mean strengthening these in recognition of the rapidly escalating drive towards greater health and social care integration. This will require the development of national guidelines and protocols that can ensure a robust approach to data sharing that takes advantage of modern technologies while releasing the power of more intelligent use of data and information to support local service planning and transformation.

Recommendation Four: Involvement and Participation of Service Users and the Public

The successful adoption of digital and technological innovations requires the active support of service users, patients and the wider public. NHS and social care leaders at national and local levels need to work together to ensure that the potential benefits of new technologies are clearly understood and that individual service users and patients feel involved in their use and development. Public engagement with digital innovations is also essential for ensuring that learning and adopting best practices and technologies from the commercial sector can take place.

Recommendation Five: Organisational and Workforce Development

All practitioners need to have access to high quality training and development opportunities so that they can take full advantage of new technologies and are enabled to make appropriate and expert use of these as they come online. This should be embedded within existing organisational development plans as part of a whole system approach to digital development and capability. Senior executives, board members and elected officials also need training on digital innovation and transformation and how these can be used to enhance health and social care outcomes and realise their wider strategic objectives.

Introduction

The initial impetus for this review into the potential of digital technology and innovations in health and social care transformation followed on from the Breaking Barriers report, *Building a Sustainable Future for Health and Social Care: An Independent Review*, which was published in June 2016. The report highlighted the significant opportunities for digital solutions to both reduce and prevent demand on services, support new ways of working, and to encourage service users and the wider public to take greater ownership of and responsibility for their own health and wellbeing.

As one of the main sponsors of the Breaking Barriers programme and a leading provider of digital innovations and solutions in the health and social care sector, Sopra Steria have supported the Breaking Barriers team to undertake this high-level review. The review included a critical appraisal of the 44 published STPs. These were selected primarily according to status as pathfinder STPs, the size and ambition of digital development and resource allocation, and geographical distribution.

As a means of testing and confirming the conclusions from the critical appraisal and to ensure wider engagement by some of the leaders in digital innovations across the STPs, a facilitated round table discussion was held in Westminster on 28 March 2017. This event was chaired by Professor Lord Patel of Bradford OBE, and was attended by health and social care leaders from across the country, including service providers, public health bodies, regulators, and organisations representing the consumer. Discussion at the event focused on the four barriers to change identified later in this report along with exploration of other topics raised by participants, in particular, the challenges and opportunities for digital transformation in the health service.

Participant	Role/STP Role	Organisation
Mr Neil Tester	Director of Policy and Communications	Healthwatch England
Dr Samantha Barrell	Chief Executive	Taunton and Somerset NHS Foundation Trust
Mr Declan Hadley	Programme Director	Lancashire and South Cumbria STP
Mr Bernard Quinn	Programme Director – Improvement	NHS Improvement
Dr Jenny Harries	Regional Director for the South of England	Public Health England
Ms Sophie Martin	Deputy Director of Adult Services	East Coast Community Healthcare
Ms Catherine Underwood	Director for Health and Integration	Norfolk County Council
Mr Kevin Kewin	Senior Advisor on Community Wellbeing	LGA

This report provides a summary of the key findings from the critical appraisal and highlights the issues identified by participants in the round table. Recommendations are included as part of the report. These are intended to guide and inform the leadership and development of STPs, in particular they provide practical steps by which greater integration and innovations in the use of digital technologies can be enhanced in support of the STP implementation process.

NHS Background

In 2014/15 the Department of Health's budget for healthcare in England ran to £115.8bn, with £98bn of this awarded directly to NHS England (NHSE), the executive non-departmental public body responsible for budgeting, planning, and delivery of healthcare in England.

Figures 1 and 2 illustrate how this funding was subsequently distributed via direct commissioning, on administrative spend, and to the 209 Clinical Commissioning Groups (CCGs) – bodies staffed by General Practitioners and other clinicians that commission healthcare services for their local areas. Figure 2 further breaks down NHSE spending within CCGs and direct commissioning, including primary care (GP surgeries) and public health, which concerns itself with prevention – a key thrust of NHSE's new health and social care strategy.

