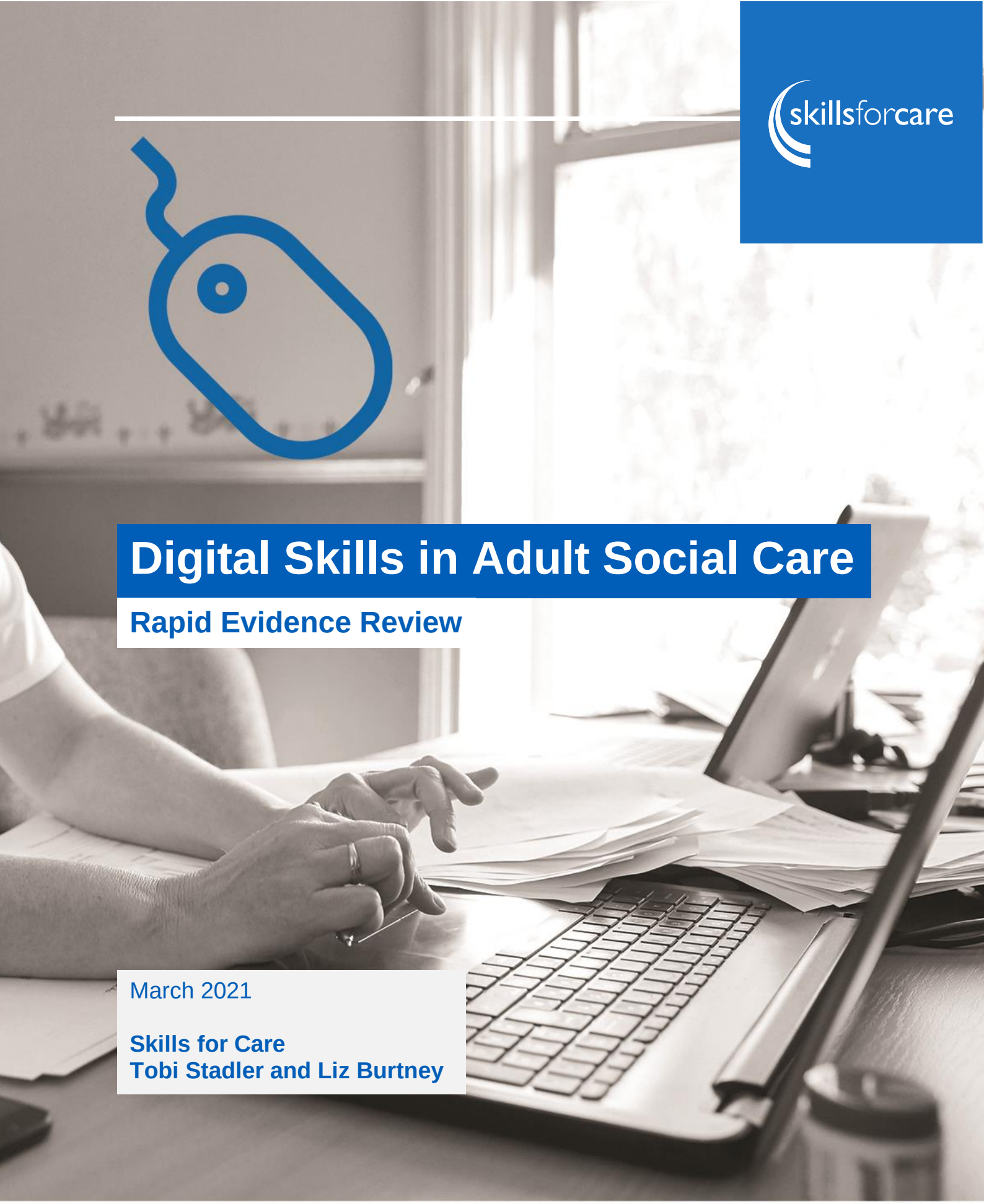

Digital Skills in Adult Social Care

Rapid Evidence Review

March 2021

Skills for Care
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Digital Skills in Adult Social Care: Rapid Evidence Review
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Skills for Care is the employer-led strategic body for workforce development in social care for adults in England. It is part of the sector skills council, Skills for Care and Development.
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Table of contents

Executive Summary

Background

The role of digital technology in the adult social care sector has never been more important. Pressure from policy, public and most recently, the pandemic, have contributed to the increase in use of digital technology and central to this shift are the workforce. There are assumptions about the current skills level of the sector but research evidence is limited. In order to address this gap, NHSX has commissioned Ipsos Mori in partnership with Skills for Care and the Institute of Public Care (IPC) at Oxford Brookes to undertake a review of digital skills in the sector. Skills for Care has undertaken this rapid evidence review which focuses on:

- The current definitions of 'digital skills'
- Existing digital skills frameworks or tools to measure digital skills in the sector
- Current learning and development approaches to support digital skill development
- Barriers and facilitators to adopting technology and subsequent skills development
- Future digital skills needed in the sector.

