Mental Health Network
NHS CONFEDERATION

The future's digital

Mental health and technology

Mental Health Network

The Mental Health Network is the voice of mental health and learning disability service providers for the NHS in England. We represent providers from across the statutory, independent and voluntary sectors.

We work with Government, NHS bodies, parliamentarians, opinion formers and the media to promote the views and interests of our members and to influence policy on their behalf.

For more information about our work, visit **www.nhsconfed.org/mhn** or email **mentalhealthnetwork@nhsconfed.org**

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Contents

Executive summary

Introduction

The use of digital technology to improve health outcomes has the potential to transform the face of the NHS.

Electronic communications are increasingly central to the way we live our lives: 83 per cent of homes in Great Britain now have internet access;[1] 50 per cent of users are accessing internet banking; 53 per cent of adults in the UK access social media sites, such as Facebook;[2] and 94 per cent of the adult population use a mobile phone.[3]

People are also increasingly making use of online resources to support their own health. Forty three per of internet users have used it to access health information, up from 18 per cent in 2007.[4] Over half (54 per cent) of the public say they would find it useful to be able to book GP appointments online[5], although just 1 per cent say they have been able to email their GP.[6] There is a considerable gap opening up between changing public behaviour and expectations, and the way most NHS services are currently delivered.

The NHS is facing unprecedented challenges. The Mental Health Foundation estimates that by 2030 there will be approximately 2 million more adults in the UK with mental health problems.[7] Investment in mental health services is falling, and there is also significant unmet need. The London School of Economics and Political Science estimates that 75 per cent of people experiencing depression and anxiety-related problems access no treatment.[8] It is also thought that 75 per cent of children and young people experiencing a mental health problem do not access any treatment either.[9]

Digital technology presents us with new ways of delivering services more efficiently and effectively, as well as enabling us continue with the journey of changing the culture of our services. Service users and their families have very different expectations today of both services and professionals. The rise of the recovery model, the importance of shared decision-making, and wider societal and technological change have all influenced those changing attitudes and expectations. Increasingly, the public will want to use digital technology to engage with services in different ways, and make use of the information and data to understand and manage their conditions better.

This report examines what the digital revolution means for the provision of NHS mental health services and recommends a direction of travel for moving forward.

Our conclusions and recommendations are based on a combination of interviews with key figures in the field, feedback from a workshop involving professionals and service users across a local health economy, plus a survey of providers of mental health services.

We hope that this report stimulates debate and begins the process of building a consensus – among professionals, policymakers and service users – about the way ahead. If you would like to share your views, please email **mentalhealthnetwork@nhsconfed.org** or tweet us at **@nhsconfed_mhn** using the hashtag **#mhnfutures**.

Key questions

- What is the case for transformation?
- How is digital technology currently being used in the design and delivery of mental health services?
- What actions could national bodies, including NHS England and the Department of Health, as well as individual providers and commissioners, take to ensure digital technology is leveraged to its full potential?

Mental Health Network member survey

We surveyed all 64 Mental Health Network (MHN) member organisations in late 2013 about their current utilisation of technology and plans for the future. Fifteen responses were received – an overall response rate of 23 per cent of organisations in membership at that time. The number of responses was relatively low, therefore we should be wary of extrapolating too much from the data. However, the survey certainly provides some useful insights into the level of digital maturity that currently exists in the sector and for that reason we explore some of the responses below.

Current use

Few providers appear to be fully exploiting digital technology by delivering services in a markedly different way. Doing so could help us improve access, convenience, experience and outcomes, as well as generating much needed efficiencies.

Eighty-three per cent of respondents to one question said their organisation provided an online directory of their services, and 75 per cent said their website provided general information about mental health conditions. Sixty-six per cent said they signposted information online, such as contact information for local carer groups. Fifty per cent said they provided options to access services remotely, for example by telephone. None reported that they enabled online appointment booking.

Future plans

There appears to be an appetite for greater use of technology in the future. Seventy-three per cent of respondents to another question said they had plans to enable online appointment booking and 82 per cent said they had plans to use online and mobile applications to support service delivery.

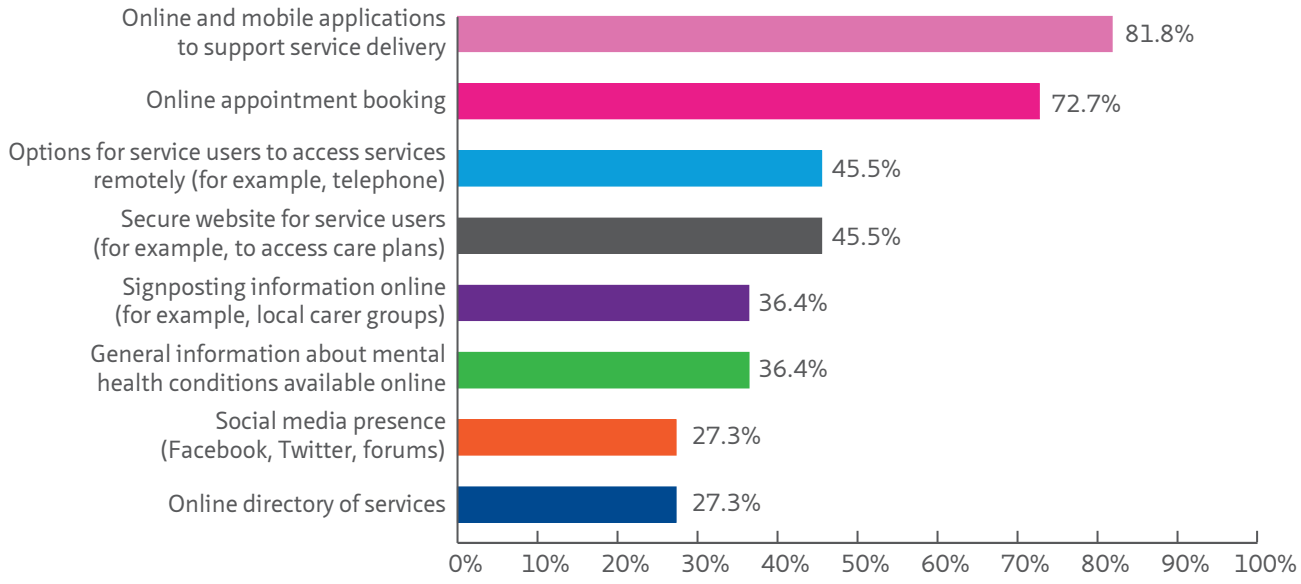
Almost all respondents said they had plans to provide remote access to services (for example, clinics using online video calling), although some said this was not on the immediate horizon.

Respondents had very clear ideas about what benefits this could bring for service users and the public. One respondent said benefits would include "accessibility, efficiency, improved self-monitoring and outcomes (and) engagement in recovery".

Challenges for providers

Respondents were also asked to identify what barriers existed that were hindering greater use of digital technology. Responses included "financial constraints" and "investment", "problems with IT supplier", "connectivity" in rural areas, and "IT literacy" of staff and service users.

Figure 2. Does your organisation have any current plans to deploy or expand deployment of any of the following as a means of engaging service users and the public?



Qualitative interviews and workshop

Thirty semi-structured interviews were conducted with policymakers, professionals, service users, developers and others – a full list is contained later in the report. Staff, service users and members of local voluntary sector organisations also came together for a half-day workshop facilitated by Transform, hosted at the University of Leeds, and run in conjunction with Leeds and York Partnership NHS Foundation Trust.

A number of common themes and key messages were evident from those conversations. The need for change, and making better use of technology in the way we design and deliver services, appears to be widely accepted, although many participants identified that there is also some resistance to change.

Other key themes included:

1. Making greater use of technology provides us with opportunities to:
   - promote better public mental health and wellbeing
   - enable service users to take charge of their own recovery, and support culture change in our services
   - make the collection of relevant data easier, allowing for greater comparison and accurate measurement of outcomes
   - use data, with appropriate permissions, to better inform service improvement.
2. Cultural challenges to address include:
   - not allowing assumptions about the lack of access for some groups to be used as an excuse to hold back
   - tackling any concerns staff and service users may have, including tackling the 'binary idea' that redesigning services is about pitching digital and face-to-face contact against each other.
3. Practical challenges to address include:
   - ensuring initiatives to develop digital tools solve the problems they are intended to based on user-centred design approaches
   - being able to identify good practice, and learn about what works, including through working with developers and commercial sector organisations
   - creating a speedy, reliable framework for evaluation is a necessity, so that we can establish what works in much faster timescales
   - deploying fast and agile development techniques
   - developing capacity and capability among the mental health workforce
   - ensuring funding is available to leverage change and implement new ways of working, including resources to deploy and mainstream
   - supporting commissioners by producing resources to assist them
   - creating a coherent framework for addressing questions of governance and safety
   - addressing questions of how delivering services online, or providing a blended offer, fits in with the design of a tariff for mental health services
   - addressing integration with electronic patient records systems, and how we can best support interoperability between digital tools and apps with NHS information systems.

"The need for change, and making better use of technology in the way we design and deliver services, appears to be widely accepted."

The current picture

Health apps

There are approximately 100,000 health apps available in major app stores, and it is said that the top ten mobile health apps generate more than 3 million US downloads on IOS alone.[10] There is little in the way of a quality filter, or regulation, other than user reviews, applied to the apps available in these stores, so making a judgement about quality is difficult.

We reviewed what mental health apps were currently being promoted (as at December 2013) in the NHS Choices app library (**www.apps.nhs.uk**) and the recently launched My Health Apps library (**www.myhealthapps.net**) from Patient View (**www.patient-view.com**). Eighty-seven apps were available across the two libraries, some free and some paid for – a very small number compared with the thousands available through other libraries such as iTunes. Examples of apps in the libraries include the NHS Choices Healthy Living app, The Mental Elf (a research resource), Mindlogr (a private video logging tool), and Psychology Online (an eCBT tool). Buddy app,[11] available through the library, is a high-quality example of a digital asset used to support therapy services. It uses text messaging to keep a daily diary of what users are doing and how they are feeling, helping to spot and reinforce positive behaviours.

Social media

Social media is being used in a variety of different ways in this space. Firstly, individuals are using social media to blog about their personal experiences. Notably, social media is being used extremely effectively for facilitating self-support and peer networking. Numerous peer engagement platforms operate with well-established user populations such as PatientsLikeMe, Health Unlocked, Patient Opinion and Care Pages. These sites provide a social platform, allowing users to compare their health information with others, as well as monitor mood, talk about symptoms, discuss the side effects of treatment and share support.

A large mental health community exists on Twitter, including professionals and service users (and, of course, those who would count themselves as both). It is also notable how that community organically self-organises, including through the use of weekly and monthly self-organised tweetchats on a variety of topics – for example, the popular #MHNurChat.

Unmoderated social media can pose risks. For example, concerns have been raised about 'pro-ana' or 'thinspo' websites and the risks these can pose to the successful recovery of people with eating disorders.

Big White Wall[12] operates a 'closed garden' for its service users, where they can share views and develop user-generated content in a safe and moderated environment. Moderators, known as 'wallguides', observe activity and identify early indicators of concerning behaviour to ensure service users are not putting themselves or others at risk. Mind also runs a closed social media platform called *Elefriends*.

International case studies

The report highlights a number of international examples of good practice, including eHeadspace, Moodgym and Mood Rhythm from Australia and the work of the Veterans Health Administration and Kaiser Permanente in the USA (see page 29). In 2011, the Veterans Health Administration introduced a programme of remote mental health support, which targets over 200,000 sessions annually. Analysis of patient data indicates that there were significant business benefits with reductions in hospitalisation and reductions in average length of stay.[13]

UK case studies

We also took a closer look at the types of applications, tools and products available in the UK.

The first category of examples can be broadly characterised by the term 'self-support'. These comprise self-service and self-care tools and platforms. These are generally developed for service users and members of the public but are generally not monitored, moderated or integrated with traditional mental health services or professionals. They also include those tools that may be developed by a statutory service, but focus on providing information rather than

being integrated with any formal care pathway. Examples of such applications and tools include MOMO (**www.mindofmyown.org.uk**), MyJourney (**www.sabp.nhs.uk/eiip/app**) and Moodometer (**www.2gether.nhs.uk/moodometer-app**) (see page 33).

Second is the category of digitally integrated care. This is where digital tools – such as health assessment, care provision, medication monitoring software – are developed with the intention of being used as part of a formal package of care, or enhancing the workflow of an existing service. In the future we may see more blended packages of care, bringing together face-to-face and online contact as part of an overall service offer. From a provider perspective, making the decision to employ one of these programmes or applications usually follows the development of a digital strategy. Examples include work by Big White Wall (**www.bigwhitewall.com**) and Clintouch (**www.clintouch.com**).