Figure 1: Breakdown of Departmental Spending on Healthcare

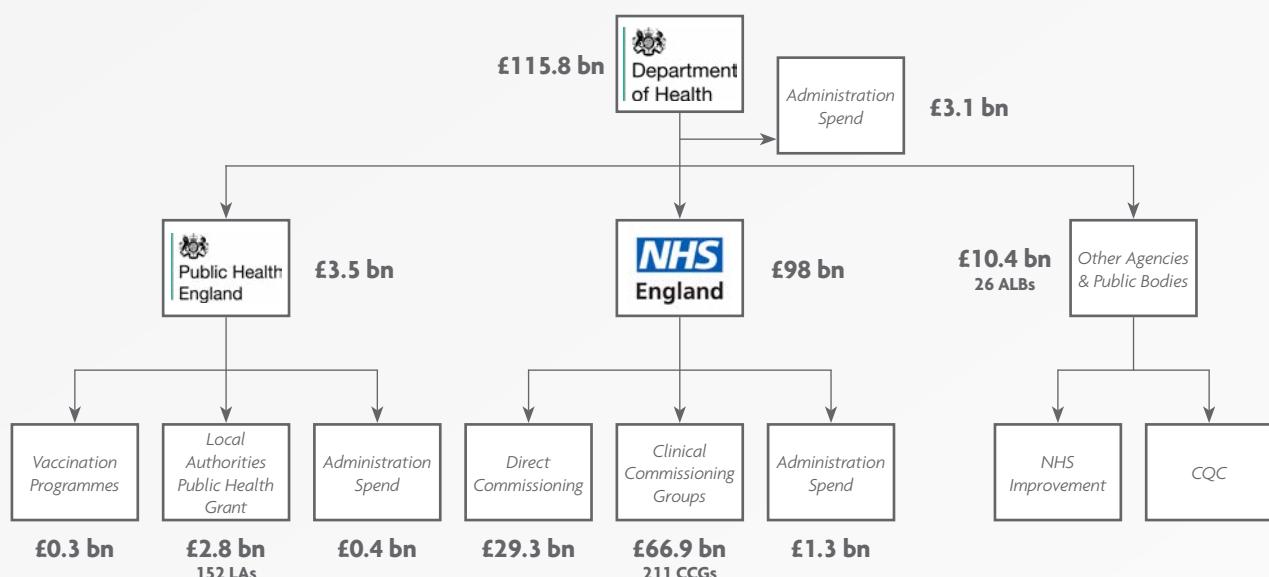
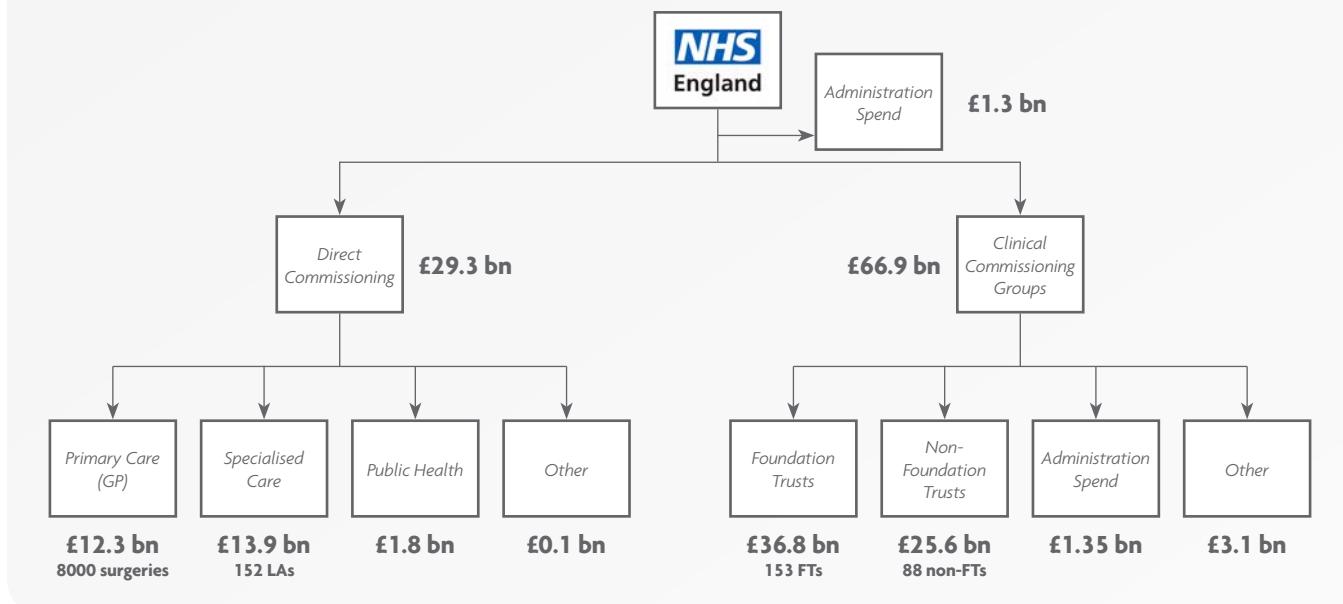


Figure 2: Further Breakdown of NHSE Spending



The NHS Five Year Forward View

NHSE's health and social care strategy was spelled out in the NHS's Five Year Forward View² (FYFV), published in October 2014, which called for a "new shared vision³ for the future of the NHS" based around "new models of care". The need for a long-term vision was outlined as long ago as April 2002 with the publication of the Wanless report⁴, which warned of a sharp rise in avoidable illness that would put immense pressure on the NHS. Consequently, the FYFV has called for a "radical upgrade in prevention" tackling obesity, smoking, alcohol and other major health risks.



This is to be accompanied by a fundamental transformation of the way NHS services are provided, including a shift away from the competitive practices promoted by the Health and Social Care Act 2012 and towards a more collaborative "place-based"⁵ approach. This means that localities will band together, assess the distinct needs of their footprints, then work collaboratively to meet those needs in efficient, innovative ways.

² <https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf>

³ <https://www.england.nhs.uk/ourwork/futurenhs/>

⁴ <http://si.easp.es/derechosciudadania/wp-content/uploads/2009/10/4.Informe-Wanless.pdf>

⁵ <https://www.kingsfund.org.uk/topics/integrated-care/sustainability-transformation-plans-explained>

This entails breaking down the barriers between health and social care, and between their national and local public and private providers. These efforts have been led by the NHS ‘Vanguards’⁶ – 50 partnerships across England delivering new models of care, including the integration of primary and acute care systems, moving specialist care from hospitals and into the community, and enhancing health and wellbeing in care homes.

Furthermore localities are expected to invest in service delivery to make services more efficient by making the most of their estates, their workforces, and of new technologies widely implemented elsewhere in the UK public sector and elsewhere in the world. By partnership, transformation, and reprioritising prevention, NHSE hopes to seize new opportunities and meet the challenges of rising service pressures.

The FYFV Delivery Plan

On 31 March 2017, NHSE published the next steps on the NHS Five Year Forward View – a plan setting out how practical improvements in priority areas (cancer, mental health and GP access) could be made while transforming the delivery of care to ease pressure on acute services. With the NHS under pressure, the NHS Five Year Forward View also detailed an accelerated drive to improve efficiency and use of technology to deliver better care and meet rising demand within the constraints of available resources.

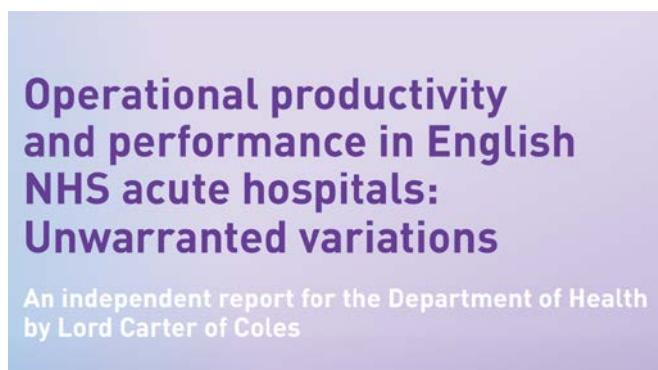
Of particular note, this plan envisages the role of digital innovation to integrate care and support the sustainability of the overall health service through the following initiatives:

- Establishment in spring 2017 of the NHS Digital Apps Library – an initial offering of 20 app services across three tiers of application: ‘NHS approved’ with a NICE approved evidence base for helping people manage and improve help; ‘NHS connected’ apps tested and approved for NHS systems allowing users to download information from NHS systems and ‘Health apps’ a directory of general health apps.
- Launch by September 2017 of a new academy to train the next generation of Chief Information Officers and Chief Clinical Information Officers – seeking to align digital tech with business and clinical needs.
- Examination of the digital contribution to research and ability to collect, aggregate and analyse the data generated by the NHS to deliver healthcare aims and help, through interoperability, to underpin the NHS and wider life-sciences strategies.
- Work throughout 2017 to design online triage services that allow patients to describe their health problems and symptoms, and receive either tailored advice online or a call back from a healthcare professional. A variety of new technological tools will be tested to identify the best approach so that by December 2017 all areas will have an NHS 111 online service that connects patients directly to an appropriate care and/or treatment response.
- Benchmarking referral from GP practices using CCG digital dashboards and new tools from NHS Digital;
- Investment in mental health technology;
- Collecting fees from patients outside European Economic Area (EEA) countries and aiding eligibility.

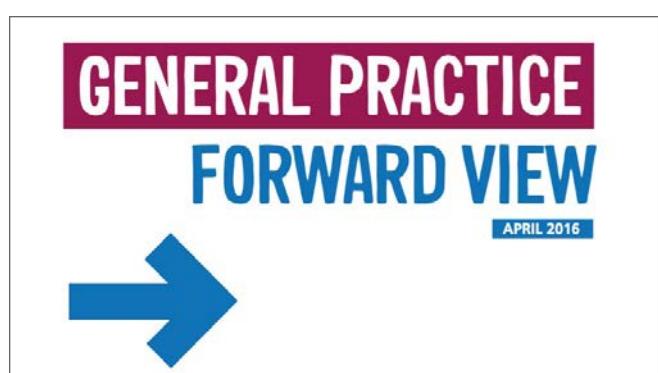
⁶ https://www.england.nhs.uk/wp-content/uploads/2015/11/new_care_models.pdf

The Carter Review, GP and Mental Health Forward Views

Published in February 2016, Lord Carter's review into productivity in hospitals across England identified £5bn of efficiencies that could be made, where “unwarranted variations” are addressed. Among other things, these include changes to estates, workforces, operating practices, and procurement, and the report identified a great variation in the use of technology. Even where some trusts have invested in technology such as e-rostering, it is vital that staff make “meaningful use” of it – something not being achieved at present.



Among other recommendations, the Carter Review states that NHSE needs a new, national strategy for its workforce, that trusts' administrative functions should not exceed 7% of their income by April 2018, and that all trusts should have key digital information systems in place by October 2018, with staff making meaningful use of these.



Both the General Practice Forward View, published in April 2016, and the Forward View for Mental Health made recommendations on how digital technology could improve service delivery across England. The GP Forward View anticipates £900m of capital investment in primary care over the next five years, including a £45m programme to stimulate the uptake of online consultation systems in all practices. It expects this investment to go towards the development of estates and

technology, including online services, apps, and the online summary care record, which is due to be completed in March 2017.



The Forward View for Mental Health, published in February 2016, has also called for substantial investment in digital technologies in the form of a “transparency and data revolution.” This emphasises the importance of consistent data, collected on a nationwide basis, to support commissioning and local planning as well as to help patients make informed decisions about their care.

A Summary Care Record including care, mental health, and physical health records, shared between providers from all of these areas will help identify co-morbidities (which are common) and break down another crucial barrier between health and social care.

Information Governance of Personal Confidential Data

Any sharing of data must always be done within the legal framework governing the use of personal confidential data in healthcare. It includes the NHS Act 2006, the Health and Social Care Act 2012, the Data Protection Act, and the Human Rights Act. The law allows personal data to be shared between those offering care directly to patients but it protects patients' confidentiality when data about them is used for other purposes. Therefore, people within the healthcare system using data for secondary purposes must only use data that does not identify individual patients unless they have the consent of the patient themselves. These secondary uses of data are essential to the running of a safe, efficient, and equitable health service, and NHSE supports the use of data to:

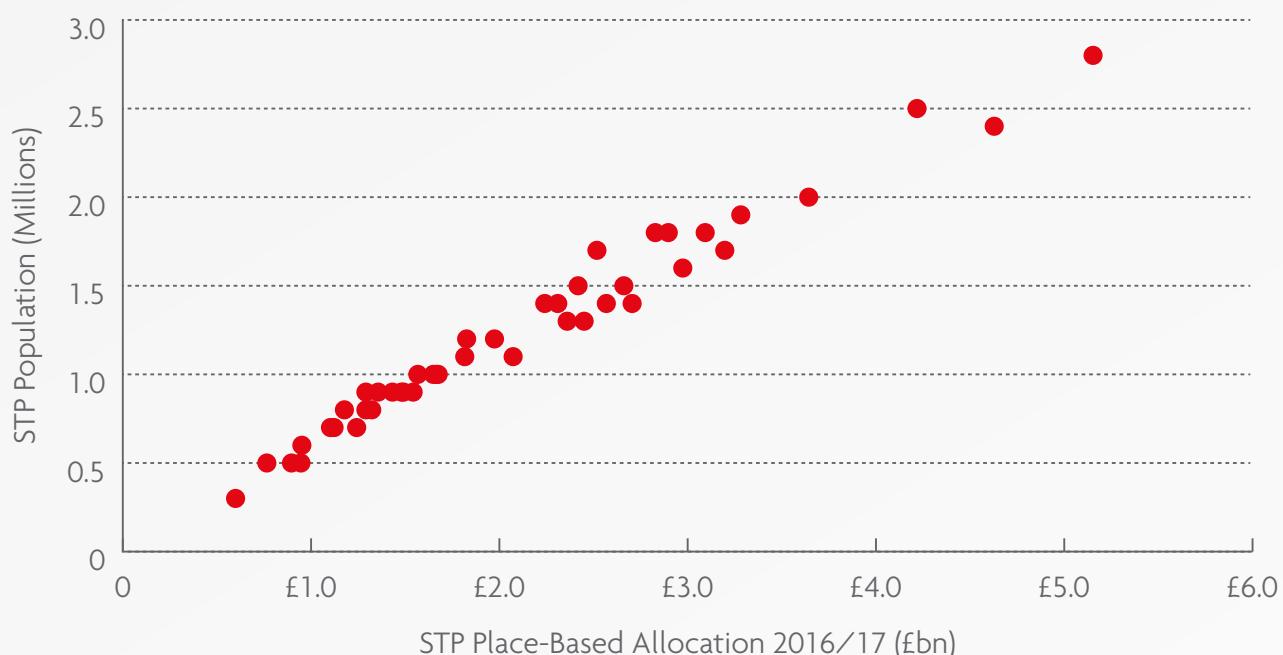
- review and improve the quality of care provided;
- research what treatments work best;
- commission clinical services; and
- plan public health services.