Key findings

Current definitions of digital skills

While there is no one definition of digital skills, in general or for the adult social care sector specifically, definitions have progressed beyond the use of technology to embrace a much broader skills base around creative application of technology and data. Some authors split skills into basic, those related to employment and skills for information and communication technology (ICT) professionals, however others argue that definitions should be context and time specific reflecting people, place and timeframes.

Current frameworks to measure digital skills

A number of frameworks to measure digital skills were identified using a variety of search terms. Basic skills focus around:

- Handling and managing information and content
- Problem solving and communication
- Ethics and service delivery involving digital technology
- Understanding the needs of others in using and supporting access
- Cyber security including data sharing and data protection
- Safety and safeguarding

Advanced skills focused on critical thinking, use of data for service planning and development, modelling and simulation, medical testing and developing peer support systems. There was very little focus on future skills needed for the sector.

Current understanding of digital skills

Current use of technology can be described in three categories: technology enabled care, digital care applications and consumer and mainstream technology, of which digital care applications are the most common across the adult social sector at the moment. There is limited evidence on current digital skills in the sector and while older studies suggest social care staff view their digital skills as basic, more recent evidence suggests this is situation is improving.

There appears to be general intention in the social care sector to move to a digital care or HR management product in the long-term. Accordingly, staff need to build and develop the skills to use these software products, which also includes the ability to use different digital devices, such as tablets and smartphones.

There is consensus that the COVID-19 pandemic had a significant impact on the relevance and demand for digital skills in the social care sector, particularly the shift towards virtual means of interaction (e.g. medical consultation, family/staff meetings, etc.). While there is a lot of anecdotal evidence on the impact of the COVID-19 pandemic there is limited quantitative evidence at this stage.

There is limited research on the extent or reasons for not engaging with digital (digital exclusion) but some indication that ongoing exclusion depends on two factors: 1) how much will be invested into digital technologies in the care sector and 2) how long-lasting the impact of the COVID-19 pandemic will be.

Approaches to learning and development

Approaches to learning and development can be split into formal and informal opportunities. Formal approaches include: learning pathways, with or without accreditation/certification; academy approaches to developing specialist skills, technology enhanced learning for example virtual workshops, eLearning etc.

Digital champions are emerging in social care as a less formal approach to learning and development. This involves an individual being available to help digitally upskill others. There is no standardised approach to digital champions however, emerging evidence would endorse the concept as an effective enabler to supporting the development of skills in staff.

Other informal approaches include peer-to-peer support platforms and networks which allow staff to share knowledge and build confidence to lead and develop skills. Finally, intergenerational methods where younger people upskill older people (e.g. primary schools working in care homes) are more likely to succeed when young people understand the barriers their learners face.

Barriers to digital learning and development

Barriers to digital adoption generally are important to understand in order to provide a context for learning. They include resource and capacity, lack of leadership, infrastructure and interoperability issues, concerns around workforce skills and supply of digital technology for adult social care.

In terms of learning and development, the barriers are less well researched but include:

- External factors around coordinated learning opportunities, formal and informal as well as lack of end goals or a framework for learning
- Organisational factors including lack of investment and motivation to support workforce development, lack of resource, assumption that learning will transfer across contexts, cost of training as well as the lack of an organisational culture of learning and development
- Workforce factors like finding time to train, confidence to become involved if starting from a low base, lack of incentives to develop digital skills, sometimes associated with lack of opportunities to embed any new skills.

Key benefits of digital technologies

In summary, the key benefits of using digital technology are well articulated and include professional development of social care workforce through eLearning, social networking, access to information. In addition, the literature highlighted reports of more efficient care delivery through digital care planning, staff management, data management. Better joined up care through electronic health and care records and improved hospital discharges are also highlighted as well as time-efficiency and cost-effectiveness can be improved through telecare, remote home visits, telehealth. Finally, improved individuals' experience through assistive technologies, more frequent care visits, more time with staff, increased involvement in treatments are also noted as a benefit of using digital technology.

Key facilitators of digital technologies

- Leadership and management factors
    - Clear strategies and vision, with buy-in on all levels of leadership and management to motivate employees
    - Right infrastructure to support and facilitate digital change
    - Open and trusting organisational culture with an ethos of information and knowledge sharing, where learning is rewarded and encouraged
    - Focus on accessibility to remove barriers and inequalities among staff and people using services
    - Talent management, understanding the skill gaps, recruiting appropriately, and support staff to develop skills
- Hands-on factors
    - Provide time for staff to develop skill
    - Establish personalised learning needs assessments
    - Encourage informal learning and peer support

- Provide digital devices and make a variety of learning and development resources accessible

Future skills

This review identified very little published information in this area directly related to adult social care. Findings from the wider literature indicated skills will be needed to make more use of digital technologies across problem solving, use and management of data, communication, security and AI and robotics.

Research gaps

The review highlighted a number of research gaps including the lack of research around digital exclusion, motivations and incentives to access learning, effectiveness of different learning approaches and future skills.

Conclusion

To conclude, this review focused on how digital skills are defined, measured and distributed in the workforce in addition to looking at the barriers and facilitators to adoption and workforce development. It is evident, that the COVID-19 pandemic highlighted the potential and opportunities of digital technologies in the adult social care sector. It seems that now is the right time to invest in digital skills as the sector and the public have had an idea of the difference that technology can make to the care staff and people using its services.