A third area is that of health hubs and ecosystems, where committed collaboration between organisations results in the establishment of some form of structure for support. An example of such an initiative is that of the Leeds Innovation Health Hub (LIHH), which launched in January 2014. This has been set up with the vision to make Leeds first for health and innovation through the priorities of improving health and social care outcomes, to enhance the international reputation of Leeds as a centre for excellence in health and medical technology, to attract inward investment and to encourage local enterprise in mHealth. The LIHH includes the mHealthHabitat which is developing a systemic approach to digital innovation in supporting service transformation. Another established ecosystem, the Manchester mHealth Ecosystem was established in 2011. Serving a population of over 3.2 million people across the city, the ecosystem brings together health and community care providers and commissioners, a leading clinical research network, a world-class research university, city-region government, major international companies and innovative small and medium-sized enterprises (SMEs) in a permanent partnership committed to "making mHealth happen".

Recommendations

Our recommendations build on the information gathered about how e-mental health is currently being used, and the insights garnered from the survey, interviews and workshop.

Firstly, we articulate a vision for where we want to go. Secondly, we highlight a number of specific issues our recommendations are designed to address. Lastly, we set out a number of actions to be taken forward by the Department of Health, NHS England, other national bodies, local providers and commissioners, to make progress in this area.

A vision for the future

We believe in the potential for digital technology to transform the way people look after their mental health, and transform the way the NHS designs and delivers mental health services. There is considerable appetite among mental health services, and the public, to make greater use of technology in this way.

We could make more use of digital technology and online resources to improve overall public mental health. Everyone should be able to access reliable information about mental health and wellbeing online, and through such portals access help and advice anonymously in a variety of ways (live chat, email, text and phone).

Secondly, the potential for leveraging digital technology better in the way we design and deliver NHS mental health services is huge. This could help us deliver services in ways in which – increasingly – the public want, and much more efficiently. Through technology we can support the cultural transformation of our services, empowering individuals to take charge of their own recovery. In the future, with individuals able to choose their provider, delivering services in the ways a new generation of service users have become accustomed to will become ever more important. Clearly this will require different ways of working.

In the future, digital technology also presents us with the opportunity to think about how we can integrate services better and move beyond individual service silos – something a number of innovative

organisations are already thinking about. It could also better support cultural transformation, supporting greater self-care and empowering individuals to take charge of managing their own conditions. In the short term, practical actions that existing services could take include:

- enabling service users to have the option of booking appointments online, and receive confirmations and reminders by email and text
- where clinically appropriate, making available options to access treatment and support remotely via phone and video calling
- encouraging and enabling service users and clinicians to make the most of apps and tools to improve outcomes. This includes using programmes, such as smartphone apps, to keep track of medications, symptoms, outcomes and to manage overall health as part of an integrated mental health service. We should be empowering members of the public and clinicians, by helping to inform them about what works and what's safe.[14] Where they choose to, service users should be able to share this data quickly, simply and efficiently with the professionals who work with them – enabling our NHS to benefit from this data and to work more efficiently.

Actions to be taken forward

To ensure this vision becomes a reality, we need the system to work together to support change. In developing this report, we were keen to explore what barriers need to be addressed to do this. Based on what we found, we believe a range of actions are required from the following organisations:

- Department of Health
- NHS England
- Care Quality Commission (CQC)
- Monitor
- Health Education England
- NIHR MindTech Healthcare Technology Co-operative
- royal colleges
- health and wellbeing boards
- clinical commissioning groups (CCGs)
- mental health providers.

These recommendations are set out in detail at the end of this report, and summarised below. We do believe it is important to highlight one of these recommendations as a priority – that is for the Department of Health, NHS England and others to develop a national strategy for e-mental health in 2015/16, and subsequently invest in a national programme of work to support transformation and change.

This recommendation is key and will require working in partnership with a wide range of bodies, including CQC, Monitor, Public Health England and national stakeholders. Through the development of a national strategy, we can start to address the questions raised in this report and detailed in our recommendations. The development of a strategy, and subsequent programme of work, should include:

- a clear plan for how we will address outstanding questions relating to governance, safety, regulation, integration, payments and information
- how digital will be leveraged as part of mental health promotion and prevention activity
- a roadmap for digital skills development among the NHS workforce
- the development of resources to support the work of CCGs, health and wellbeing boards and mental health providers
- how NHS England will support the identification and spread of good practice, and make investment available to support the development of local services.

Summary of actions

National and local action

1. **National bodies, including the Department of Health, NHS England, Public Health England, Care Quality Commission, Monitor and Health Education England should co-produce with stakeholders a national strategy for e-mental health in 2015/16. This objective should be included within the next NHS Mandate.**

   We believe a national strategy for e-mental health, co-developed and co-owned by national bodies, should be developed in 2015/16. In support of this, the Department of Health should include this objective within the next NHS Mandate, making clear the key role NHS England has in the development and implementation of the strategy.

   The strategy should include an articulation of how the following issues will be addressed in conjunction with national and local partners: workforce, commissioning, governance and information, public health, innovation and investment. The strategy should be co-produced with partners, including other national bodies including providers, commissioners, service users and carers, and bodies such as NIHR Mindtech.

   The strategy should be published with a clear programme for implementation support, setting out how the Department of Health, NHS England, Public Health England and other national partners will continue to support progress over a five-year period.

NHS England

2. **As part of a range of actions involved in helping to co-produce the national strategy, NHS England should:**

   a) **work closely with Health Education England, to produce a roadmap for the NHS workforce on digital skills development**

   b) **help produce a clear plan for how we will address outstanding questions relating to governance, safety, regulation, integration, payments and information**

   c) **explore, particularly with Public Health England, how digital can be fully leveraged as part of mental health promotion and prevention activity.**

3. **As part of support for implementation, NHS England should:**

   a) **support the development of e-mental health resources for Clinical Commissioning Groups and Health and Wellbeing Boards**

   b) **support the identification and spread of good practice, and make investment available to support the development of local services.**

Public Health England

4. **As part of a range of actions involved in helping to co-produce the national strategy, Public Health England should explore, with partners, how digital can be fully leveraged as part of mental health promotion and prevention activity.**

Care Quality Commission

5. **As part of a range of actions involved in helping to co-produce the national strategy, the Care Quality Commission should ensure the regulatory model works for innovative new service models.**

Monitor

6. **As part of a range of actions involved in helping to co-produce the national strategy, Monitor should ensure the development of new payment mechanisms in mental health works for innovative new service models, including virtual contacts.**

Health Education England

7. **As part of a range of actions involved in helping to co-produce the national strategy, Health Education England should develop, with partners, a roadmap for the NHS workforce on digital skills development.**

NIHR MindTech Healthcare Technology Co-operative

8. **Mindtech has an important role to play in providing research leadership to deliver a faster evidence-base for technological innovation in mental healthcare.**

9. **Mindtech should also foster collaboration between service users, clinicians, academia and technology developers to identify clinical unmet needs and produce evidence-based technological solutions.**

Royal Colleges

10. **Royal Colleges, particularly the Royal Colleges of Psychiatrists and of GPs, have a critical role to play in the co-production of the national strategy. It will be particularly important to ensure the Royal Colleges are appropriately engaged in the development of a roadmap for the NHS workforce on digital skills development.**

Health and wellbeing boards

11. **At a local level, health and wellbeing boards will want to ensure e-mental health forms part of Joint Strategic Needs Assessments. The engagement of boards will also be crucial in the development of a national strategy and resources for implementation and development.**

Clinical commissioning groups

12. **Again, at a local level, clinical commissioning groups will want to ensure e-mental health forms part of local commissioning plans. The engagement of clinical commissioning groups will be critical in the development of a national strategy and resources for implementation and development.**

Mental health providers

13. **Mental health providers will want to ensure digital is a fully integrated component of overarching organisational strategy, and consider digital innovations as part of any service redesign work.**

14. **The engagement of mental health providers will be critical in the development of a national strategy and resources for implementation and development.**

Digital technology is a game changer for how we think about the design and delivery of health services. Every provider will want to consider how digital technology features in their overarching organisational strategy, if they have not already done so.

This work could be led by a dedicated senior programme director for digital – either for the organisation, or shared across a local health economy. Developing a shared organisational vision will require wide staff engagement, particularly with clinicians and service managers. It may prove helpful to harness the insights of those new to the NHS – such as trainee doctors and graduate management trainees – about what their vision for the future might be.

Any strategy should be genuinely co-produced with service users and carers, with the aim of fully understanding their aspirations around digital. Engaging with users via non-traditional channels – such as social media – may provide useful insights that may not emerge through traditional consultation routes. Particular attention may need to be paid to the aspirations of younger service users who may have differing ideas about what they want to see.

In terms of organisational strategy, this may need to address:

- how can digital technology support the delivery of a service that is truly recovery focused, joined-up and empower greater self-care?
- how will our service users in future want to engage with us in terms of how they receive care and support (i.e. the mix between remote and face-to-face contact) and engage with us in other ways (i.e. using apps for monitoring, booking appointments, asking routine questions)?
- what skills do we need to develop within our workforce?
- what technology will we need?
- how could a digital strategy help join up care better for our service users?

Mental Health Network viewpoint

We live in a digital society. The use of technology has the potential to transform the face of the NHS and health services around the world. Compared to many other service sectors, mental health – and the NHS more broadly – are seriously behind the curve.

This report shows there is a consensus view that there needs to be change. We are lacking a clear sense of future vision, and the right skills among our workforce. Our existing ways of evaluating new products and services, and ensuring their safety, are too slow to enable our services to keep up with the pace of technological change we see all around us.

The good news is that there are some fantastic examples across the country where passionate and knowledgeable individuals are already making change happen. We need to learn from them, and start adopting those innovations that work. However, there are some common problems it makes sense to tackle at a national level, under the banner of the development of a national strategy for e-mental health.

There is a clear rationale for further national action. The potential is huge. Technology can help us deliver services much more efficiently and, increasingly, via channels the public want. Through leveraging digital in support of transforming the culture of our services, we can empower individuals to take charge of their own recovery and to stay well.

We hope this report stimulates debate and provides some clarity about the steps that now need to be taken.

If you would like to share your views, please email **mentalhealthnetwork@nhsconfed.org** or tweet us at **@nhsconfed_mhn** using the hashtag **#mhnfutures**.

"Compared to many other service sectors, mental health services – and the NHS more broadly – are seriously behind the curve."

Introduction

The use of digital technology has the potential to transform the face of the NHS.

Electronic communications have become central to the way we live our lives. Eighty-three per cent of homes now have internet access.[15] We have one of the most developed eCommerce markets in the world. Seventy-two per cent of all adults claim to have purchased goods or services online, 50 per cent of users are accessing internet banking, and 53 per cent of adults in the UK access social media sites, such as Facebook.[16]

Improving the mental health of the population is one of the major social policy challenges of our time. The Centre for Mental Health estimates that the costs associated with mental health problems in England are £105 billion a year.[17] Mental health also accounts for close to a quarter of the overall burden of disease.[18] The Mental Health Foundation's 2013 report, *Starting today: the future of mental health services*, states that by 2030, even assuming rates of prevalence stay the same as they are now, there will be approximately 2 million more adults in the UK with mental health problems than today due to population growth.[19]

The NHS is facing unprecedented challenges due to rising demand and funding constraints. Digital technology presents us with new ways of delivering services more efficiently, and will help us continue to change the culture of our services by empowering individuals in their recovery.

But despite this clear imperative for transforming the way we deliver mental health services, the NHS has been slow in responding to technological change. In January 2013, the MHN published a discussion paper, *E-mental health: what's all the fuss about?*[20] The paper put forward a case for the greater use of information and technology in the way mental health services are designed and delivered. The authors* argued that to support that change a two-stage process is needed. As a first stage, it recommended that an accurate picture should be established of how people are using technology currently to support better mental health and wellbeing, including mental health professionals and service users. This could then form a clearer basis for a proposed second phase of work – namely, developing a national framework for e-mental health.[21]

This report is our contribution to that task. Our aim is to assist NHS England, Department of Health and leaders across the mental health sector, in developing their thinking around what the digital revolution means for the provision of NHS mental health services and to recommend a direction of travel for moving forward. Our conclusions and recommendations are based on a combination of interviews with key figures in the field, feedback from a workshop involving professionals and service users across a local health economy, and a survey of providers of mental health services.

The first chapter of our report examines the case for change. In doing so, we firstly set out the challenges facing the future provision of NHS mental health services in terms of rising demand, and finite resources. We look at the impact digital technology is having on society, and the changing expectations people have of the services they engage with. As an example, we look at the transformation story of retail banking, and the impact digital technology has had on the way banking services are delivered today.

> "Improving the mental health of the population is one of the major social policy challenges of our time."

* The paper, *E-mental health: what's all the fuss about?*, was authored by Dr Matthew Patrick (chief executive of the Tavistock and Portman NHS Foundation Trust), Jen Hyatt (chief executive, Big White Wall) and Rebecca Cotton (acting deputy director of the Mental Health Network).

The second chapter sets out insights derived from our research. We summarise the feedback obtained through our interviews, workshop and provider survey. Through that, we examine how technology is currently being used within mental health services, opportunities for the future, and a consideration of barriers that will need to be addressed.

Key questions

- What is the case for transformation?
- How is digital technology currently being used in the design and delivery of mental health services?
- What actions could national bodies, including NHS England and the Department of Health, as well as individual providers and commissioners, take to ensure digital technology is leveraged to its full potential?