STP Footprints Analysis

Budgetary Allocations

Owing to the locality-based nature of the STPs programme it is unsurprising that the 44 footprints vary enormously in population size and in their budgetary allocations, which are very closely correlated. (There is also an unsurprising correlation with population and the total number of providers and commissioning organisations per footprint, although the relationship is weaker).

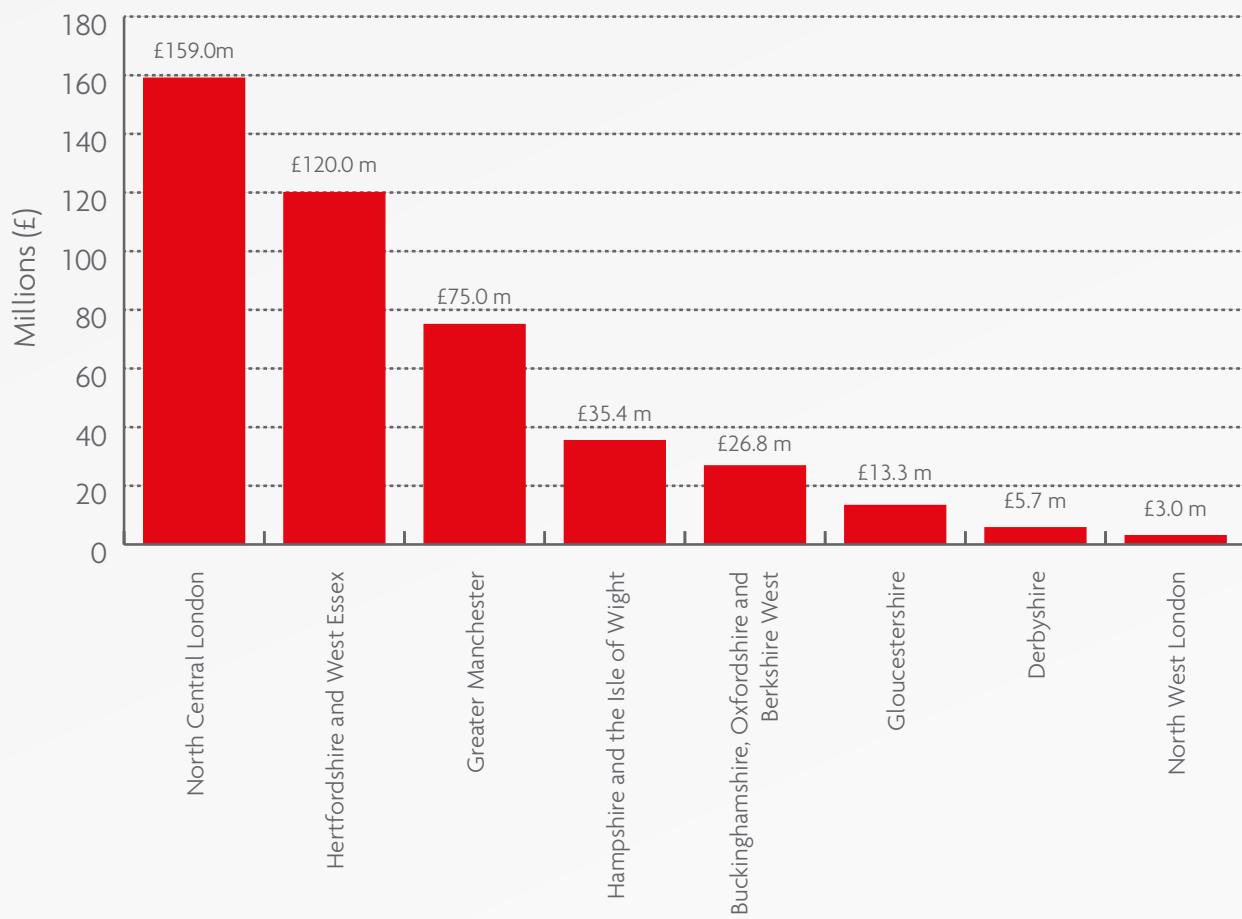
Figure 3: STP Footprint Populations Compared with Footprint Place-based Allocations (2016/17)