1 Introduction

1.1 Background

Digital technology is being adopted at pace and while some argue that health and social care are still behind other sectors (Collins, 2020), there is growing pressure to embed digital technology from both the customer at one end, and policy and regulations demands at the other (Care Quality Commission, 2020; Department for Health and Social Care, 2018). In addition, the COVID-19 pandemic has acted as a catalyst for increased reliance on technology (NHS Digital, 2020a; Reynolds & England, 2020; Skills for Care, 2020b, 2021) as well as a drive from within the sector to become more digital.

Central to this shift, is the workforce and the skills and confidence of the workforce to use digital technology efficiently and safely. In order to build an evidence base, NHSX has commissioned Ipsos Mori in partnership with Skills for Care and the Institute of Public Care at Oxford Brookes University to undertake a review of digital skills in the sector. This rapid evidence review seeks to provide an overview of skills needed in adult social care as well as frameworks to support further and future development.

1.2 Research aims and objectives

The overarching aim of the review was to examine existing published and unpublished evidence to find out what it can tell us about:

- The current definitions of 'digital skills'
- Existing digital skills frameworks or tools to measure digital skills
- Existing skills levels in the sector
- Current learning and development approaches to support digital skill development
- Barriers and facilitators to adopting technology and subsequent skills development
- Future digital skills needed in the sector.

1.3 Limitations of the research

The methods employed for the rapid review were transparent, systematic and replicable (see Appendix A for more detail). The design included a critical appraisal of the strength and quality of the evidence. However, the reader should note that others have highlighted that rapid evidence reviews have some limitations and challenges (Thomas et al., 2013). The timescale and resources available for the research meant a pragmatic approach was adopted to scope out the literature using comprehensive searching, and while comprehensive, the review does not claim to be exhaustive.

The literature identified tended to focus on descriptions of benefits, barriers and facilitators to developing digital skills, and less was available on the effectiveness of using digital technology and learning and development approaches.

1.4 Structure of this report

This report focuses on the current definitions of digital skills for the adult social care sector before moving onto frameworks that might support these skills and current digital skills. Section 4 looks at current approaches to learning and development in this area before focusing on the barriers in section 5. The opportunities and facilitators to changes are picked up in sections 6 and 7 before looking at the very limited information there is available around future skills needed. Finally, the report highlights research gaps and offers some conclusions for the review.

2 Current definitions of digital skills

Overview

- There is no one definition of digital skills used in the adult social care sector
- Definitions of digital skills have progressed beyond use of technology to incorporate a much broader skills base around creative application of technology and data
- Some authors split digital skills across a spectrum from basic or generic digital literacy skills**,** digital skills which relate to employment or specific skills through to digital skills for ICT professions
- Key elements of what we refer to as to digital skills are identified but discussed in more detail in section 3 of this report
- There is an argument for thinking about skills contextually, i.e. taking into account across the people who need the skills, the place in which they will use them, as well as the timeframe in which particular skills are relevant, given the pace of change in technology.

2.1 Current definitions

The concept of 'digitisation' covers a wide range of different digital technologies (e.g. computers, mobile devices, internet and 'Internet of Things', robotics and automation), all of which have different implications for skills (Ecorys UK, 2016).

While early definitions of digital skills focused on procedural knowledge of computer use (Fraillon et al., 2013), over time and as technology and use of ICT has evolved, broader definitions and language have emerged and will continue to emerge as technology develops (Bluspecs, 2018; Van Laar et al., 2017). For some digital skills focuses on the ability to engage online and to find out information while for others it spans individual and organisational skills and capability to engage those skills on a daily basis (Kispeter, 2018; Skills for Care, 2020b, 2020c). What is clear is that there is no one definition for adult social care despite some calls from the field for context specific definitions of digital skills (Kispeter, 2018).

Furthermore, in the literature language is used in different ways. For example:

- There are a range of, sometimes interchangeable, terms applied to the increase of learning in the digital sphere including digital skills, digital literacy and digital capabilities that are commonly used to describe overlapping elements for development toward fluency of digital use.

- Terms can be used to encapsulate others e.g., Building a Digitally Ready Workforce combines capabilities along with individual attitudes, organisational drivers and technology available (Kispeter, 2018).

- There is a move beyond knowledge (about hardware and networks) and skills to include attitudes, behaviour and ways of working creatively, collaboratively and critically (Ferrari, 2012; Health Education England, 2016c; Kispeter, 2018; NCVO, 2015; NHS Providers, 2020; Van Laar et al., 2017).

Key elements of what we will refer to as digital skills in this report, are reported in the literature as wide reaching, and can extend beyond the digital realm:

- Information, media and data literacy
- Communication, collaboration and participation
- Building a professional identity online
- Learning skills and personal/professional development
- ICT literacy and technical proficiency
- Information processing and problem solving
- Knowledge transfer skills
- Ethics and safeguarding
- Legislation and regulations.