The third chapter takes a closer look at case study examples, both from the UK and abroad.

The fourth and final chapter sets out a series of recommendations for key audiences at both the national level, including NHS England, and the local level, including CCGs and individual service providers.

We hope that this report stimulates debate and begins the process of building a consensus among professionals, policymakers and service users, about the way ahead. If you would like to share your views, email **mentalhealthnetwork@nhsconfed.org** or tweet us at **@nhsconfed_mhn** using the hashtag **#mhnfutures**.

"We hope that this report stimulates debate and begins the process of building a consensus among professionals, policymakers and service users, about the way ahead."

The case for change

In this chapter, we look at the case for transforming the way we currently design and deliver mental health services, and why digital technology must be central to this. We examine the challenges facing mental health services over the coming decades, and how digital technology is changing the way most of us live our lives. Finally, we explore how another sector – retail banking – has approached redesigning their services and in doing so make the most of digital technology.

We are not starting from scratch. Fantastic examples of real innovation in mental health services already exist, some of which are profiled later in this report. In terms of policy, support for digital is promoted implicitly, and explicitly, in a number of key strategic reports, including the mental health strategy *No health without mental health*[22] and the accompanying implementation framework.[23] The current Mandate from the Secretary of State expresses clear expectations that NHS England should increase the use of technology:

> "In a digital age, it is crucial that the NHS not only operates at the limits of medical science, but also increasingly at the forefront of new technologies. NHS England's objective is to achieve a significant increase in the use of technology to help people manage their health and care.
>
> "In particular, the Government expects that by March 2015:
>
> - clear plans will be in place to enable secure linking of these electronic health and care records wherever they are held, so there is as complete a record as possible of the care someone receives
> - clear plans will be in place for those records to be able to follow individuals, with their consent, to any part of the NHS or social care system
> - everyone will be able to book GP appointments and order repeat prescriptions online
> - everyone will be able to have secure electronic communication with their GP practice, with the option of e-consultations becoming much more widely available
> - significant progress will be made towards 3 million people with long-term conditions being able to benefit from telehealth and telecare by 2017, supporting them to manage and monitor their condition at home, and reducing the need for avoidable visits to their GP practice and hospital."[24]

That said, there is a long journey ahead. Below we attempt to articulate the scale of the challenge ahead and the contribution digital may be able to make.

Challenges facing mental health services

Mental health services are facing unprecedented challenges due to rising demand and funding constraints.

Rising demand

The Mental Health Foundation's 2013 report, *Starting today: the future of mental health services*, states that by 2030, even assuming rates of prevalence stay the same as they are now, there will be approximately 2 million more adults in the UK with mental health problems than today, due to population growth.[25]

However, evidence points to prevalence rates of common mental health disorders rising over time. The 2007 adult psychiatric morbidity survey found that the proportion of the English population aged between 16 and 64 meeting the criteria for one common mental disorder increased from 15.5 per cent in 1993 to 17.6 per cent in 2007.[26] The World Health Organization say that depression is predicted to be the second leading cause of global disability burden by 2020.[27]

Falling investment

Investment in mental health services has fallen in real terms over the past three years. The Department of Health found funding for adult mental health services (ages 18–64) had fallen by 1 per cent in real terms from 2011/12.[28] Funding for older people's mental health services fell by 3.1 per cent in real terms

over the same period.[29] The BBC and Community Care published figures in December 2013 based on Freedom of Information requests to 51 mental health trusts. They found there had been a reduction of 2.36 per in real terms over a two-year period from 2011/12 to 2013/14.[30]

Providers of NHS-funded mental health services, and their commissioners, are therefore facing increasing pressures to manage growing demand, while facing significant financial challenges. That will mean exploring new, innovative, ways of delivering services, including potentially making better use of digital technology. It will also, we argue, mean concentrating more on prevention and early intervention.

Beyond those real pressures, there are a variety of other factors that make the transformation challenge all the more apparent.

Cultural change and supporting recovery

The landscape for mental healthcare is evolving as services are orientating towards more user-centred outcomes, which focus on recovery. In the discussion paper, *E-mental health: what's all the fuss about?*,[31] the authors (one of whom, Rebecca Cotton, is a co-author of this report) argued for the potential of digital to support cultural change in services, empowering service users to exercise greater choice and control.

Increasingly, service users and their families have different expectations about the how their relationships with services, and professionals, should be. Orientating services around principles of recovery and personalisation involves recasting relationships between service users and professionals as true partnerships.

Digital technology is also empowering service users. The public are becoming more active, informed consumers about their healthcare. More and more people now use online resources to check symptoms, find out information about NHS services, and what treatment options they might commonly expect to be offered. Through portals such as Patient Opinion, users of NHS services are providing feedback about the services they use in public forums. Increasingly, service users are making more of the opportunities presented by technology to communicate with others, creating online peer-support communities.

The public health challenge

Improving the mental health of the population is a significant challenge for policymakers. Poor mental health impacts society, individuals, and our wider economy, in a multitude of ways. Aside from the impact on individuals and their families, poor mental health impacts on employment rates and levels of welfare spending. Among our young people, poor mental health can have a significant impact on educational attainment and their chances in adult life. Beyond the provision of mental health services, digital may provide us with new ways of promoting positive mental wellbeing and earlier intervention.

Improving access

There is significant existing unmet need. Large numbers of people with mental health problems do not currently seek treatment. The Centre for Economic Performance's Mental Health Policy Group report estimates 75 per cent of people experiencing depression and anxiety-related problems access no treatment.[32] It is commonly thought that the stigma around mental health problems may prove a barrier to seeking help. Again, we should consider whether digital technology provides an opportunity to reach greater numbers of people, including those who are reluctant to seek treatment in the traditional way.

Integration

A further challenge facing services is that of achieving closer integration. The siloed nature of how some services are delivered can lead to, for example, service users having to repeat their story on many occasions and their physical health needs not being adequately addressed alongside their mental health. Addressing mental health problems in a holistic way requires an integrated and whole-system approach to prevention and treatment. This requires services to be delivered in an integrated way, across different types of providers. What could digital technology do to improve the way services are delivered?

The digital revolution and why it matters

We have seen that the rise in the use of online services, the widespread adoption of smartphones[33] and improved usability has ushered in a new digital information and service culture. The majority of the UK population now has 24-hour access to a range of digital information, apps and services to help them more effectively manage many aspects of their lives.[34]

Other industries, such as banking, have embarked on a journey of digital transformation for several years now and offer insights to mental health providers and the wider NHS on how services can be fundamentally redesigned and improved around the needs of the user. This transformation will not occur in a single stage and requires an overarching and coordinating strategy to apply focus on developing the core competencies required to be successful. We examine the implications of the digital revolution and lessons to be learnt from other sectors later in this report.

Online access

The UK is a digital society. Eighty-three per cent of homes now have internet access.[35]

We have one of the most developed eCommerce markets in the world.[36] Seventy-two per cent of all adults claim to have purchased goods or services online, 50 per cent of users are accessing internet banking, and 53 per cent of adults in the UK access social media sites, such as Facebook.[37]

While overall internet access among UK adults stood at 80 per cent in 2013, take-up varies across age, gender and socio-economic groups. The biggest differences, Ofcom say, are between the youngest and eldest age groups: 91 per cent of those aged 16–24 and 25–34 have access to the internet, while just 31 per cent of those aged 75 and over do. However, among the over 75s access is increasing quickly – the rate of access is up from 26 per cent in 2011.[38]

Smartphones and tablets

There has also been a significant shift in the devices being used by people accessing online and digital services.

People are increasingly accessing the internet through their mobile phone. In 2013, 49 per cent of UK adults were estimated to use their mobile phone to access the internet[39] – up 10 per cent in just 12 months. Take-up of mobile internet has risen consistently since 2010, when just a fifth of UK adults used their handset to access the internet. Sixty-two per cent of mobile phone consumers own a smartphone.[40]

It is estimated that tablet computers will account for 50 per cent of all worldwide PC purchases in 2014.[41] Twenty-four per cent of UK households had a tablet computer in 2013,[42] up 13 per cent in a single year.[43]

Smartphone and tablet functionality continues to evolve in a way that enables new types of healthcare services to be developed. This combination of high public demand and the high penetration of connected devices makes healthcare a highly attractive market for third-party developers.

There are a range of smartphone features that make application development particularly attractive for users and developers:

- Portable and personal – people carry their smartphone with them wherever they go, making them the default device for many types of activity. Users check their smartphone on average 150 times a day (or once every six minutes), demonstrating the intimate nature of their relationship with their device. This personalised and continual relationship is a fertile environment for developing a wide range of personalised health and wellbeing services.
- Location aware – smartphones possess systems such as GPS (global positioning system), which enable information and notifications to be triggered based on physical location, relevance and context.
- Additional device functionality – most smartphones have built-in capabilities for determining movement, high-definition imaging features and even thermometers, which can support a number of health and wellbeing support requirements.

- Apps – apps are software applications for specific tasks and offer the benefit of using specific smartphone functions, as indicated above. There are over 100,000 health and wellbeing apps in the major app stores[44], which range from activity and food trackers, mood trackers and so on. Many are of questionable quality, lack established standards and are built using unsustainable business models, providing a challenge for users and healthcare providers interested in promoting them to users.

As innovation continues in the mobile sector, new types of devices in development are likely to appear in the next couple of years as alternatives to the current smartphone format. These include internet-connected 'glasses', most notably Google Glass, and a range of 'smart watches' and other wearable devices that offer alternatives to carrying a smartphone device. New user interfaces are also likely to change the way we interact with our mobile devices. Natural language speech and fingerprint recognition and gesture control will offer new ways to engage with technology and opportunities for supporting better health.

Already, fitness trackers such as the Jawbone UP24 are providing smart wristbands that monitor and track a range of behaviours such as steps, running routes, calories burned and sleeping patterns. These connect to smartphones and support the setting of goals, tracking progress, as well as learning and sharing with others through social networks. This is, however, just the start of what many analysts and commentators believe will be a huge growth area in the role for mobile technologies in the support of personal health.

Work is already underway on examining the opportunities presented by personalised ambient monitoring (i.e. using wearable and environmental sensors to track behavioural data) for the management of mental health problems, providing an early warning system for potential upcoming episodes of illness – raising both some very novel possibilities for enabling independent living, but interesting ethical questions too.

Health behaviour online

People are increasingly making use of online resources to support their own health. Forty-three per cent of internet users have used it to access health information, up from 18 per cent in 2007.[45] Over half (54 per cent) of the public say they would find it useful to be able to book GP appointments online, when presented with a list of possible services[46], although just 1 per cent say they have been able to email their GP.[47]

The ability to gain access to unprecedented amounts of information, interact with organisations and share experiences with others has transformed the power relationship between organisations and the customers they serve. Individuals are now able to source, validate and respond to information that was previously not available. The rise of blogging, wikis and social media enable a more dynamic model of information sharing and content creation based on collaboration, interaction, social sharing and rating.

For marketers and service providers looking to build and sustain relationships with customers and consumers, developing a digital engagement strategy is now a business necessity. Customers are increasingly expecting 24-hour online access to information and services, which has led to the transformation of some industries, such as retailing and banking, from nine to five offline organisations to 24-hour online digital organisations. The younger generation, termed 'millennials' by marketers, are 'digital natives' representing a new generation within society who have grown up with digital services and an expectation that digital services will be available at all times.

In a bid to mitigate the 'digital divide' concern, NHS England, in 2013, set an ambitious plan to open up access for 100,000 citizens to digital technology to improve their health.[48] This has involved establishing a partnership with the Online Centres Foundation (who to date have trained over 1 million people in web access skills) to fund existing UK Online Centres to train people to manage their health and wellbeing over the internet.[49]

Transformation story: retail banking

In order to contextualise the journey ahead for the NHS, it is perhaps helpful to consider the experiences of other sectors which are further down the road. What follows is a case study of how another sector, retail banking, when facing similar issues – a need to reduce costs while handling sensitive information in a highly regulated environment using legacy systems – embraced new digital ways of serving customers and the general public.

Banking services have traditionally been organised around different product lines with customers interested in different banking services, such as mortgages or investments, typically transferred between different specialists.

Over time, pressure to reduce costs and hit operational targets resulted in a loss of personal service and the adoption of formulaic customer service with key investment or lending decisions referred to central functions, often to the frustration of customers.

Digital provided banks with a disruptive new service platform, which has both driven and enabled them to rethink how they deliver services and support their customers. It has helped banks to make a major philosophical shift away from delivering siloed products to helping customers improve the management of their personal financial health.

Retail banks across Europe have made great progress in transforming to digital and are currently personalising services that are easier, more convenient and simpler to use than ever before. Online banking initially offered retail banks an opportunity to take away some of the hassle of unnecessary travelling to undertake routine banking transactions and account management activities. It is now set to transform banking from a largely offline nine to five weekday service to a 24-hour personal financial management service.