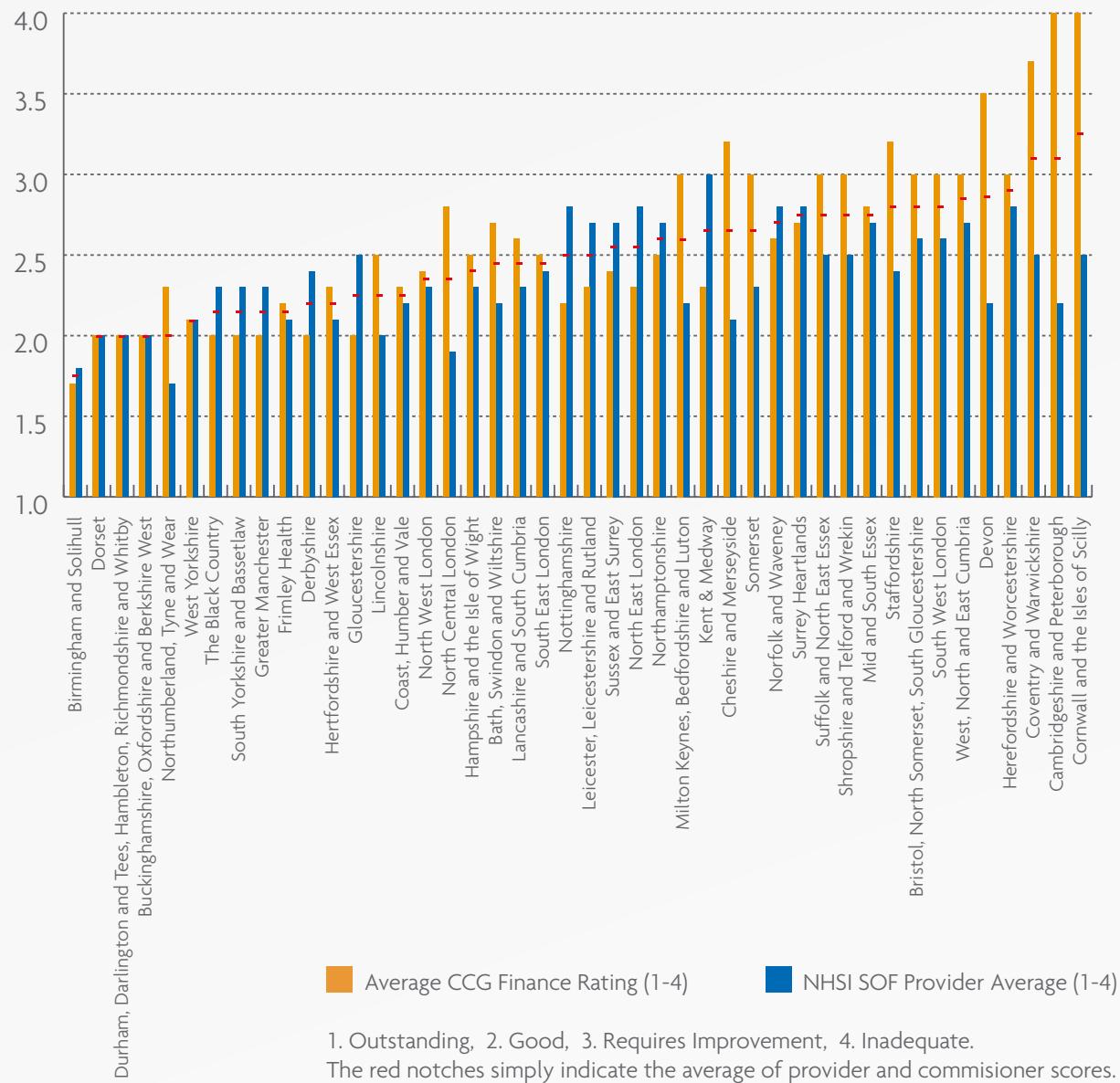
For example, the Greater Manchester Combined Authority, has a population of 2.8 million and allocation of over £5bn, while West, North, and East Cumbria, with only 300,000 people has an allocation of less than £600m for 2016/17.

It is clear that across STPs there will be different approaches to the three enablers of workforce, estates, and digital technology. The differences are also clearly demonstrated by the variation in the budgetary amounts specified – if any – in each plan for investment in improving digital technology. Leading the way are some of the largest STPs, including Greater Manchester and two of the five London footprints, which plan to invest an average of £109m. By contrast, the average of the remaining, typically smaller, STPs that have announced their intended investment is just £11m.

Figure 4: STP Footprints with Stated Requirements for Capital Investment in Digital Technology



A final significant impact on STPs' capacity and likelihood to invest in digital technology comes down to the state of their finances – or those of their constituent providers and commissioners. Simply put: STPs with finances requiring improvement or rated inadequate will struggle to drum up capital to invest in new technologies – for them, the STPs programme will be more concerned with sustainability than transformation.

Figure 5: STP Mean Finance Score of Footprint Providers (NHSI SOF) and Commissioners (NHSE AAA)

Scope and Breadth of Ambitions

While STP leaders have been given free rein to develop their digital plans to meet their locality's distinct needs, there are a number of NHS-wide objectives, such as Paperless 2020, that have been integrated into these plans. Many STPs adhere closely to these centrally identified objectives – and the language of their plans reflects this – while some have been more innovative. While a variety of factors undoubtedly influence the relative ambition of individual plans, it is also likely that this has been affected by the short timescales in which the plans had to be written and the previous history and track record on digital innovations.

The most common ambition is to increase the capacity to share data, in particular enabling health and social care practitioners to share patient care records. Some STPs recognise the value in enabling patients and service users greater access to their health and social care records as a means of increasing their insight and empowering them to take a more active role in their care.

Also prominent is IT infrastructure interoperability. This is viewed as an investment solution to the historical problems caused by health and social care IT systems having evolved discretely and with minimal regard for efficiency and the drive towards health and social care integration. Many STPs also identified the data opportunities that might arise from investments in consistent IT infrastructure and the digitalisation of health and social care. However, it is evident that the fear of failure, following the difficulties and challenges of the national IT system for health may have inhibited the scope for innovation.

Other common ambitions include:

- greater use of data systems to monitor efficiencies in workforce performance;
- monitoring the use and efficacy of specific interventions and treatments;
- use of big data to identify at a strategic level the health and social care requirements of the STP footprint;
- provisions for mobile working, for example, allowing health and social care professionals to work from any station on the estate and beyond;
- use of electronic prescriptions and appointments services;
- ‘telecare’, including virtual appointments and check-ups; and
- staff training to ensure that providers are making the most of the technology available.

Figure 6 illustrates common terms included in the 44 STPs' digital roadmaps, weighted by frequency.

Figure 6: Common words weighted by prominence from STP Digital Plans



Case Study: North West London STP



North West London's STP has assembled one of the most ambitious and advanced digital plans of all 44 footprints. In primary care, each of its eight CCGs has already implemented a single IT system across their practices, and six of these are also currently implementing common systems across primary and community care.

The NW London Care Information Exchange is being developed to provide a patient care record shared across NW London and beyond. This is critical as one of North West London's key challenges is that 40% of acute attendances are

hosted outside of their local CCG (and 16% outside the STP footprint), which can make it difficult to access patient records.