Sources: (Hamilton et al., 2014; Health Education England, 2016c; Kispeter, 2018; NCVO, 2015; OECD, 2015; Rimpiläinen et al., 2019; Skills for Care, 2020b, 2021; Social Care Institute for Excellence & The British Association of Social Workers, 2019; Van Laar et al., 2017)

Several authors have highlighted the difference in skills, from more basic to more advanced, needed across the population.

- **Basic or generic digital literacy skills** empower individuals to become digitally literate; these skills can be applied both to the workforce and generally to individuals in their in day to day life
- **Digital skills which relate to employment or specific skills**, encompassing basic skills plus skills which are needed in a workplace and generally are linked to the use of ICT applications developed by professionals of information technology
- **Digital skills for ICT professions**, which include both categories above and the skills needed in the ICT sector as well as having an innovative and creating component, as linked to the ability to develop new digital solutions, products or services.

Sources: (Bacon & MacKinnon, 2016; Bluspecs, 2018; Ecorys UK, 2016; Kispeter, 2018; OECD, 2015)

While it is useful to understand that skills can be categorised, there is still a lack of consensus around what digital skills might look like for adult social care and how this breakdown might be applied. Indeed, Health Education England in their review concluded there is a lack of consensus across health and social care, a view supported by research conducted by Skills for Care (Dunn, 2014; Skills for Care, 2020b, 2021) and there is a need for some sort of framework/taxonomy in this area as there are multiple and contested definitions (Health Education England, 2016c).

Health Education England goes on to state that the inconsistency in language and interpretation in the literature makes it challenging to develop an overarching set of knowledge, skills and attitudes for the health and social care sector. Alongside this, the pace of change associated with technology means that any such framework needs to be future proof and perhaps higher order skills are important to ensure employees develop appropriate attitudinal and critical thinking skills.

Interestingly some authors suggest that the development of a context-specific definition is indeed what is needed to make it more manageable taking into account:

- People (the group who need the skills)
- Place (the context in which they will use the skills)
- Period (timeframe in which these skills are relevant).

So, the question could be “What digital skills do the adult social care workforce in England need in the next five years?” (Orlik, 2018).

In summary, there is no agreed/common definition of digital skills for the adult social care sector. In the absence of clarity, the challenge is then around how best to establish core skills for the sector which can then be developed to make best use of digital technology. Existing definitions reflect the range of elements and tasks that can be associated with digital technology but highlight the importance of developing a definition that considers the context in which the skill is needed.

3 Current digital skills frameworks

Overview

Skills frameworks identified included those identified from health and social care as well as more generic frameworks which have been applied to the wider population.

Basic digital skills for individuals focused on handling and managing information and content; problem solving and communication; ethics and service delivery using digital; understanding the needs of others to support access; data sharing and transacting. Cybersecurity safety and data protection were identified at both the individual and organisational level.

Advanced digital skills for individuals including critical thinking, use of data for service planning; design and development; modelling and simulation; medical testing; and developing peer support systems.

There was very little focus on **future skills** within digital frameworks identified but artificial intelligence was noted.

3.1 Skills frameworks

Our rapid evidence review identified 18 'digital skills' frameworks. The table below outlines which sector each framework is pulled from. The majority of frameworks are aimed at the general public. There were only two frameworks specifically designed for care workers, while more were aimed at broader groups of professions, such as allied health professionals or the health and social care sector in general.

Table 1: Details of frameworks included

Sector	Framework
Care Workers	(Carer+, 2015a; Skills for Care, 2016)
Health and Social Care	(Kispeter, 2018; NHS, 2018; SMCI Associates, 2014)
Occupational Therapists	(McKinstry et al., 2020; NHS England, 2019; Skills for Care, 2019; Tack, 2021)
Allied Health Professionals	(NHS England, 2019; Tack, 2021)
Social Workers	(Social Care Institute for Excellence & The British Association of Social Workers, 2019, 2020)[1]
Public Sector	(National Audit Office, 2017)
Construction	(The Institute of Construction Management, 2020)

[1] The framework for social workers is based on the Health and Care Digital Capabilities Framework by NHS (2018).

General Public	(Department for Education, 2019a, 2019b; Kispeter, 2018; Van Deursen, 2014; Van Laar et al., 2017; Vuorikari R., 2016)

3.2 Overview of emerging themes

The following overview of emerging themes is based on the review and coding of these 18 'digital skills' frameworks. Each framework was broken down into the different types of digital skills it described. Then, using a bottom-up approach, categories of digital skills were created that allowed for counting how often each type of skill was mentioned. As a result, this overview identified what the most common themes were and what were relatively uncommon themes across the different sectors.

When it comes to the basic digital skills, there were no differences between frameworks from different sectors. Every framework made at least one reference to the digital skill of 'handling and managing digital information'. As can be seen by the number of counts for the basic digital skills in the table below, there was a huge overlap between frameworks from different sectors. It is worth mentioning however, that skills such as 'understanding the digital needs of people using services' or 'delivering services through digital technology' were mentioned in frameworks of health and social care workers or for occupational therapists and allied health professionals, but not in frameworks aimed at the general public. Also, utilising assistive technologies as well as telehealth and telecare are part of these two themes. Advanced skills were mentioned more often in frameworks for health and social workers and less in frameworks for social care workers. Nevertheless, this overview of skills provides us with an idea of what skills should be particularly emphasised in the social care sector.