The three stages of digital transformation

Digital access: the first and easiest step in the journey to digital transformation was to provide digital access to existing services. Adding a digital channel to the bank's face-to-face and telephone banking helped customers to access standard account functionality, such as checking balances, making payments and viewing statements. It also supported email and 'chat' customer service as well as basic product information to market other bank products and services to customers. Customers were able to gain access to existing siloed banking products in ways that suit them, which resulted in some 'channel shift' as customers started using online channels to self-serve rather than rely on (more expensive) face-to-face and call centre transactions.

Integrated services: most banks are now on the second stage of transformation, which involves integrating product silos into an integrated and joined-up experience for customers. Integration can either combine existing stove-pipe services into a common interface, or go beyond this to also provide management tools such as financial dashboards, planning tools and event notification. Integration also enables customers to use different channels of choice (such as online, chat, telephone) at different stages of a continuous financial journey, which helps the bank to deepen their customer relationships (through customer satisfaction) and helps the bank improve debt and risk management.

Personalised banking services: the third stage of transformation – the most profound – reconceptualises the customer relationship. The shift from selling products to understanding customer goals and helping them to achieve them while maintaining overall financial health. UK retail banking is now building financial plans with customers based on life stages and personal goals. This enables relevant services and information to be tailored and delivered to customers avoiding traditional push-marketing campaign approaches.

Deeper customer needs analysis is supplementing 'big data' analysis to better understand how to develop and prioritise future products and services. This is enabling banks to understand the wider finance-related objectives customers are trying to achieve and identify new opportunities to improve the customer experience even further. For example, some UK retail banks are redefining the mortgage market as the 'moving house' market, enabling them to collaborate with other services, such as house search tools, property wish lists and custom 'cost of living' calculators, to help customers with a wider set of additional needs related to the objective of moving home.

Applicable lessons for the NHS

In this journey of digital transformation, it has been essential for banks to develop new capabilities and competencies. Customer-centred service design has required a fundamental shift away from a product-based service delivery to a customer needs-led approach, alongside a need to develop new business capabilities in 'next generation' banking. The lessons from retail banking show that any healthcare organisation serious about digital transformation will need to ensure it invests in developing those new capabilities and competencies among the workforce.

In addition, banks, retailers and service providers in many other sectors recognise the huge additional capabilities smartphone, tablets and well-designed apps have over the traditional internet portal model. Many leading public-facing organisations are now moving to 'mobile first' digital strategies where new digital services are designed and optimised first for mobile and then for fixed internet. Mental health service users come from all demographics so it will be important to support both fixed and mobile internet channels, but a mobile first approach should inform the overall strategic approach.

"The lessons from retail banking show that any healthcare organisation serious about digital transformation will need to ensure it invests in developing those new capabilities and competencies among the workforce."

Research insights: gaps, challenges and the way forward

This chapter sets out the insights we gained from research carried out in support of this report. The research included a survey of MHN members, a series of semi-structured interviews with stakeholders and a half-day workshop held with service users and professionals across a local health economy.

Methodology

This report was developed utilising a mixed methodology combining:

- desk research
- a series of interviews with key figures in the field
- a workshop involving professionals and service users across a local health economy
- a survey of mental health providers.

Desk research involved reviewing and summarising relevant Government publications, documents from NHS bodies, academic publications and reports from other organisations in the mental health sector.

From 2 September to 2 December 2013, 30 semi-structured interviews took place. We spoke to a broad spectrum of people, including national and local strategic leads as well as service users, front-line staff, people working for SMEs (small and medium sized enterprises), the pharmaceuticals sector and the voluntary sector.

In parallel, a survey of MHN members was carried out from 11 November to 10 December 2013 to determine how technology was being utilised in the design and delivery of services, as well as plans for the future. The survey was distributed to all 64 organisations in membership, and 15 responses were received.

In October 2013, a half-day workshop with the Leeds and York Partnership Foundation Trust and local mental health 'ecosystem' members (including service users and voluntary sector partners) was held to understand the barriers and enablers involved in developing a healthy culture towards using digital in the design and delivery of mental health services. The workshop was attended by 13 people, including experts by experience, representatives from local voluntary sector organisations and healthcare professionals from local providers and commissioners.

Provider survey

A short online survey was distributed to all 64 organisational members of the MHN, representing the vast majority of NHS trusts and foundation trusts providing mental health services in England, as well as a considerable number of independent and third sector providers. Responses were received from 15 organisations – an overall response rate of 23 per cent of our member organisations. Individuals who responded included chief executives, medical directors and directors of IT.

In terms of explaining this low response rate, one might speculate that given the survey was distributed to senior-level contacts, including chairs and chief executives, this was simply a reflection of current organisational pressures and priorities rather than a lack of interest in the subject. While this number of responses is relatively low, and therefore we should be wary of extrapolating too much from the data, the survey provides some useful insights into the level of digital maturity that currently exists in the sector.

Current use of digital to engage service users and the public

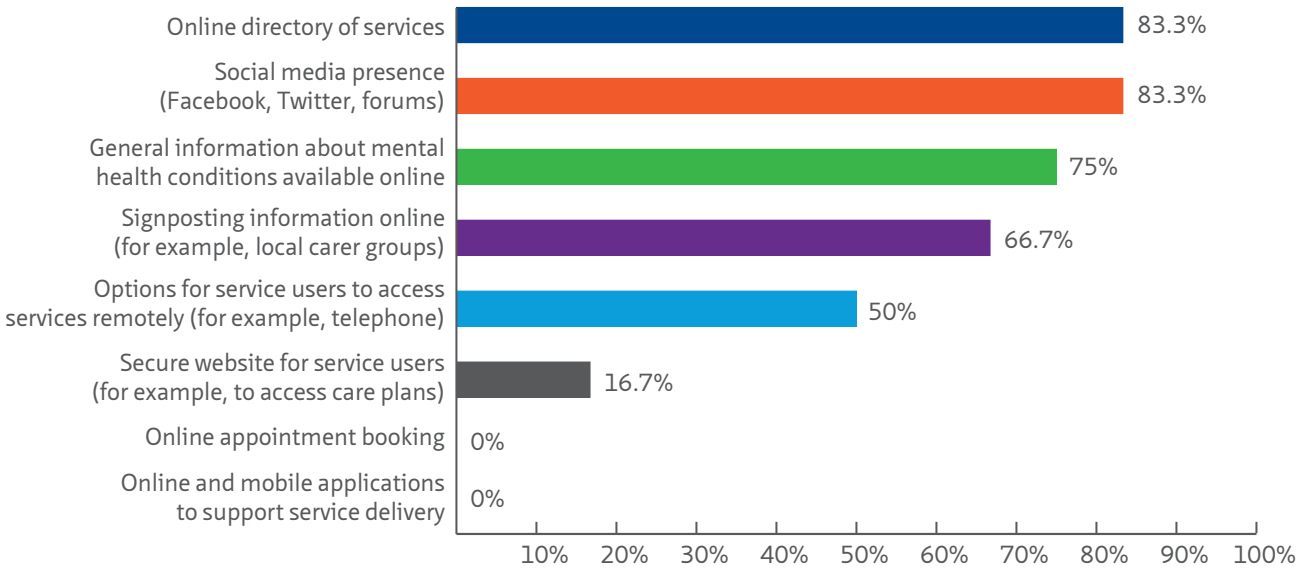
When asked how their organisation currently used digital technology to engage with service users and the public, 83 per cent of respondents to one question said they provided an online directory of their services, and 75 per cent said their organisation's website provided general information about mental health conditions. Sixty-six per cent said they signposted information online, such as the contacts for local carer groups. Fifty per cent said they provided options to access services remotely, for example, by telephone. None reported that they enabled online appointment booking, and just 16 per cent said they provided a secure area for service users to access their care plans online. The responses to this question certainly illustrate that, in terms of digital maturity, mental health services are – in general – at an early stage of development. Few providers appear to be fully exploiting digital technology to realise efficiencies and deliver services in a markedly different way (despite it being a small sample to draw conclusions from). When asked to comment on their answer, one respondent said: "I would explain it as severely limited currently, but we have ambitious plans to turn this around. Our number one organisational aim is to improve upon the patient experience."

Respondents were then asked whether their organisation had any plans to expand their use of digital technology as a means of engaging with service users and the public. The answers to this question seemed to indicate an appetite to making greater use of technology in the future. Seventy-three per cent of respondents to this question said they had plans to enable online appointment booking and 82 per cent said they had plans to use online and mobile apps to support service delivery.

Respondents were then asked if their organisation currently did not provide remote access to services, whether they had any plans to do so in future. Almost all responded that they did, although some said this was not on the immediate horizon.

Considering using digital as a channel for delivering services, respondents had very clear ideas about what benefits this could bring for service users and the public. One respondent said benefits would include "accessibility, efficiency, improved self-monitoring and outcomes (and) engagement in recovery". Other comments included "better efficiency and access into appropriate care", "reduced travel time, improved access", "convenience" and "helps users and carers to be more in control of treatment".

Figure 1. How do you currently use digital technology to engage with service users and the public?



On the whole, respondents were very clear that they did believe digital technology could help their organisation to deliver more integrated care. Sixty-seven per cent said they agreed very much with that, 25 per cent agreed to some degree and 8 per cent were not sure.

A number of respondents outlined various plans and projects happening in their organisation relating to digital. One respondent said: "Like many NHS trusts, we have suffered a great deal of disruption/confusion over IM&T plans (for example, NPfIT) and a low level of investment. However, we have recently agreed a major investment and IT transformation plan with the board, which allows us to completely replace our ageing infrastructure". One said their organisation was "investing nearly £1 million in mobile technology that will be used in the clinical environment, IT and estates". Another respondent detailed a particular project aimed at facilitating better support for individuals in need of ongoing care. Respondents were asked to detail what national support might be useful in this area. Responses included are listed below.

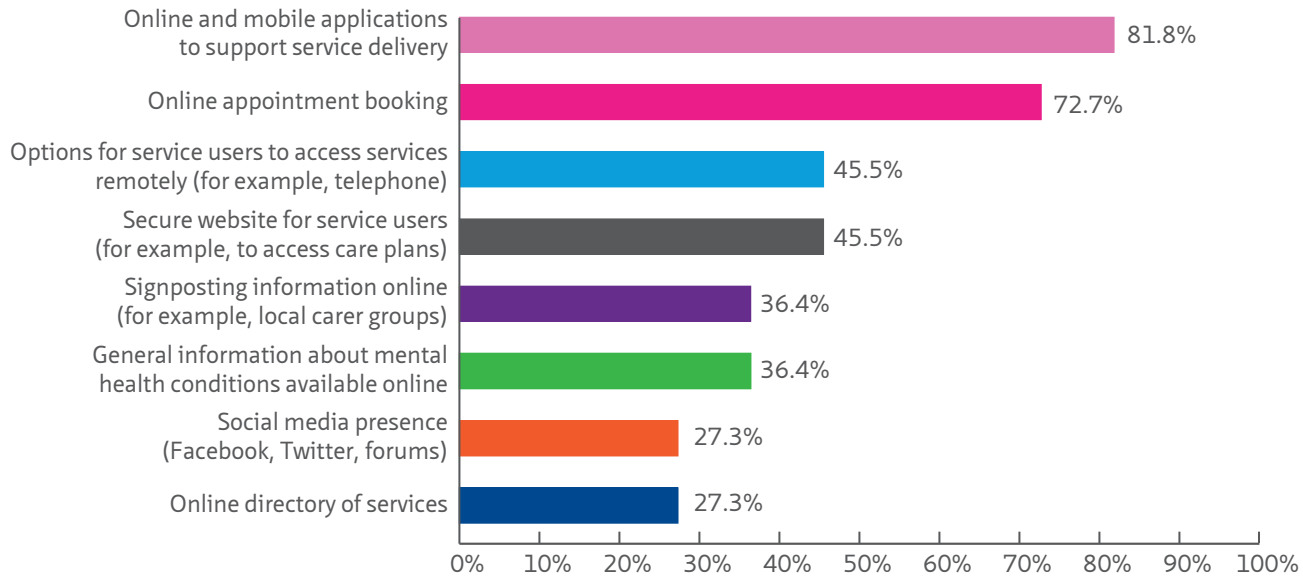
- "Guidance and examples of trusted evidence-based/evaluated innovations".
- "Agreed national common assessments without copyright problems".
- "(i) Resurrect the strategic 'glueware', which was evident through SHAs and PCTs. It's all very laudable to expect a bottom-up approach, with CCGs leading, but CCGs are still relatively embryonic and have other priorities to address. Meanwhile, we have the NHS providers in competition with each other and in respect of their IM&T, they're dividing it up and exacerbating any opportunities to interoperate and share.

  (ii) Regular newsletters and regional meetings for information exchange.

  (iii) Best practice website or similar where we can all have a single view of who's doing what and prevent the wastage associated with continually reinventing the wheel.

  (iv) Central approach to a number of procurements so we can prevent suppliers for continually ripping off trusts and taking tax payers money."
- "I believe that there are three key benefits to technology in healthcare. Firstly, using information (technology) to improve quality and evidence-based treatment: using IT systems to improve compliance

Figure 2. Does your organisation have any current plans to deploy or expand deployment of any of the following as a means of engaging service users and the public?



with external clinical standards – Smart Forms and templates, e-prescribing, care plan library and templates. Secondly, improving performance through practice-based evidence: using our own data, through the data warehouse and portals, to improve care and facilitate research. Thirdly, to facilitate service user/carer collaboration: using IT to allow access and input to their care records and outcomes, and to give feedback on the service. It would be useful to set out a national framework around these three, to set out a roadmap for services to follow."