Other challenges include the necessity to shift care out of hospitals and reduce face-to-face care delivery, to break down barriers between remaining IT systems – particularly between health and social care – and to meet the rising expectations of some citizens and care professionals while inspiring awareness and enthusiasm in others.

In seeking to fulfil the London Digital Roadmap (LDR), North West London hope to procure and provide better tools for self-management of care, specifically Patient Activation Measures (PAMs) as a tool for every patient with a Long Term Condition (LTC), digital apps, and clinical systems that involve patients, such as SystmOne for diabetes treatment.

Case Study: Gloucestershire STP



The *One Gloucestershire* STP is restrained in the scope of its ambition by its relative size – a population of only 600,000 and, as previously demonstrated, the limited budget that correlates with population size. Despite the constraints the STP calls for £13.3m to deliver the IM&T capabilities required to support the rest of the STP.

By 2017, Gloucestershire aims to have improved its communications with the public by presenting a directory of services to support people to understand local pathways to care, but also to create a pool of decision-support tools for use at the point of care, and deliver its Joining Up Your Information programme. By 2021, the entire STP will have become paperless, as mandated by the FYFV, and to have enabled clinicians across the country to see relevant information about patients at any point of contact.

The Enablers of Change

More Intelligent and Better Use of Data and Technology

Data has the potential to help dramatically transform the provision of health and social care and address many of the fundamental challenges facing the NHS. There is a general consensus that there is no lack of data – in fact there is an abundance; what is missing is a joined-up approach among NHS providers and other organisations, including local authorities and those in other sectors, to exploiting this data and using it to effectively reduce demand on services and improve patients' experiences:

"Data is our biggest asset and ally, we have so much data, but we can't collect and link it,"
(Round table participant)

As was recommended by Lord Carter's 2016 review, NHS organisations need to start making "meaningful use" of technology, and that can mean utilising existing resources as well as investing in new capabilities. However, while NHS and social care data is abundant and growing, there are issues with the quality of the data and the capacity of commissioners and providers to use data in more intelligent and targeted ways. This is especially important for prevention:

"Fundamentally, better data is needed before any preventative action and upstream population-based care and community intervention that can help decrease visits to A&E."
(Round table participant)

In some areas this is viewed as something that could be relatively easy to improve:

"There is low-hanging fruit around technology for primary data and information. For example, integrating NHS and social care information onto one platform, which is currently on individual local government websites and NHS Choices."
(Round table participant)

However, the use and control of digital applications needs to be appropriately managed and monitored to ensure they are delivering the desired outcomes safely and effectively:

"Will apps will be effective or promote the right behaviours? For example, there are two categories of people with diabetes, those needing clinical intervention (as acute) and those needing lifestyle intervention (as reversible). Apps might promote lifestyle interventions for people requiring clinical intervention. It is a question of who is responsible for updating apps and monitoring apps. Otherwise you end up with obsolete care pathways and no control."
(Round table participant)

There is also a need to understand the different ways in which good data can increase knowledge and understanding about local communities:

"Good data is critical for providing population-based care, it can enable the assessment of risks and ensure targeted community-based solutions."

(Round table participant)

"There is something very powerful about moving from characterising, to really knowing how people live."

(Round table participant)

More intelligent use of data can also enhance the capacity of health and social care organisations to undertake prevention, for example, by using digital alert systems to pick up on potential issues sooner:

"This involves picking up on issues earlier, for example, bereavement and rent arrears, which are symptomatic of person likely to be requiring future health and social care intervention."

(Round table participant)

In this way improvements in the quantity, quality, and employment of data can lead to marked improvements in efficiency and delivery of services. In particular, health and social care providers need to have more intelligent approaches to the use of existing data – “fracking NHS data” as a means of better identifying and engaging with client groups so they are more able to support themselves to live independently. It is also important to recognise how better use of data can supplement and enhance other forms of intelligence, rather than solely being used as a substitute:

"For local authorities, local knowledge is vital."

(Round table participant)

"Data can overlook the most vulnerable pockets of people. Therefore, the role of the local authority and their local knowledge is very important."

(Round table participant)

Service Users: The Digital Patient

Aptitude and Capacity of Patients and Service Users

While there is increasing awareness of and desire amongst service users to utilise technologies in more innovative ways, differences in aptitude and capacity amongst service user groups is not always pro-actively addressed. For example, while some technologically competent service users would prefer to access and use digital interventions, health and social care providers need to differentiate their digital services or else risk alienating users. Failure to do so risks frustrating those who want to be dealt with on the phone or in other, more personal ways.

However, it should not be assumed that all patient and service user groups are resistant to greater use of technology, for example, older age groups are one of the most frequent adopters of new technologies and this can be harnessed in the provision of health and social care:

"One of the Web giants' biggest recent growth areas is people aged over 90 who are using digital mechanisms to manage aspects of their healthcare. For example, Amazon's electronic assistant 'Alexa' is already providing a proxy for social integration and, as a voice application, a unique way of interacting with health providers. It has been used to create app services for lonely people feeling the impact of isolation, giving them both a sense of companionship and access to local services."

(Round table participant)

There is a tendency in health and social care systems and within the organisational culture to treat service users and patients as if they lack the capacity and capability to use new technologies:

"Outside of health and social care, the public are sophisticated consumers. However within it we are infantilised."

(Round table participant)

By recognising the contribution that service users can make, health and social care providers can enhance their digital offering:

"Currently the NHS is poor at differentiating the offer in terms of digital, for example, offering digital savvy consumers the option for digital appointment."

(Round table participant)

"We cannot continue supporting and providing care in the same way, there is a need to engage and co-produce solutions with patients to enable them to deliver care themselves."

(Round table participant)

The Need for Public and Patient Engagement

There is a need for broader public engagement to support the drive towards greater integration of multiple public and commercial data sets. Digital integration as a means of targeting interventions more effectively would have to be seen as “above board and accountable” to local people:

“Engagement is the way forward. Opportunity to engage people to manage and understand from commissioners right down to the patient and community level.”

(Round table participant)

“There would be a need to engage citizens, perhaps using citizens’ juries to enlist local support.”