25 different themes of digital skills were identified during this rapid review of the literature. It is worth mentioning that there might be some overlap between the different themes (only within each group of skills, i.e. basic or advanced) as they are not yet mutually exclusive. Nevertheless, the themes were structured as follows:

- 16 themes were classified as basic digital skills, that are particularly relevant to the social care sector
- 7 themes were classified as advanced digital skills, which are less relevant to the front-line staff but still relevant to the sector
- 1 theme was identified as relevant for the future and the last theme was classified as relevant to organisations and employers rather than employees.

The following four tables include the name of the digital skill, a description and how often they were mentioned and highlighted among the 18 frameworks that were analysed for this piece of work.

Table 2: Basic Skills (all relevant to social care):

Name of skill theme	Description	# highlighted
Handling/Managing information & content	To access and capture information electronically for use by oneself or others / to find, manage, organise, store and share digital information, data and content.	32
Being safe & legal online	To understand and follow digital security and safety practises (e.g. passwords) / appropriate handling and protection of data and internet-connected devices.	19
Teaching, learning and self-development	To use the full capacity of digital tools to address one's learning needs, work-based tasks, and professional development.	17
Problem solving	To find solutions to problems using digital tools and online services / to resolve technical challenges and problems both individually and with others.	17
Communication / Collaboration	To use digital technologies to communicate with people, work collaboratively with others and participate actively in and across digital networks.	17
Use of digital devices - digital literacy	To use a wide range of technical devices (including, but not limited to smartphones, tablets, laptops, etc.) in a professional context both individually and with others.	16
Understanding applicable legislation and regulations	To understand and act upon appropriate guidelines, protocols, regulations and safeguards in the use of differing media, information, data and content (e.g. GDPR).	14
Delivering services through digital technology	To understand and use remote, mobile and assistive technologies or software and applications to provide care.	13
Foundation Skills	To use a digital device (turn on, turn off), connect it to the WiFi and use it to find basic information.	9
Understanding the digital needs of people using services	To know and understand how distinct groups of people who use services engage with digital technology to meet their needs (e.g. some autistic people preferring online social interactions, or helping someone with their diabetes app, or use assistive living technologies).	9

Professional digital identity	To understand risks associated with curation and management of one's digital identity associated with both internal work-related systems and external platforms (e.g. social media) / to demonstrate appropriate behaviour when using digital tools.	9
Transacting	To manage and access financial processes, e.g. submitting an expense claim, use technology to support the ordering of diagnostics.	8
Online Safeguarding	To develop, promote and safeguard appropriate digital identities that support a positive personal and professional reputation / to use digital technologies in ways that support the wellbeing and safety of others (e.g. Adults with impaired decision-making can access online resources which may be detrimental to their needs).	7
Ethical Decision-making	To understand confidentiality, seeking consent before recording or sharing personal information, respecting privacy / understand how and by whom technology has been developed and determine how and when it is used and how inclusive or exclusive the product is.	7
Transfer of Data / Data Sharing	To use technology to effectively transfer or share patient data across systems or with colleagues (e.g. transfer of care).	6
Handling employer IT System	To use the personal systems of administration (e.g. electronic staff record, online payslips, e-rostering platforms).	6

Table 3: Advanced Skills (less relevant to social care):

Name of skill theme	Description	# highlighted
Data capture / analysis / insight	To use devices, technologies, techniques and applications in research, quality improvement, audit and scholarly activities.	14
Critical Thinking / Evaluation	To evaluate digital tools relative to the requirements of the service and needs of the target population / ability to recognise clinically assured online health and care information content.	13
Design and Development	To use digital technologies to support or create new ideas, methods, solutions, and decisions (to innovate).	13
Peer support	To support peers in learning and applying digital tools or working in digital spaces / Leading peers in using digital tools and potentially initiate change.	10

Modelling & Simulation	To produce representations of aspects of the real world at a point in time and/or showing changes over time.	3
Medical Testing	To use digital tools which enable the requesting, reporting or reviewing of results of medical testing.	1
Monitoring	To use digital tools to plan, monitor and report care activities, manage care workers, monitor performance.	1

Table 4: Future skills (potentially relevant to social care):

Name of skill theme	Description	# highlighted
Artificial intelligence	To handle technologies that allow for automated data collection and potentially automated responses.	1

Table 5: Organisational skills (relevant to employers):

Name of skill theme	Description	# highlighted
Cyber security	To maintain information security systems to manage cyber security.	1

Sources: (Carer+, 2015a; Department for Education, 2019a, 2019b; Kispeter, 2018; McKinstry et al., 2020; National Audit Office, 2017; NHS, 2018; NHS England, 2019; Skills for Care, 2016, 2019; SMCI Associates, 2014; Social Care Institute for Excellence & The British Association of Social Workers, 2019, 2020; Tack, 2021; The Institute of Construction Management, 2020; Van Deursen, 2014; Van Laar et al., 2017; Vuorikari R., 2016)