- "Mandated use of NHS number in all providers from every sector."
- "Ongoing forum and shared resources for organisations to use to enhance practice stops duplication, unnecessary reinvention."
- "Links with databases, i.e. GRiST mental health risk assessment, provides a more structured approach to risk nationally – joined up but not breach of confidentiality."

Respondents were also asked to identify what barriers existed that were hindering greater use of digital technology. Responses included "financial constraints" and "investment", "problems with IT supplier", "connectivity" in rural areas, competition having unintended consequences in terms of shared infrastructure, "IT literacy" of staff and service users, and "interoperability".

In summary, while the response rate was relatively low, the survey does provide us with some useful indications of the level of general digital maturity already in the system. While this is an area providers are looking to make improvements, and many have plans for the future to enable practical development like online appointment booking, progress is not keeping pace with wider technological and behavioural change. There were themes evident in the responses about what would be helpful at a national level, namely information sharing and networking, and some sort of national framework. A number of respondents also raised concern about unnecessary duplication, which is a theme we will return to in our recommendations.

Stakeholder interviews

From 2 September to 2 December 2013, 30 semi-structured anonymous interviews took place. We sought to ensure that the sample covered an appropriately broad spectrum of perspectives, including national and local strategic leads as well as service users, front-line staff, members from the digital SME community, the pharmaceuticals sector and the voluntary sector. We were keen to speak to as broad a range of people as possible to uncover as many examples of how digital is being utilised as possible – much of which is covered in the next chapter. We were keen to understand a range of views on the gaps, challenges and perceptions about the best way forward, in order to ensure our recommendations are grounded by the experience of the people we spoke to.

A number of common themes were evident from those conversations.

A clear need for change

It was clear from those interviewed for this report that the need to change, and make better use of technology in the way we design and deliver services, is widely accepted among senior NHS leaders. As one interviewee stated, this is an opportunity to provide something that "people want that is very different from what we are currently providing. Increasingly, there is a desire for apps and social media tools that reflect the new digital lifestyle culture." A senior clinician told us that "society is moving towards a digital way of living... constant access and (quality) connection will become the new model and new paradigm." Another senior NHS leader expressed some frustration that assumptions made about the lack of access for some groups is being used as an excuse to hold back. They also talked about the need to "challenge internal assumptions of the digital divide as an excuse to hold back".

Supporting recovery and culture change

A further theme apparent from the interviews, and picking up a theme from the MHN's 2013 discussion paper,[50] was the importance of enabling service users to take charge of their own recovery, and supporting culture change within services in support of this. Another senior NHS leader said: "We must move away from long-term condition engagements being shaped

around clinical frame of reference to one based around what the patient wants as their outcomes or life goals... how do we help them live the life they want to live?" A number of interviewees picked up on this theme and discussed the potential of digital technology to support such change.

One service user said: "We need to be harnessed in to our support and not paternalistically controlled". One clinician said: "There are many people out there managing ok day to day, but who sometimes have a crisis where they need some tools that can provide support rather than actually requesting a referral to official support."

One clinician spoke about the importance of peer support for recovery, and the potential of online forums for enabling this. They said: "I personally think that prescribing access to online forums as part of the treatment would be great as it plays a huge role in helping patients feel they are not alone and learning tips and techniques on how to live and manage with specific mental health conditions."

Public mental health

A number of interviewees discussed the opportunity presented by digital to promote better public mental health and wellbeing. Engaging members of the public outside of statutory care, who have questions and concerns relating to mental health, online offers a transformative, scalable and low-cost opportunity to make an impact on the overall wellbeing of the population.

One senior academic told us: "We need to change the terminology to be more wellbeing oriented. It's about shifting the frame of reference to one based on how to become a better you and less about preventing sickness. It needs to be a conversation based on empowering and enabling and not a disempowering narrative based on fear."

Interviewees

Development manager, national charity
Chief executive, digital healthcare consultancy
Director, academic health science partnership
App developer working with the NHS
Medical director, independent sector provider
Head of joint commissioning, county council
Research manager, national charity
Senior clinician, national health body
Consultant psychiatrist, NHS foundation trust
Head of department, pharmaceutical sector
Clinical lead, NHS organisation
Research manager, national charity
Digital services expert
App developer working with the NHS
Consultant psychiatrist, NHS foundation trust
Senior director, national health body
General practitioner
Deputy director, government department
Director of policy, national charity
Chief clinical information officer, NHS foundation trust
Chief executive, national charity
Commissioning manager, county council
Commercial trial leader, pharmaceutical sector
mHealth programme director, NHS foundation trust

Alongside this group, some of whom also identified as current or past service users, we also interviewed six additional experts by experience.

Avoid creating a new silo

Another theme which emerged from the interviews was how digital should be appropriately used as part of redesigning services and care pathways. However, it needs to be incorporated from the early stages of design with the right partnerships, rather than as some form of 'bolt-on', which runs the risk of becoming a service silo in its own right. One NHS leader stated: "If we just add digital to each part of the existing system, there is a big risk of creating a new world of online digital fragmentation of what we already have. We owe it to service users and to the improvement of the system to think better and deliver more than that – there is a real transformative opportunity here we need to capture."

Leveraging digital into user-centred approaches to redesigning care pathways is key. It is important to focus on understanding the needs and expectations of the intended user audience from one end of the journey to the other. In a digital world, this imperative ensures the technology serves the audiences needs in an efficient, engaging and satisfying manner. When user experience designers talk of creating 'delight' in their users, they are attempting to generate highly satisfying experiences users would wish for as they traverse the technology functionality. One NHS leader said: "I would build a service based on hope. People would be at the centre of the services provided and be key to their design."

Difficulties identifying and spreading good practice

An additional theme evident from the interviews was that providers of mental health services, in general, are having some difficulty in identifying good practice that could be adopted in their own organisation. One interviewee suggested it might be helpful to hold "more forums and events to bring people together to investigate ideas and opportunities (although) it is hard to do so as there are so many stakeholders involved." A senior NHS leader said: "Extending best practice across the system is a key and perennial problem, so how do we recognise where good practice exists and how do we make good happen everywhere?"

Difficulty selling into the NHS

A theme from discussions with developers was that they commonly struggle in terms of how to sell in to the NHS. It is also noticeable that a number of large multinationals with an interest in this field have exited the UK market in recent times.

Lack of clear evidence

A number of interviewees discussed the challenges around proving what works. One academic said: "An evaluation process for digital pathways is a key priority if we are to determine the true benefits of digitally enabled interventions... (thus) we need to start educating and engaging the NHS into the potential for online digital pathways for improving mental health problems."

A common point often heard about digital innovation is that technology is changing too fast to be able to make use of traditional, slower, evaluation methods. The biggest advance here would be a consensus about what constitutes evidence for efficacy for digital health innovations. There is an accepted proof of concept route for new drug treatments, psychological treatments and service-level interventions, through theory-driven development, pilot testing then randomised controlled trials. There are four practical reasons why there are problems with using this approach in evaluating digital health innovations: the time it takes to run randomised control trials, the costs of doing so, issues with access to clinical populations, and regulatory frameworks. There is currently no single point of entry for the developer community, nor NHS organisations to go to for advice and best practice resources for designing and delivering evidence-based digital health interventions.

Potential professional resistance

A number of people discussed fears that some professionals may have within mental health services. As one interviewee acknowledged: "Many physicians think digital health will make healthcare roles obsolete – this is not the case. On the contrary, it will be complementary to healthcare provision, enabling higher quality and consistency and will facilitate an increasing number of touch points while decreasing costs. This will be extremely beneficial to the NHS."

Integrated pathways

Some interviewees talked about the need to think about the place of digital services alongside face-to-face contact. One clinician said: "Any digital service would ideally need to be seen as part of a face-to-face programme, as we can't step down people to digital-only services without some degree of face-to-face continuity."

Finance and commissioning

A number of interviewees discussed finance and investment for leveraging digital, which can sometimes be lacking. A commissioner said: "Financing digital initiatives will be interesting. I can see that there could be the need for new forms of 'transformational funding' and even QIPP funding levers we can use."

The landscape for commissioning digital services was frequently noted as being difficult to negotiate without a framework or model to reflect against. One commissioner said: "There is anxiety around commissioning digital services as no one is clear about what works for patients: how patients will use these services, how they will be supported, what the best business models are. People seem to want to do spot trials rather than roll-out services at this stage."

Data

It is commonly said that mental health as a sector lacks consistent measuring of comparable outcomes. Making better use of technology could potentially make the collection of relevant data easier, and allow for greater comparison and accurate measurement of outcomes. As one senior NHS leader stated: "We also need to focus on the benefits that digital brings us in terms of data. If we can track and capture this data, we can use it to drive both quality improvement and value-based commissioning improvement, but this will require us to develop capabilities to analyse 'big data' much better."

Another senior NHS leader said that for NHS England "we want to improve the quality of information for service users, providers, carers. We are starting to produce quality information and want to work with all providers in statutory, voluntary and private sectors to enable step change in the delivery of better information... (and) we need much better communication – building and communicating resilience, mental health and wellbeing advice."

Safety and evaluation

Information governance and patient safety in the development and application of digital products and services currently lack a coherent framework in the NHS, yet it is vital for the development of a mature and trusted marketplace of high-quality products both for mental health and health delivery at large.

"Information governance and patient safety in the development and application of digital products and services currently lack a coherent framework in the NHS."

Workshop insights

On 31 October 2013, 13 people attended a half-day workshop, hosted at the University of Leeds and run in conjunction with Leeds and York Partnership NHS Foundation Trust. We are grateful to all those professionals, clinicians, local voluntary sector representatives and commissioners who participated. We are particularly grateful to Victoria Betton, then deputy director of partnerships and innovation at Leeds and York Partnership NHS Foundation Trust, for hosting the event.

The aim of the workshop was to assist us in developing our own understanding of how digital technology is being used by service users, professionals and others, and how it could be used in the future.

Participants in the workshop were positive about the opportunities for changing the way services are designed and delivered, and for improving the support available for people to manage their own mental health. Participants were also keen to discuss the opportunities presented by digital for better self-management and peer support.

The workshop discussion explored a number of important themes. Many of those themes echoed views expressed by our interviewees, and are summarised below.

Barriers to progress

Workshop attendees were asked for their views on what currently was holding back progress in terms of moving to a new model of care. One particular theme that was evident was the concerns over what would be lost – "maintaining the unique value of face-to-face" contact was thought to be important, as well as some cynicism that change could be viewed as an excuse for removing services. One attendee said there was a real need to "overcome the fear of change." Other attendees mentioned that the scale of recent NHS reforms had led to fragmentation and time lost trying to understand how the new system works. It was notable that some of the views expressed were very similar to the views of our interviewees, particularly around the way developing digital services could be viewed with some cynicism as a way of reducing face-to-face services. One participant suggested that in shifting culture and attitudes, it will be necessary to avoid promoting what could be criticised as a "binary idea" of digital versus real world, and rather to "promote a complementary approach."

Assessing quality

Another theme from our interviews was of quality and the trouble people have assessing whether particular tools or applications are both safe and effective. This was raised by a number of people at the workshop. When talking about self-management, one participant asked who was responsible for gathering evidence about what is effective.

Workforce

Workforce was a very strong theme from the discussion, again as it was in our interviews. For many people with an interest in e-mental health, there is a real concern about the capacity and capability of the workforce to keep pace, and a major development need. For example, in the workshop a number of people said developing the understanding of clinical staff around mHealth apps, in order to support advising and guiding their usage, was an important area for future focus. Others mentioned the need for clarity around policies for clinical staff in this area, and some attendees said that they thought there was a "cultural resistance" among some staff towards digital, and it was important to tackle their perceptions about digital being a threat.

"For many people with an interest in e-mental health, there is a real concern about the capacity and capability of the workforce to keep pace, and a major development need."

Practical ideas

Our workshop participants put forward a large number of practical ideas for promoting change. One suggested that there should be pilot sites established to test digital approaches to delivering elements of mental health services with healthcare professionals and service users.

Sharing information was a common theme apparent in the group's suggestions. Focusing on their local area, one suggestion was that there should be a concerted effort to share information about the digital services and resources available across Leeds. Another said that a guide should be produced, aimed at ensuring people know what to look for when they use a digital tool or application.

Another theme was building evidence. One participant mentioned, building on the evidence challenge, that there should be a research group established to trial applications. Another suggested that existing organisations, such as NHS Choices, should fund evaluation programmes for digital tools and applications.

In terms of self-management, one participant asked whether an online portal of mental health advice could be funded and developed – a Talk to Frank equivalent for mental health – which could provide advice on symptoms and how to access services.

Workshop attendees

Our workshop was attended by representatives from Leeds Involving People, Leeds and York Partnership NHS Foundation Trust, Leeds Mind, Leeds North Clinical Commissioning Group, University of Nottingham, Leeds Community Healthcare NHS Trust, as well as experts by experience.