(Round table participant)

In fact, some of the most controversial aspects of data and technology are not as widespread as the public perceives. For example, the expectation of the general public is that sharing personal data across frontline public services is routine and standard practice, but this is often not the case:

“People are surprised we don’t share records. Shared records across the public sector have to be the thing we crack.”

(Round table participant)

Where these systems have been attempted before, costly failures have sometimes ensued, breeding wariness among health and social care providers and service users alike. There is also a view that public engagement is key to changing the entrenched narrative and creating a new approach to digital transformation:

“Technology-enabled solutions are too often oversold before they are proven to work, breeding cynicism.”

(Round table participant)

“Allowing patients to become part of the story, so they can contribute information is one way of overcoming barriers to engagement.”

(Round table participant)

Transformation across Boundaries: The Digital System

Crossing Organisational Boundaries

Although one of the primary objectives behind STPs is greater integration of health and social care, it is essential that data collection and analysis is not arbitrarily waylaid at organisational boundaries, for example, between NHS organisations and local authorities:

"We need to be more open about data and allow this to happen outside organisational boundaries, with technical experts that can come up with new ideas and develop new outcomes."

(Round table participant)

Recognising the potential of using digital innovations across broader organisational boundaries is key to achieving integration of health and social care:

"Shared care records across both health and social care, along with the entirety of the public sector is essential."

(Round table participant)

However, data sharing should not be confined to health and social care organisations. Education, social security, and other local authority, third sector, and even private sector organisations all play increasingly vital roles in the health economy:

"Thinking of digital from a broader viewpoint, and the ability to think outside traditional health and social care settings, so as to make creative connections to other parts of the public sector, such as education and even to retail marketing experts would be helpful."

(Round table participant)

"We need more expansive and less limiting approaches to the use of data similar to the approach taken by start-ups and technology firms."

(Round table participant)

"We need closer working relationships with university-based experts, and to draw this academic knowledge into the NHS business intelligence community as a virtual hub."

(Round table participant)

Enhancing Procurement: The Digital Market

E-marketplaces represent a major area in which the capacity of digital technology to change behaviour and processes could deliver significant procurement efficiencies. The huge opportunity around intelligence-based procurement and better contract management was linked to Lord Carter's commission around NHS productivity. For participants in the round table discussion this meant greater flexibility and open systems for procurement:

"CICs are not required to use the NHS procurement route, so are able to look at alternative suppliers. For example, they have found they can buy wheelchairs cheaper on Amazon."

(Round table participant)

"When it comes to the consumer and consumer health, they [health chiefs] need to think in terms of retail experts and logistics. Whatever we do, it has to be an open system, like Amazon, but more responsive than that because we have a social conscience as public sector providers."

(Round table participant)

Making the move from out-dated paper to procure-to-pay solutions has allowed NHS clinicians to focus on the management of contracts and procurement teams to compete more effectively on price:

"Economies of scale across NHS procurement will only be realised by bringing everyone together in an open and transparent marketplace. An open system would do away with the need for local pricing and the huge variations in spend on common items, such as 40% differential for DVT stockings, from one trust to another."

(Round table participant)

"Embedding digital might benefit from a reward system [...] with digital the easiest thing we could do is incentivise its use."

(Round table participant)

Creating a digital marketplace would support better planning for individuals by incorporating other parts of the wider health economy, for example, enabling the use of personal health and social care budgets to allow people to transfer resources across their own health and social care accounts:

"In a market-sense, it allows planning – and this empowers citizens."

(Round table participant)

"We should be linking public service records so as to make services truly 'end to end' in the same way a travel agent combines transport, accommodation and other logistical aspects."

(Round table participant)

However, development of the digital market place needs to take account of the different stages of development and capacity amongst providers, in particular in the third sector, so as not to exclude particular sectors or discriminate on the basis of size:

"The third sector could be excluded despite the valuable role they play in care."

(Round table participant)

"It is beneficial to have a mix of providers, both small scale and large scale, particularly in regards to social care and home care."

(Round table participant)

Digital Leadership

The Context of Change

NHS and social care leaders are under intense pressures to effect change, save money and improve services and outcomes. Within this context of rapid and unprecedented change many leaders are focused on the imminent and critical challenges that threaten the transformation agenda. However, the potential opportunities afforded by digital technologies can assist leaders in meeting these challenges and are, in some cases, crucial:

"The gap seems to be the NHS' ability to transform services to utilise digital. It's not a technology but a change issue."

(Round table participant)

This is particularly important for governance and at both executive and board levels the issue of narrative again emerges:

"Leadership and managing expectations are key, and both health culture and leadership need strengthening at board level – where IT projects are seen as inherently complex and risky."

(Round table participant)

"Digital has a tactical and exploratory feel, but the digital transformation opportunity is limited by a chaotic context. The success of the apps seems limited by the ability of the NHS to transform itself."

(Round table participant)

The leadership challenge is about recognising the investment potential rather than a short term focus on costs and risks. This has been a particular inhibitor in the NHS as a result of the protracted and challenging national IT agenda alongside increasing financial pressures. However, these pressures can be overcome:

"The financial crisis of the NHS is a real opportunity because the existing way of doing things isn't sustainable."

(Round table participant)

"If these things are so good and cost-effective, they should be able to be done within the financial year without shifting huge amounts of funding – and we should not allow finance to be used as an excuse."

(Round table participant)

Recognising that real challenges do exist and that wide-ranging IT projects are inherently risky – as all large projects tend to be – the way these are approached becomes critical. By embracing the new place-based approach embodied by the STPs, small organisations can innovate locally and experiment with the models that can then be replicated elsewhere. These ventures at the local level can enhance the learning and development of national strategies:

"We should be focusing on innovation on a small scale and locally, with a framework and environment to make this happen. Then we can catalyse and find things that work to fuel the national successes."

(Round table participant)

"We need new commercial models in which the private sector helps pay for the cost of innovation, through guarded use of public sector datasets and access to public sector ecosystems."

(Round table participant)

The Capacity to Innovate

While many NHS and social care leaders recognise the value of digital investment and the development and use of new technologies, allowing these to flourish in their organisations remains a challenge:

"How can we create an environment in which innovation can be fostered and we have the headspace to do so?"