4 Current digital skills in adult social care

Overview

- Current use of technology can be described in three categories: technology enabled care, digital care applications and consumer and mainstream technology, of which digital care applications are the most common in the adult social sector at the moment.
- There is limited evidence on digital skills and older studies suggest social care staff view their digital skills as basic. However, more recent evidence suggests this is situation is improving.
- There is a general intention in the social care sector to move to an overarching digital care or HR management product in the long term. Accordingly, staff need to build and develop the skills to use these software products, which also includes the digital literacy of using different digital devices, such as tablets and smartphones.
- There is consensus that the COVID-19 pandemic had a significant impact on the relevance and demand for digital skills in the social care sector, particularly a shift towards virtual means of interaction (e.g. medical consultation, family/staff meetings, etc.). While there is a lot of anecdotal evidence on the impact of the COVID-19 pandemic there is only limited quantitative evidence.
- Digital exclusion/inclusion in the adult social care sector depends on two factors: 1) how much will be invested into digital technologies in the care sector and 2) how long-lasting the impact of the COVID-19 pandemic will be.

4.1 Use of technology in adult social care

Over the past years, the use of technology has increased in adult social care, but it still lags behind other sectors (Digital Social Care, 2019; Skills for Care, 2020b; SMCI Associates, 2014) . This is illustrated by the fact that large amounts of social care workers now have smartphones, and they use digital technology more at home than at work (Dunn, 2014). A study commissioned by Skills for Care in 2014 found that 15% of staff surveyed reported to use their personal laptop for work purposes, and 20% use their personal smartphone for work purposes.

Institute of Public Care (2021) identified three categories to describe the current use of technology in adult social care:

1. Technology enabled care (e.g. wearable devices, alarms, etc.), which encompasses digital technology that aims to facilitate people's self-management of health and wellbeing.
2. Digital care applications, which replace paper-based administrative functions, such as rostering, care management, etc.
3. Consumer or mainstream technology (e.g. smartphones, tablets, etc.), which the adult social care sector has started to embrace.

There is more data available for organisations rather than individuals and two recent large-scale studies (Digital Social Care, 2019; Skills for Care, 2021) tracked changes in particular aspects of maturity in the sector. These studies predominately focus on the second category of digital care applications. When asked to rate themselves as a digital 'novice', 'developing digitally' or an 'expert', data from 2021 (post COVID-19) indicates an increase in organisations who now see themselves as 'experts' (20% compared with 12% in 2020) and a reduction in 'novices' (14% compared with 24%). The studies also asked about the digital technology used (focused on digital care apps and mainstream technology) and reported the following (Skills for Care, 2021):

1. Video meeting platforms (92%)
2. Online training/ eLearning (90%)
3. Access to secure email (80%)
4. Online recruitment facilities (71%)
5. Social media apps (70%)
6. Staff management systems (60%)
7. Digital care planning software (53%)
8. Digital rostering systems (52%
9. Digital medication management (37%)
10. Online stocktake management software (29%).

In terms of technology enabled care and consumer or mainstream technology, our rapid review of the literature also identified various case studies that use digital technology to improve the service and the well-being of the care home residents. While a full list of case studies can be found in Appendix B, some notable examples are:

- Occupational therapists using video calls to do environmental assessments for acute hospital discharges (Alty, 2020)
- Assistive technologies, such as acoustic monitoring systems to monitor the sleep of service users in care homes or the use of Amazon Echos (Department for Health and Social Care, 2018)
- Stimulating and entertaining service users by using creative programs on iPads or live streaming concerts and theatre (Randall, 2015)
- Telecare that allows medical staff to evaluate patient data remotely (Tunstall Healthcare, 2020)
- A partnership between a care home and a primary school, whereby schoolchildren visit residents on a regular basis and show them how to use technology, such as iPads, etc. (Welsh Government et al., 2019)

While the use of technology in social care is increasing, many organisations consider themselves as 'developing' their skills and technology and do not make good use of systems to improve care delivery and staff management (Digital Social Care, 2019).

4.2 Current digital skills

The rapid evidence review identified only a few studies that measured the level of digital skills in the adult population in the UK in the past 7 years. Only three studies investigated digital skills in the adult social care sector. The consensus is that self-reported levels of digital skills are generally basic in the health and social care sector (Health Education England, 2016d). It is worth mentioning however that more advanced skills, such as data analysis or cyber security are less important in the work of frontline social care employees.

A study in Scotland with almost 13,000 respondents from the health and social care sector (SMCI Associates, 2014) showed that the workforce generally feels confident in using digital technology (68%). However, more than half the respondents would welcome training and support in using digital technology, as only around 25% have had significant amounts of training. The study further showed that respondents were making considerably more use of technology at home than at work. This indicated that staff have greater capabilities in using digital technology than are used at work. Similarly, a report from Dunn (2014) showed that personal use of digital devices, such as smartphone, tablet, or laptop, is considerably higher than workplace use. Dunn (2014) reported in her study of 269 social care staff that 90% feel moderately or very confident in terms of basic online skills (e.g. communicating online, searching for information online, etc.). Confidence was lower for understanding assistive technologies and how digital technologies can support care delivery (around 80% felt moderately or very confident). Interestingly though, the same study also surveyed care home managers and they reported that they thought only roughly half of their staff (48%) had sufficient digital skills.