Case studies in e-mental health

One of the key questions this report set out to address was to assess how digital technology is currently being used in the design and delivery of mental health services. This chapter aims to illustrate the range of ways in which digital technology is being leveraged in this way, both in the UK and abroad.

The examples presented in this chapter were identified in both desk research and interviews. Their inclusion is not an endorsement of the products, nor any judgement on their effectiveness, but to illustrate the breadth of applications and tools currently in use.

Health apps

Commercial app stores, such as iTunes and Google Play, have an abundance of health and mental health apps available to individuals.[51] It is estimated that there are 100,000 health apps available in major app stores, and it is said that medical apps have generated more than three million US downloads on IOS alone.[52] There is little in the way of a quality filter, or regulation, other than user reviews, applied to the apps available on these stores, so making a judgement about quality is difficult. There is also limited access to useful, underlying data about total numbers of downloads and so on. The quality of content is variable and is not measured against any type of crystal mark for clear, understandable content nor for the clinical quality of the functionality. Later, we further explore some of these questions relating to governance and safety.

Apps with a mental health focus appear to fall into four broad categories. The first group are apps that provide general information and signposting. These include some apps that provide a directory of services. Other apps are characterised by their focus on lifestyle and wellbeing support, including tips on techniques such as mindfulness. A third category includes self-help support targeted at people with specific conditions. The final grouping are apps designed to integrate with clinical services in some way, and facilitate some two-way communication with a mental health service.

We reviewed what mental health apps were currently being promoted (as at December 2013) in the NHS Choices app library (**www.apps.nhs.uk**) and the recently launched My Health Apps library (**www.myhealthapps.net**) from Patient View (**www.patient-view.com**).

In total, 87 apps were available across the two libraries, some free and some paid for. Some apps are promoted in both libraries, bringing the actual number closer to 70. Only one, the NHS Choices Healthy Living app, is an NHS-branded app. One might wonder why this is, given we know there are a number of NHS-branded apps in use currently, including Wellhappy and MyJourney. Other mental health apps available on the NHS Choice app store include The Mental Elf, a research resource, Mindlogr, a private video logging tool, and Psychology Online, an eCBT tool.

Buddy app,[53] available through the library, is a high-quality example of a digital tool used to support therapy services. This uses text messaging to keep a daily diary of what users are doing and how they are feeling, helping to spot and reinforce positive behaviours. Although only applied in psychological therapy services, the capability of the app is wider and developers are looking at adapting Buddy for long-term conditions where there is a link between lifestyle behaviour, physical health and mental wellbeing. As in all cases of digital interventions, it is desirable to understand the benefits and impact. This often becomes a difficult exercise, especially as the impact can occur downstream in terms of years or in another care environment. Moreover, the impact may actually only be identified outside of the health setting, such as improving a person's ability to make economic contributions, through improved health.

The only apparent source of governance guidance comes from the NHS app library, hosted on NHS Choices and involves an evaluation process to ensure that each app is relevant to people living in England, sources content from a verifiable or trusted source and complies with the Data Protection Act to ensure personal data is held and used appropriately.

Clinical safety is evaluated in partnership with developers by examining what apps are used for and the risk to patient safety, but NHS Choices states that it cannot guarantee that any app is 100 per cent safe.[54]

Social media and health

Social media is being used in a variety of different ways in this space. Firstly, individuals are using social media to blog about their personal experiences. Users such as Jonny Benjamin (**@MrJonnyBenjamin**) use social media as a way through exploring and communicating personal experiences. On the professional side, **@mentalhealthcop** blogs about his experience as a front-line police officer.

Notably, social media is being used effectively for facilitating self-support and peer networking. On Twitter, for example, users are able to build networks of people interested in similar topics to themselves. A large mental health community exists on Twitter, including professionals and service users (and, of course, those who would count themselves as both). It is notable how that community organically self-organises, including through the use of weekly and monthly tweetchats on a variety of mental health related topics, from mental health nursing (**#MHNurChat**) to living with borderline personality disorder.

Twitter has become a leveller for service users and professionals to connect and engage with one another as well as with peers, although this can come at some risk. From the professional's perspective, it is important to be able to safely switch off from any level of engagement in a public forum. From the user's perspective, it is important to be able to find someone who can help at a time of need. These requirements can be supported and contained in different ways. Big White Wall[55] operate a 'closed garden' for their service users, where they can share views and develop user-generated content in a safe and moderated environment. Moderators, known as Wallguides, observe activity and identify early indicators of concerning behaviour to ensure service users are not putting themselves or others in physical or online risk. The service operates on a 24-hour basis by employing Wallguides in New Zealand.

More subtle levels of support exist between The Samaritans and Facebook, whereby risk behaviour, such as keyword 'flags', trigger messages from Facebook moderation algorithms suggesting members may want to speak to a Samaritan volunteer about their concerns.

Creating a 'social currency' across digital – enabling citizens to share their health experiences with other service users and carers – is an evolving phenomenon worldwide. Numerous peer engagement platforms operate with well-established user populations such as PatientsLikeMe, Health Unlocked, Patient Opinion and Care Pages, which are experiencing large volumes of user engagement; Health Unlocked claims to be the most used site in the UK with over 700,000 visits per month.[56]

These sites provide a social platform, allowing users to compare their health information with others, as well as monitor moods, talk about symptoms and discuss treatment side effects.

These are engaged audiences and how they evolve their habits and make the technology work for them, as well as how they interact with others in their virtual ecosystem, has the potential to be rapid.

It is fair to say that social media is now an established environment for generalist and peer-to-peer interaction. What's also notable is how research in social media is not only evidencing its value and reach across audiences, it is also gathering the insights and evidence to provide guidance on how to use social media effectively. *Social media: a review and tutorial of applications in medicine and health care* concludes with the following four principles to help clinicians mitigate risk during social interactions:

- maintain professionalism at all times
- be authentic, have fun and do not be afraid

- ask for help (from the peer community on social media)
- focus, grab attention, engage and take action – the dragonfly effect model.[57]

How is digital being used to support better mental health internationally?

Moodgym (AUS)

Moodgym is an interactive web programme to help users develop cognitive behaviour therapy (CBT) skills. It consists of five modules: an interactive game, anxiety and depression assessments, downloadable relaxation audio, a workbook and feedback assessments. Using flashed diagrams and online exercises, Moodgym teaches the principles of CBT. It also demonstrates the relationship between thoughts and emotions, and works through dealing with stress and relationship break-ups, as well as teaching relaxation and meditation techniques.

Mood Rhythm (AUS)

Mood Rhythm is a mobile app that helps service users with bipolar disorder monitor and analyses their daily rhythms to help them stay balanced. It utilises built-in smartphone sensors to track daily routines, providing feedback to help services users maintain a regular daily rhythm while incorporating this information into clinical decision-making. The components tracked include sleep, exercise activity, social behaviour, mood, meals and energy use.

My Health Manager, Kaiser Permanente (USA)

Kaiser Permanente's personal health record, My Health Manager on **kp.org**, connects members to their healthcare providers and their health information. More than 4.4 million members are registered to use My Health Manager, which enables members to access their health records, view lab test results; email their physicians; order prescriptions; make, change and cancel appointments for themselves or for family members.

So far this year, members have used My Health Manager to:

- view more than 26 million test results
- send more than 11 million emails to their care providers
- refill more than 10.8 million prescriptions
- schedule more than 2.8 million appointments.

The mobile app version of My Health Manager has been downloaded more than half a million times on iPhone and Android devices.

For more information, see **https://healthy.kaiserpermanente.org/health/care/consumer/my-health-manager**

Veterans Affairs (USA)

The Veterans Health Administration (VHA) within Veteran Affairs (VA) has been providing technology-enabled mental health services for its members for a number of years, and operates a healthy ecosystem of both health and wellbeing smartphone apps and remote telemental healthcare. Telemedicine has been in use since 2000, but it was only in 2011 that VA introduced a programme of remote mental health support, which targets over 200,000 sessions annually. The evidence from analysis of patient data indicated that there were significant business benefits with a 20 per cent reduction in hospitalisation and the average length of stay was reduced by 25 per cent.[58]

In the apps arena, the VA has ten apps serving the service user audience:

- PTSD learning resource, including portal access for peer support, self-help tools for PTSD self-management, relaxation and positive thinking and self-help strategies
- a telehealth service linked to the American Well telehealth platform supporting remote mental health provision, cancer care and remote post-operative support
- ER mobile triage for clinicians to determine the urgency of attending patients

- carer support – self-assessment tool to help carers manage their responsibilities and reduce stress levels through relaxation techniques, breathing exercises, visualisation and social interaction
- healthy advocate – supports veterans to authorise their chosen health advocate to access and share their health records on their behalf
- health assessment – helps veterans to take health and wellbeing assessments for sharing remotely with their care teams
- journal – allows veterans to record activity levels as well as some biomedical markers such as blood pressure and heart rate, which can be shared with care teams
- reminders app for care teams to plan reminders and notifications for veterans
- pain coach – tracking pain, self-assessment and plan pain management
- prescriptions re-ordering along with medications support and information
- summary of care – provides veterans and caregivers the means to see lab results, medications, allergies, information on past and upcoming appointments, progress notes related to clinic visits, hospital discharge notes, and radiology results
- Prolonged Exposure Therapy – used during psychotherapy sessions. The app has tools that should be worked through by a veteran and his or her psychotherapist to reduce anxiety or fear resulting from PTSD
- CBT-i Coach teaches veterans about sleep, how to develop positive sleep routines, and how to improve their sleep environments
- Psychological First Aid (PFA) – provides users with summaries of PFA fundamentals, PFA interventions matched to specific concerns and needs of survivors, mentor tips for applying PFA in the field, a self-assessment tool for readiness to conduct PFA
- Stay Quit Coach – offers smoking cessation treatment for veterans with PTSD, helping users to create quit plans based on personal reasons as well as providing quitting advice and interactive tools to help with urges.

Automated assessment for depression using Twitter (USA)

The Centre for Statistics and the Social Sciences at the University of Washington are investigating using artificial intelligence to assess Twitter feeds to identify if an individual is at risk of depression, based on multi-dimensional analysis of what they talk about, their frequency of use of Twitter and references to medication.

Compared to non-depressed user samples, they achieved a 70 per cent success rate in identifying depression and severe depression. The tool has some way to go as it still generates 'false positives' in about 10 per cent of cases.

eHeadspace (Australia)

eheadspace provides online and telephone-based support and counselling for young people aged 12 to 25. The confidential, free and anonymous service allows young people to chat or email qualified youth mental health professionals. Workers are experienced youth mental health professionals, including psychologists, social workers, mental health nurses and occupational therapists. Young people are encouraged to use eheadspace if they are worried about their mental health, drug or alcohol problems, or worried about a friend or family member.

The eheadspace online and telephone support service is operated by headspace, the National Youth Mental Health Foundation. The service is now a national programme funded by the Australian Government, providing services to young people across the country. For more information, visit **www.eheadspace.org.au**

International case study: Veterans Health Administration (VHA)

Background
With a service user population of close to 6 million people, the VHA is organised around a service network model (rather than hospitals) of 21 veterans integrated service networks – or shared systems of care.

What is it?
Within the VHA, the office of telehealth services (OTS) uses health informatics, disease management, and telehealth technologies to support the remote provision of services and improve access to timely care for patients in their homes and local communities. The office of telehealth services offers a programme called Care Coordination/Home Telehealth (CCHT), to provide routine non-institutional care and targeted-care-management and case-management services to veterans with diabetes, congestive heart failure, hypertension, post-traumatic stress disorder, chronic obstructive pulmonary disease and depression. CCHT uses remote monitoring devices in veterans' homes to communicate health status and to capture and transmit biometric data that are monitored remotely by care coordinators.

Impact
In 2010, an estimated 300,000 patients received care across all programmes within the office of telehealth services. CCHT, which targets patients at risk for long-term institutional care (approximately two-thirds of the current CCHT population), currently manages more than 70,000 veteran patients using home telehealth technologies.

The programme has demonstrated successful outcomes. In 2010, veterans reported patient satisfaction levels greater than 85 per cent for home telehealth services offered through CCHT. In addition, the programme was associated with a greater than 40 per cent reduction in bed days of care, as compared with pre-enrolment figures, for the CCHT population receiving home telehealth.

For more information see Broderick, A (2013) *The veterans health administration: taking home telehealth services to scale nationally*. The Commonwealth Fund.

How is digital being used to support better mental health in the UK?

This section takes a closer look at the apps, tools and products available to support improving mental health in the UK, identified through desk research and interviews. For ease of reference, we have broken the examples into three main categories: self-support and information sharing, digitally integrated care and health hubs and ecosystems.

Self-support and information sharing

The first category of examples can be broadly characterised by the term 'self-support', which comprise self-service and self-care tools and platforms. These are generally developed for service users and members of the public but are typically not monitored, moderated or integrated with traditional mental health services or professionals.

Over 20 apps and services were identified in this category. For the most part, they are developed by statutory NHS bodies, voluntary sector organisations, or private sector SMEs. To a lesser degree, academically-led and pharmaceutical app services were also identified.