(Round table participant)

"Your best way is to be open and entrepreneurial – that is the capacity."

(Round table participant)

Creating the capacity to innovate for digital transformation also requires greater central government support, for example, flexibility in central monitoring and target setting:

"The issue for innovation in the NHS is government by targets and metrics – and a culture of innovation doesn't work in this context of punishment. Innovation won't be an overnight fix and may require three or four years."

(Round table participant)

Furthermore, where innovation is taking place and new models are being trialled, the issue of workforce development and staff training becomes vital to ensuring the adoption of new technologies, and that these are being made 'meaningful use' of, as recommended in the Carter Review:

"The real barrier is developing a change management programme within organisations that can drive the needed staff culture change."

(Round table participant)

"The biggest barrier is the current workforce not being tech-savvy enough."

(Round table participant)

Conclusion

Digital Technologies as Enablers of Change

It is clear from the critical appraisal of STPs and the round table discussion that there is significant potential in greater use of digital technologies as an asset to change and transformation. Rather than viewing digital transformation as purely a technological issue, it needs to be recognised as a fundamental building block in realising the ambitions of STPs. In particular digital transformation can be a critical enabler for:

- more intelligent and better use of data to improve outcomes and enhance service user experience and continuity of care;
- empowering and involving service users and the wider public to better manage their own health and social care;
- achieving system integration across organisational boundaries and on a cross sector wide basis;
- realising cost savings and efficiencies and drawing on the best learning from commercial applications of digital platforms and new technologies to improve the health and social care market; and
- supporting NHS and social care leaders to focus on the future, develop a technical competent workforce and increase capacity for innovation that can effect real and lasting transformation.

However, there are also a number of critical barriers to ensuring that digital transformation can act as a significant enabler for transformation.

The Barriers to Change

Delivering digital innovation in the health system is not, primarily, an issue of technology. The tools are already available and proven. Instead, successful digital innovation in health and social care will require a cultural change at the level not only of individual health and social care organisations, but across the entire interdependent network of public, private and third sector partners.

The vast treasure store of data generated, collected and stored by the public sector is the greatest asset in driving digital innovation in health and social care. To make the most of this latent potential, health and social care services should – subject to data protection regulations – be more open in sharing their wealth of data with the wider public sector and commercial providers.

The financial crisis in the health and social care system should not be allowed to prevent or forestall the much-needed investment of effort and resources into digital technologies, which have the capacity to deliver more responsive and personalised and cost-effective health and social care services.

However, the successful adoption of innovative digital technologies in health and social care will not take place if the historical context of change and the barriers to enablement are not addressed. These include:

1. **Lack of Interoperability of Data Systems:** the failure to link and connect data across systems and between organisations is a significant barrier to realising the potential of data sharing. Although there is a superabundance of rich data around the health and social care system, it is not linked or shared effectively with other parts of the public and private sector.
2. **Limited Public Engagement:** the support of the general public needs to be enlisted in the sharing of data and adoption of new technologies. This is essential for the development of more effective prevention and moving health and social care outcomes upstream. The role of service users, patients and public in the use and application of their personal information must be explained in order to ensure their buy-in and for successful democratisation of data to occur.
3. **Historical Closed Health Procurement Systems:** the new market place for health and social care requires flexibility and freedoms for innovative practice and digital development. Historical closed systems have previously hindered these developments and prevented growth of a stronger health and social care economy that has the empowerment of its users at the heart.
4. **Restricted Capacity for Digital Innovation:** the significant pressures on leaders in health and social care has often resulted in short-termism in thinking and strategy that has stifled innovation and creativity. Long term, sustainable transformation will only take place when there is sufficient head room and capacity to effect change and enable innovation that delivers results on cost savings and health and social care outcomes.

Recommendations

Recommendation One: Strengthening the Digital Ambition within STPs

Digital and technological development and innovation should be seen as a fundamental building block to the realisation of STPs and not solely as a technical issue. NHS England and Public Health England in particular, should seek to provide greater support to local areas to strengthen the ambition of the digital aspirations within STPs and related health and social care plans. This could be achieved through a series of high level events intended to promote and showcase the best and promote learning. STP digital leaders with the strongest grasp of the potential use and application of digital technologies could share their experience and expertise with those that lack confidence in this area. In addition, NHS England and Public Health England could jointly issue guidance and how to strengthen the offer that digital technologies can provide in supporting and enabling transformation.

Recommendation Two: Supporting Digital Innovation

While there is a wealth of evidence to demonstrate the value of digital innovations, there is also a reluctance to develop and adopt digital innovations that may be untested. NHS and social care leaders need to develop specific strategies for advancing digital innovations that include greater flexibilities in procurement. For example, longer time frames are required for digital innovations to be embedded in practice and to fully realise outcomes in improved service user and patient care. There is also a need to ensure appropriate safeguards exist to ensure the safe application of digital technologies.

Recommendation Three: Creating a More Flexible Digital Market

Central government and national commissioning bodies could support the greater use of digital technologies within STPs by creating a more flexible and adaptive market and regulatory structure for data sharing. This does not mean relaxing the necessary and appropriate protections for digital security, rather, it would mean strengthening these in recognition of the rapidly escalating drive towards greater health and social care integration. This will require the development of national guidelines and protocols that can ensure a robust approach to data sharing that takes advantage of modern technologies while releasing the power of more intelligent use of data and information to support local service planning and transformation.

Recommendation Four: Involvement and Participation of Service Users and the Public

The successful adoption of digital and technological innovations requires the active support of service users, patients and the wider public. NHS and social care leaders at national and local levels need to work together to ensure that the potential benefits of new technologies are clearly understood and that individual service users and patients feel involved in their use and development. Public engagement with digital innovations is also essential for ensuring that learning and adopting best practices and technologies from the commercial sector can take place.

Recommendation Five: Organisational and Workforce Development

All practitioners need to have access to high quality training and development opportunities so that they can take full advantage of new technologies and are enabled to make appropriate and expert use of these as they come online. This should be embedded within existing organisational development plans as part of a whole system approach to digital development and capability. Senior executives, board members and elected officials also need training on digital innovation and transformation and how these can be used to enhance health and social care outcomes and realise their wider strategic objectives.

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