More recent studies show that things have improved slightly since 2014. A study among the social care workforce (N = 775) in Northern Ireland showed that 82% of staff reported a moderate or high level of basic digital skills and confidence (Synnott et al., 2020). Only around 7% of the respondents reported to have no or low confidence in the use of technology. Commonly reported challenges among those respondents with low confidence and digital skills were solving a problem with a digital device using web-based help, installing, or buying apps on a device, or verifying whether web-based information was accurate. Further promising results were that almost 80% of the respondents reported to have accessed eLearning and more than 80% showed an interest in developing their skills and knowledge. The authors argue that this "*indicates a predominately motivated workforce, the majority of which does not feel hindered by their levels of skills in digital technology" (p. 11).*

Unsurprisingly, the study also found negative correlations between age and both digital skills and perceived value of technology indicating that older people report lower digital

skills and lower confidence in the value of technology than younger staff. People who are more confident in technology also seemed to self-report higher levels of digital skills.

In terms of cybersecurity, Institute of Public Care (2020) identified that the digital literacy of the social care sector is low. Many providers are reliant on paper records or are unfamiliar with the secure use of email and smartphones. For example, *"Common, widely recognised communication systems such as text messages and WhatsApp are in widespread informal and sometimes formal use (even where prohibited)"* (p. 39). Not every staff member has access to a work phone, which means that confidential information can potentially end up on a workers' private phone.

Dunn (2014) never investigated the level of confidence amongst staff regarding cybersecurity. However, SMCI Associates (2014) found that while the majority of respondents felt that they understood the principles of data protection and internet safety and security (78 – 87%), almost a fifth of the surveyed health and social care staff (17%) wanted training on cyber security issues (see also Digital Social Care (2019)). This discrepancy is also visible in a more recent study. Skills for Care (2021) showed that over 90% of surveyed care organisations describe their IT security as up to date, but security measures in place for computers and smartphones were mostly basic. More advanced measures, such as encryption and authentication were far less common among the respondents.

The Institute of Public Care (2020) adopted a more technical and more advanced standard to evaluate digital literacy in terms of cyber security and therefore found a lower literacy level among social care staff. They further argue that there is a need for the sector to increase their awareness of data protection and the threat of ransomware cyber-attacks.

Digital skills, however, have not completely found their way into the social care sector. The Professional Standards for Occupational Therapy Practise, for example, has only one reference to digital skills. It states that occupational therapists are supposed to maintain their *"awareness and skills in digital technology in order to meet the requirements of the role"* (Royal College for Occupational Therapists, 2017). In an opinion piece during the pandemic, it was recommended however, that occupational therapists not only require the skills to use technology themselves but also the ability to enable their clients to participate and provide an environment for their clients to develop their digital skills (Reynolds & England, 2020).

4.3 Gaps in current digital skills

The pandemic has also highlighted issues around variable digital skills within the workforce. These are not new issues according to the Open University (2021). Although a majority of respondents said the pandemic had altered how they operate, the skills required by the organisations are the same. This is illustrated by the fact that the proportion of respondents citing digital skills as a gap rose only slightly from 33% to 36% comparing answers before and during the pandemic, respectively.

A consultation with care sector staff showed that digital skills are one of the new priorities for managers' learning and development that has emerged from the pandemic (Skills for Care, 2020a). Being able to lead and manage staff remotely, as well as remote learning was particularly highlighted. Remote learning was also emphasised as a priority for care workers. Here the focus was also on access to equipment and the relevant digital skills.

A study in Scotland from 2014 among the health and social care sector showed that there was a strong demand for training in technology, particularly from the social care workforce (SMCI Associates, 2014). Training demands include using technology to support service users (67% of surveyed social care workforce) and to make decisions in frontline practice (59%). Also 30% of the respondents working in social care wanted training in basic computer skills.

Similarly, Dunn (2014) showed that many social care managers thought their staff lacked basic digital skills and information literacy skills. Managers also reported a shortage of skills regarding the understanding of digital assisted living technologies. However, staff respondents felt considerably more confident than managers' reports might suggest. *"over 90% of staff say they are confident or very confident about their basic online skills, whereas fewer than half of managers feel these skills are present in sufficient quantity in their workforce."*

There is a general intention from organisations to become more digital. In the social care sector that goes along with a move to an overarching digital care or HR management product in the long term (Skills for Care, 2020b). Accordingly, staff need to build and develop the skills to use these software products, which also includes the digital literacy of using different digital devices, such as tablets and smartphones. Care home providers and their staff are also aware of their skill requirements for digital technologies and their skill gaps (Digital Social Care, 2019). The report by Digital Social Care (2019) did not outline what skills were particularly lacking in the social care sector. However, the COVID-19 pandemic made it difficult for social care providers to develop long term plans. Yet, the value of digital technology became apparent during the pandemic.