For a number of voluntary and charitable sector organisations we spoke to, digital technology is applied directly to support their service offering, for example, online communities to support peer networking. Harnessing digital is also an opportunity for voluntary sector organisations to reach new audiences, for example, Mind's Elephant in the Room social media campaign.

Here are some examples of self-support tools and products.

Why does it exist?	What is it?
MOMO Every year thousands of young people have a negative experience of transitioning into adult and leaving care services, with highly negative consequences for individuals.	App MOMO gives young people their own source of advocacy support – an advocate in their pocket. As a mobile app, it helps them to communicate their needs and stand up for their rights, just like an advocate would. This improves the quality of support they receive and helps them build more trusting and effective relationships with professionals.
To find out more about MOMO, visit **www.mindofmyown.org.uk**	

Why does it exist?	What is it?
MyJourney Several of the young people accessing the Surrey and Borders Partnership NHS Foundation Trust Early Intervention in Psychosis (EIiP) service had expressed their wish for a way to identify mental health issues earlier and to have an accessible service on hand. EIiP is an open referral service, so the better the information about how to seek help, the better the chance of being able to intervene early in the course of a mental health problem. Many of the young people said that the journey into the service had been hampered by a lack of relevant and attractive information online. The EIiP website (**www.sabp.nhs.uk/eiip**) had been highly commended with a HSJ award for 'Innovation in mental health'. Young people using the service commented that the website was very useful – when at home and in front of a desktop computer, but that they needed something more accessible on their mobile devices, thus the desire for a mobile app to help them get appointment reminders, medication reminders, track their mood and share the progress they were making with people who they deemed important in their recovery.	The My Journey mobile app was developed in close collaboration with young people accessing the EIiP team to ensure its relevance and acceptability. The app allows the user to: • rate how they are feeling using a rating dial • receive health tips on how to improve mood and possible symptoms of mental illness shown by themselves or others • set discreet and timely medication reminders • get information of the medicine they are taking • set appointment reminders to improve timely access of services and reduce unattended appointments • provide access to help or emergency services via the ICE (In Case of Emergency) function • track their progress as they access treatment. This can be used to help individuals make informed choices about treatment and reinforce healthy behaviours.

Impact

Preliminary findings from a short survey to determine user views on the usability of the app showed that 55 per cent said keeping track of how they feel and their medication usage would be their preferred activity on the app. The wider impact on service delivery can be inferred but evidence has not yet been gathered.

To find out more about MyJourney, visit **www.sabp.nhs.uk/eiip/app**

Why does it exist?	What is it?
Moodometer Emotional wellbeing is as important as our physical health and the more we are aware of how we feel – be it happy or sad – the more we can start to take control of our own health. With millions of people updating Twitter and Facebook statuses with their feelings and moods every day, the Moodometer allows you to do the same but on a more personal level.	Moodometer is a discrete, portable and easy-to-use interactive mood diary that helps you monitor, understand and receive top tips on your emotional wellbeing, whenever or wherever you are. It allows users to rate their mood and track it over time, recording comments in a confidential mood diary. It also provides feedback mechanisms, such as helping users to monitor what influences their mood in order to understand themselves better, receive tips for helping to maintain and improve mood and signpost users to help when they need it.

To find out more about Moodometer, visit **www.2gether.nhs.uk/moodometer-app**

Also under this heading are those tools which provide information and resources. These can include a care component and be part of the provision of a formal service, but more often can be characterised by providing resources to enable self-care.

For statutory providers of services, directories of services are a common offer in this field. These tend to focus on providing a one-stop shop for citizens and patients to access advice on support groups, information signposting, service contact details through to interactive self-assessment tools and personalised wellbeing prescriptions. These knowledge 'engines' survive and serve service users and the public effectively only due to ongoing knowledge collation and curation, while employing advanced governance to monitor quality, relevance and longevity of content.

Here is an example of such an intervention.

Why does it exist?	What is it?	How does it work?
Live It Well Kent's Live it Well strategy (which runs from 2010 to 2015) set out a vision for promoting mental health and wellbeing, intervening early and providing personal care when people develop problems, and focusing on helping people to recover.	Live it Well is the digital outcome for the Live it Well strategy: an online directory. Service users, carers, the public and professionals can use it to source information and advice to help have a fulfilling lifestyle that incorporates the five ways to wellbeing: connecting with people and communities, being active and doing exercise, learning through new interests and past-times, taking notice of life around oneself and giving to others.	With this level of information, Live it Well provides visitors with a list of suitable services that may be useful to supporting their health and wellbeing needs, including a 24-hour mental health helpline, Mental Health Matters, friendship, support and advice from Home Start Medway, Sunlight Development Trust – a community and an enterprise hub with a focus on health and wellbeing. Visitors can choose to add any of these information packs to a digital support basket. A review of the support basket then allows the visitor to produce a combined pdf document with all the relevant information relating to their areas of need and interest.
Impact The running cost for Live It Well is £11,500, with hosting provided by their voluntary sector partner.		
To find out more about Live it Well, visit **www.liveitwell.org.uk**		

Digitally integrated care

Secondly, we have the category of digitally integrated care. This is where digital tools, such as health assessment, care provision, medication monitoring software, are developed with the intention of being used as part of a formal package of care, or enhancing the workflow of an existing service.

From a provider perspective, making the decision to employ one of these programmes or applications usually follows the development of a digital strategy that takes an informed view on the utilisation and scope of numerous contemporary technologies in the context of service delivery, workflow and organisational development.

Alongside that strategy, in-depth workforce engagement is required to make the use of technology a success. This includes identification of relevant training requirements – from basics in internet access, through to integrating personal devices, enabling technology with customised functionality and governance on risky practices, such as staff use of social media.

For much of what needs to be done, a level of courage is required to change the operational paradigm, which does not come without its problems. This also requires undertaking a journey of learning professionally, individually and organisationally on what works and what doesn't.

As an example, Oxleas NHS Foundation Trust has undertaken considerable work to realise the benefits of digital integration. The trust is providing care and support through multiple channels – telecare, remote triage, text and email – and is seeing evidence of cost savings as a result. Workflow enhancements include Blackberry devices incorporating integrated digital dictation technology, which means that dictated letters can be transcribed, quality controlled and returned to clinicians within 24 hours.

Here are some further examples.

Why does it exist?	What is it?	What does it do?
Big White Wall Traditional care support approaches cannot be scaled to meet the volume of demand for either mental health, or co-morbid physical health and long-term conditions. Disruptive healthcare technologies are required to meet demand, expand access, and provide high health outcomes at lower costs.	Big White Wall is a digital mental health and wellbeing service designated as a High Impact Innovation by the NHS. It delivers personalised pathways to provide integrated support programmes for a range of long-term conditions and behavioural health issues through a choice of therapeutic services 24/7 via mobile, PC and tablet. It has contracts covering 24 per cent of the UK adult population.	1) SupportNetwork: 24/7, safe, anonymous mental health support with trained counsellors (called Wallguides) online and on call at all times, who facilitate and moderate the service 24/7. The SupportNetwork includes fully moderated peer support in community, groups and one-to-one, a range of self-help resources, information, and 'brick-making' and 'talkabouts' (visual and verbal self-expression/peer support). 2) Guided support modular programmes, for groups or individuals, designed to address various mental and physical/behavioural health issues, such as depression, anxiety, smoking cessation and weight management. 3) Live support: online synchronous one-to-one therapy using audio, webcam and instant messaging, via a secure platform. Patients can choose a therapist from Big White Wall's experienced therapist pool, or service providers can plug in their own clinicians via a white-label live support platform.

Impact

Evidence has shown its online therapy service achieves a 58 per cent recovery rate (against an average from other therapy services of 46 per cent and a national target of 50 per cent).

To find out more about Big White Wall, visit **www.bigwhitewall.com**

Why does it exist?	What is it?
ClinTouch In the m-mental health revolution, there is a risk that people with long-term serious mental illness are marginalised. Helping these people is core business for mental health services in England, yet health professionals are often sceptical of the relevance of mHealth innovations to people with SMI. People with SMI can sometimes have a poor experience of care, for a variety of reasons. What is needed is an experience of care which is empowering, promotes self-management and has a focus on prevention and recovery.	The main aims of ClinTouch are to enable user self-management, enhance early intervention for problems, and promote recovery. At its centre is an app, which prompts the user to track their own personalised symptom profile during the day, the data wirelessly uploaded in real time to a central server.

Impact

A series of randomised trials has shown ClinTouch to be safe, easy to use and acceptable and SMI users like it. Anticipated benefits are:

- enhanced quality of life for those with psychosis or a long-term condition, through prevention of deliberate self-harm and relapse
- targeted help for people who are recovering from an acute exacerbation of ill health improved self-management better collaborative care
- cost savings (reducing unscheduled admissions to hospital).

A range of modules have been developed, or are in development, such as social networking, diary functions, medication management and side-effect monitoring, early warning for relapse and suicidal ideation, physical health promotion and simple and personalised psychological interventions. Following focus groups of users and health professionals, it is now being built into community teams in Manchester and London for larger-scale evaluation.

To find out more about ClinTouch, visit **www.clintouch.com**

Why does it exist?	What is it?
SystemTDM Service users who are prescribed lithium require ongoing coordinated follow-up and care. Care coordination for these patients between acute and primary care providers can vary.	SystemTDM is an award-winning quality management platform that acts as a recall and reminder service for patients requiring ongoing care, including those taking therapeutic medications. It is designed to allow both professionals and patients to monitor and manage individual care and toxicity pro-actively while also improving patient involvement by providing discrete results access through a web portal. As a software solution, it helps clinicians, GPs and pharmacists to care for patients in a more collaborative and standardised fashion.

Impact

- Secondary care clinicians: quick access to lithium patients' results for appropriate care needs.
- GP surgeries: tailored displays highlighting results, overdue status, and relevant information. Risk reduction through follow-up on potentially problematic results. Performance results. 100 per cent QoF compliance.
- Phlebotomists: up-to-date organisation and verification of patient blood-testing status for practitioners.
- Community/dispensing: a unique development allowing dispensing pharmacists (community and secondary care) or GPs to access results for the purpose of safe supply.

The system is said to be cost effective, and is helping to improve patient care.

To find out more about SystemTDM, email **timothy.anderson@nsft.nhs.uk**

Health hubs and ecosystems

A third area is that of health hubs and ecosystems, where committed collaboration between organisations result in the establishment of some form of structure for support. Commonly organised regionally, these are seen as generative systems, which will include an innovation aspect centred around designing and developing products and services to meet regional needs.

An example of such an initiative is the Leeds Innovation Health Hub (LIHH), which launched in January 2014. This has been set up with the vision to make Leeds, in their own words, "first for health and innovation through the three priorities of improving health and social care outcomes, enhancing Leeds' international reputation as a centre for excellence in health and medical technology and to attract inwards investment and encourage local enterprise in mHealth." More information on the hub is set out on page 41.

Another established ecosystem, the Manchester mHealth Ecosystem, was established in 2011. Serving a population of over 3.2 million people across the city, the ecosystem brings together health and community care providers and commissioners, a leading clinical research network, a world-class research university, city-region government, major international companies and innovative SMEs in a permanent partnership committed to "making mHealth happen."

As of January 2014, 57 businesses and organisations are members of the Manchester mHealth Ecosystem, and from their research has developed ClinTouch, a smartphone app to capture symptom data from service users with serious mental illness in real-time and use this to inform an evolving and ongoing assessment of their symptoms.

"Health hubs are seen as generative systems, which will include an innovation aspect centred around designing and developing products and services to meet regional needs."

Leeds Innovation Health Hub

The mHealth strand of the Leeds Innovation Health Hub will be a virtual and physical space where expertise and resources are developed and shared across the city. Citizen participation will be embedded into the core of mHealth innovations. The mHealth strand will comprise the elements listed below.

- Knowledge and expertise – develop and broker access to expert knowledge on a wide range of issues from intellectual property through to information governance and commercialisation of digital assets; keep up to date with current and developing mHealth solutions.
- Brokerage – broker relationships between patients, carers, citizens, clinicians, academics and developers, which will enable ideas of digital innovations to be developed, tested and realised.
- The lab – develop an mHealth 'pipeline' for project teams to formulate ideas, design, prototype, test, evaluate and deploy using a range of innovation and service design techniques. The lab process will be tested out with a small number of project teams in the first instance, reviewed and refined and then scaled. It is envisaged that the 'pipeline' can be accessed by citizens, health practitioners and developers who have ideas that they wish to test out.
- Business models, funding and procurement – advice on a range of business models for developing and deploying mHealth solutions; broker relationships with developers and develop expertise on appraisal and procurement of existing mHealth products; search for funds that can be applied for to pump prime mHealth innovations.
- Capability building – develop and deliver a range of solutions for building the capacity and capability of patients, citizens and clinicians to engage in mHealth and social media.
- #HSCLeeds – a monthly evening shared-learning event for health and social care practitioners interested in the role of social media and digital.
- Social media cafes – regular drop-in spaces for clinicians to help them develop a practical understanding of social media and digital assets.
- Workshops and masterclasses – workshops for clinical services that enable them to identify how social media and digital assets can improve experience and outcomes for patients as well as improve efficiency of working practices; a series of masterclasses on specific topics with experts in the field on mHealth and social media.
- Training – a social media and mHealth training programme for healthcare practitioners.
- Resources – a continually updated resource for mHealth and other digital assets, which are appropriate for use in clinical services.
- Digital participation – develop, deliver and evaluate means of enabling participation of patients, carers and citizens in social media spaces in Leeds and to reduce the digital divide.
- Digital Festival – play a key role in the annual Digital Festival in Leeds.
- Influencing the national agenda – as part of LIHH, a centre of excellence for digital in health that will ensure Leeds is in a position to influence national policy and strategy and will be looked to for leadership in this field.

Delivery: the mHealth strand of the hub will be established and delivered by a programme director (one-year secondment from January 2014), programme manager (graduate trainee in place until August 2014) and project team co-opted from partner organisations across the city.

Reporting: the mHealth programme reports to the Leeds Informatics Board and the Leeds Innovation Health Hub Executive as well as the URBACT local implementation group.

Recommendations and next steps

This final chapter, concerned with recommendations for action, builds on the information gathered on how e-mental health is currently being used, the insights garnered from the research, and puts forward a set of recommendations for the future.

Firstly, we articulate a vision for where we want to go. Secondly, we highlight a number of specific issues our recommendations are designed to address, and lastly we set out a number of actions to be taken forward by the Department of Health, NHS England, other national bodies, including local providers and commissioners, to make progress in this area.

This is a starting point. Compared with other sectors which have already embarked upon this journey, mental health services – and the NHS more broadly – are behind the curve in fully exploiting the benefits digital technology has to offer. There are some fantastic examples across the country where some truly visionary and passionate individuals are making change happen. We need to learn from them, and start adopting innovations that work. Taken as a whole, we hope the recommendations set out in this chapter will start to make a difference.

A vision for the future

We believe in the potential for digital technology to transform the way people look after their mental health and the way the NHS thinks about the design and delivery of mental health services. There is considerable appetite among mental health services, and the public, to make greater use of technology in this way.

Firstly, we could make more use of digital technology and online resources to support us improve overall public mental health. Everyone should be able to access reliable information about mental health and wellbeing online, and through such portals be able to access help and advice anonymously in a variety of ways (live chat, email, text and phone).

Secondly, the potential for leveraging digital technology better in the way we design and deliver NHS mental health services is huge. This could help us deliver services much more efficiently, and in ways in which, increasingly, the public want. Through technology, we can support the cultural transformation of our services, empowering individuals to take charge of their own recovery. In terms of the future, with individuals able to choose their provider, delivering services in the ways in which a new generation of service users have become accustomed to will become ever more important. This is not rocket science, but clearly will require different ways of working.

In the future, digital technology also presents us with the opportunity to think about how we can integrate services better and move beyond individual service silos – something a number of innovative organisations are already considering. It could also better support cultural transformation, supporting greater self-care and empowering individuals to take charge of managing their own conditions. In the short term, practical actions that existing services could take include:

- enabling service users to have the option of booking appointments online, and receive confirmations and reminders by email and text
- where clinically appropriate, making available options to access treatment and support remotely via phone and video calling
- encouraging and enabling service users and clinicians to make the most of apps and tools to improve outcomes. This includes using programmes, such as smartphone apps, to keep track of medications, symptoms, outcomes and to manage overall health as part of an integrated mental health service. We should be empowering members of the public, by helping to inform them

about what works and what's safe.[14] Where they choose to, service users should be able to share this data quickly, simply and efficiently with the professionals who work with them – enabling our NHS to benefit from this data and work more efficiently.

Turning the vision into reality

To ensure this vision becomes a reality, we need the system to work together to support change. In developing this report, we were keen to explore what barriers need to be addressed in order to do this.

Based on what we found, we believe a range of actions are required from the following organisations:

- Department of Health
- NHS England
- Care Quality Commission
- Monitor
- Health Education England
- NIHR MindTech Healthcare Technology Co-operative
- royal colleges
- health and wellbeing boards
- clinical commissioning groups
- mental health providers.

The actions are based around the following themes:

Strategy – we need a shared national strategy for e-mental health, which meaningfully supports local systems to drive forward change.

Workforce – we need to consider the impact of digital technology on workforce planning. Digital technology is a game changer in terms of how we design and deliver services. The implications for what this means for the knowledge and skills needed from our workforce, from boards, to those leading support functions, clinicians and other professionals on the frontline. This requires action at both a national and local level.

Commissioning – we need to support commissioners to integrate digital into their local current and future commissioning plans. Understanding how local people want to use digital technology to engage and interact with services should form part of every single JSNA. Again, this will require action at a national and local level.

Governance and information – as professionals, clinicians and service users, we need to be informed consumers of the tools and programmes we choose. We need to understand what works well, what various platforms, apps and tools help us do better, and reassure ourselves that the governance structures around these products are strong enough to enable us to use them as part of a safe NHS service. We need a robust and speedy framework for evaluation for their application, quality, safety and integrity. There is a considerable gap around this, and bridging that will require concerted national effort.

Public health – if we are to make the most of digital technology to engage the public in managing their own mental health, we need to make the most of the NHS brand online to enable people to access high-quality information, and access anonymous support. This requires national action.

Innovation and investment – we need to work smarter, and support the spread of innovations that work. An observation made by a number of people we spoke to was that while there was a plethora of small local projects able to attract local investment, if proven, investment and support is not there to help that particular product reach the next level. We need to identify those projects that have already shown potential and invest in them to take them to the next stage at a regional and national level. We also need to establish effective ways of sharing learning about what works.

Recommendations

Our recommendations outline a series of focused actions that, in our view, must be taken forward if we are to see a real change in the use of technology in mental health services.

In terms of national action, our recommendations all centre on a single proposed initiative. That is for a national strategy for e-mental health to be developed in 2015/16, and investment made in a subsequent programme of work to support transformation and change.

This recommendation is key. Through the development of a national strategy, we can start to address the questions raised in this report and detailed in our recommendations. The development of a strategy, and subsequent programme of work, should include:

- a clear plan for how we will address outstanding questions relating to governance, safety, regulation, integration, payments and information
- how digital will be leveraged as part of mental health promotion and prevention activity
- a roadmap for digital skills development among the NHS workforce
- the development of resources to support the work of CCGs, health and wellbeing boards and mental health providers
- how NHS England will support the identification and spread of good practice across the NHS, and make investment available to support the development of local services.

The strategy

1. **National bodies, including the Department of Health, NHS England, Public Health England, Care Quality Commission, Monitor and Health Education England should co-produce with stakeholders a national strategy for e-mental health in 2015/16. This objective should be included within the next NHS Mandate.**

We believe a national strategy for e-mental health, co-developed and co-owned by national bodies, should be developed in 2015/16. In support of this, the Department of Health should include this objective within the next NHS Mandate, making clear the key role NHS England has in the development and implementation of the strategy.

The strategy should include an articulation of how the following issues will be addressed in conjunction with national and local partners: workforce, commissioning, governance and information, public health, innovation and investment. The strategy should be co-produced with partners, including other national bodies including providers, commissioners, service users and carers, and bodies such as NIHR Mindtech. It will require working with the Care Quality Commission and others to address questions of how the regulation process will evolve to keep up with changing models of care. It will also include working with Monitor and others to ensure the development of new payment mechanisms takes into consideration alternative models of service delivery, and other implications raised by making better use of technology.

The strategy should be published with a clear programme for implementation support, setting out how the Department of Health, NHS England, Public Health England and other national partners will continue to support progress over a five-year period.

The scope of the strategy should be wider than considering solely the role of the NHS. As part of that, Public Health England and others will want to explore how use of technology can support improving public mental health and wellbeing in future.

Some excellent resources exist, which aim to provide information and first-line help and advice. This is especially the case for children and young people (for example, Mindfull) who are of a generation that have come to expect being able to access information and support this way. These are mainly provided through the voluntary sector, and funded through charitable activities. Government, together with Public Health England, should explore whether those initiatives could be further developed, and financially supported, to ensure the public have access to high-quality information, plus access to first-line support and advice anonymously when they need it.

NHS England

2. As part of a range of actions involved in helping to co-produce the national strategy, NHS England should:

    a) work closely with Health Education England, to produce a roadmap for the NHS workforce on digital skills development
    b) help produce a clear plan for how we will address outstanding questions relating to governance, safety, regulation, integration, payments and information
    c) explore, particularly with Public Health England, how digital can be fully leveraged as part of mental health promotion and prevention activity.

3. As part of support for implementation, NHS England should:

    a) support the development of e-mental health resources for clinical commissioning groups and health and wellbeing boards

    b) support the identification and spread of good practice, and make investment available to support the development of local services.

Public Health England

4. As part of a range of actions involved in helping to co-produce the national strategy, Public Health England should explore, with partners, how digital can be fully leveraged as part of mental health promotion and prevention activity.

Care Quality Commission

5. As part of a range of actions involved in helping to co-produce the national strategy, the Care Quality Commission should ensure the regulatory model works for innovative new service models.

Monitor

6. As part of a range of actions involved in helping to co-produce the national strategy, Monitor should ensure the development of new payment mechanisms in mental health works for innovative new service models, including virtual contacts.

Health Education England

7. As part of a range of actions involved in helping to co-produce the national strategy, Health Education England should develop, with partners, a roadmap for the NHS workforce on digital skills development.

NIHR MindTech Healthcare Technology Co-operative

8. Mindtech has an important role to play in providing research leadership to deliver a faster evidence base for technological innovation in mental healthcare.

9. Mindtech should also foster collaboration between service users, clinicians, academia and technology developers to identify clinical unmet needs and produce evidence-based technological solutions.

Royal Colleges

10. Royal Colleges, particularly the Royal Colleges of Psychiatrists and of GPs, have a critical role to play in the co-production of the national strategy. It will be particularly important to ensure the Royal Colleges are appropriately engaged in the development of a roadmap for the NHS workforce on digital skills development.

Health and wellbeing boards

11. At a local level, health and wellbeing boards will want to ensure e-mental health forms part of Joint Strategic Needs Assessments. The engagement of boards will also be crucial in the development of a national strategy and resources for implementation and development.

Clinical commissioning groups

12. Again, at a local level, clinical commissioning groups will want to ensure e-mental health forms part of local commissioning plans. The engagement of clinical commissioning groups will be critical in the development of a national strategy and resources for implementation and development.

Mental health providers

13. **Mental health providers will want to ensure digital is a fully integrated component of overarching organisational strategy, and consider digital innovations as part of any service redesign work.**

14. **The engagement of mental health providers will be critical in the development of a national strategy and resources for implementation and development.**

Digital technology is a game changer for how we think about the design and delivery of health services. Every provider will want to consider digital technology features in their overarching organisational strategy, if they have not already done so.

This work could be led by a dedicated senior programme director for digital – either for the organisation, or shared across a local health economy. Developing a shared organisational vision will require wide staff engagement, particularly with clinicians and service managers. It may prove helpful to harness the insights of those new to the NHS, such as trainee doctors and graduate management trainees, on what their vision for the future might be.

Any strategy should be co-produced with service users and carers, with the aim of fully understanding their aspirations around digital. Engaging with users via non-traditional channels, such as social media, could provide useful insights that may not emerge through traditional consultation routes. Particular attention may need to be paid to the aspirations of younger service users who may have differing ideas about what they want to see.

In terms of organisational strategy, this may need to address:

- how can digital technology support the delivery of a service that is truly recovery focused, joined-up and empower greater self-care?
- how will our service users in future want to engage with us in terms of how they receive care and support (i.e. the mix between remote and face-to-face contact) and engage with us in other ways (i.e. using apps for monitoring, booking appointments, asking routine questions)?
- what skills do we need to develop as a workforce?
- what technology will we need?

Conclusion

The potential of digital technology to transform the face of the NHS is self-evident. However, compared to many other service sectors, mental health services – and the NHS more broadly – are behind the curve.

What this report has shown is that there is a consensus that this needs to change. What we are lacking is a clear sense of future vision, and the right skills among our workforce. Our existing ways of evaluating new products and services, and ensuring their safety, are too slow to enable our services to keep up with the pace of technological change we see all around us.

The good news is that there are some fantastic examples across the country where passionate and knowledgeable individuals are already making change happen. We need to learn from them, and start adopting those innovations that work. However, there are some common problems where it makes sense to tackle a few key issues at a national level, under the banner of the development of a national framework for e-mental health.

There is a clear rationale for further national action. The potential for leveraging digital technology better in the way we design and deliver NHS mental health services is huge. It could help us deliver services much more efficiently, and – increasingly – via channels the public want. Through leveraging digital in support of transforming the culture of our services, we can empower individuals to take charge of their own recovery.

We hope this report both stimulates debate, and provides some clarity about the steps that now need to be taken. If you would like to share your views, please email **mentalhealthnetwork@nhsconfed.org** or tweet us at **@nhsconfed_mhn** using the hashtag **#mhnfutures.**

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