4.4 Impact of COVID-19 on digital skills

There is consensus that the COVID-19 pandemic had a significant impact on the relevance and demand for digital skills in the social care sector. The pandemic accelerated shifts towards virtual means of interaction. Digital tools helped bring different services together, such as allowing staff across primary care, community services, hospital services and social care to work together to deliver joined-up care (Collins, 2020). In the NHS alone, the pandemic has resulted in the rapid adoption of digital technology (Hutchings, 2020). NHS Digital (2020a), for example, posted a report showcasing the significant increases in usage of the NHS app, the NHS homepage among the public and Microsoft Teams among NHS organisations. This demand for digital skills and technologies has coincided with a surge in demand for financial support

for new technical equipment, software, tools, and development opportunities for staff (e.g. Skills for Care, 2020b).

A study by Skills for Care (2020b) showed that care homes significantly increased their use of digital technology during the pandemic. This includes the use of video/meeting platforms to have consultations with medical staff, residents keeping in touch with their families, and staff meetings. In line with tough infection prevention measures, care homes used digital communication tools, such as e-mails more than paper for internal communication purposes. In terms of infrastructure, this meant needing to upgrade the internet connection or installing Wi-Fi networks. Reynolds and England (2020) agree that the pandemic has increased the reliance on digital technology and tools at work, particularly for occupational therapists. The author further argues that occupational therapists should use this situation to invest in their digital skills and think about their clients and how technology can assist in service delivery.

Further anecdotal evidence highlights examples in the changes in practice:

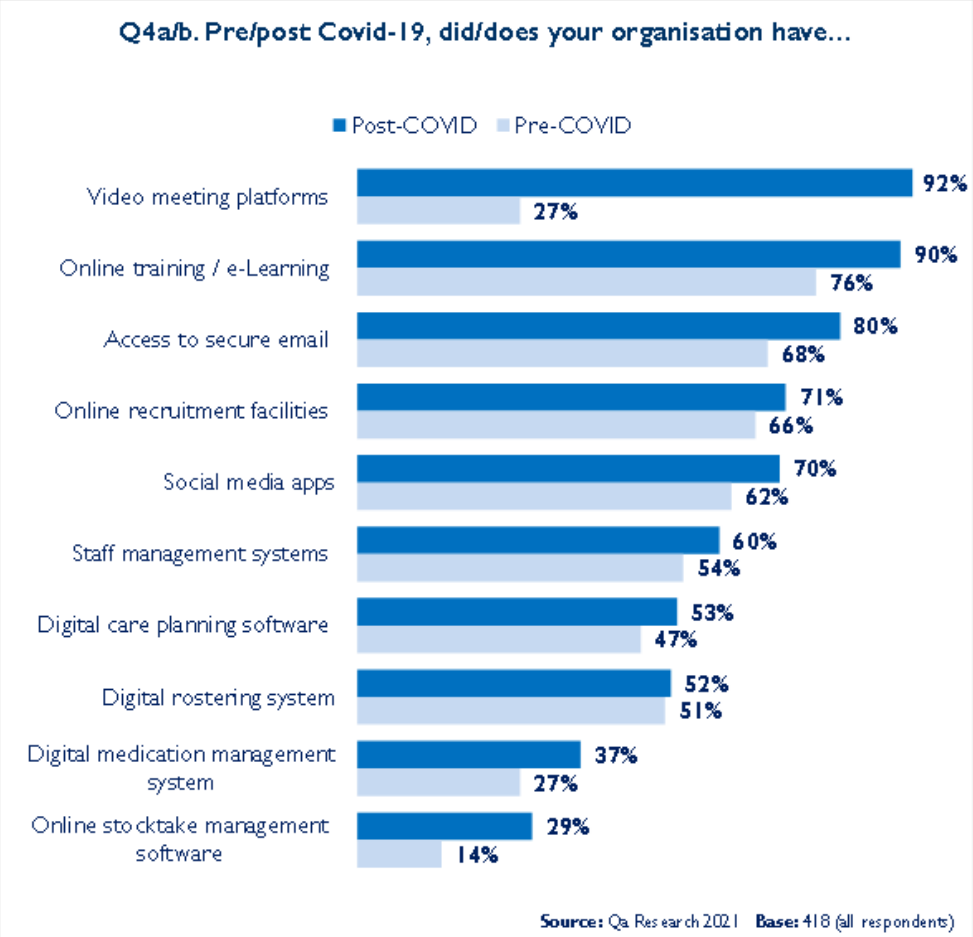
- Social media channels used for information, guidance, etc. on COVID-19 (Gardam, 2020)
- NHSmail has been made readily accessible to allow better information sharing (Digital Social Care, 2020; Skills for Care, 2020b)
- Care homes have been asked to complete Capacity Tracker giving real time data. Whilst useful to NHS organisations, providers did not perceive it as beneficial (Digital Social Care, 2020; Gardam, 2020).
- Adoption of video conferencing (Skills for Care, 2020b, 2021)
- Video consultation with medical or therapeutic staff (Alty, 2020; Collins, 2020; Digital Social Care, 2020)
- Care homes in Bolton started to use a remote health monitoring solution (Tunstall Healthcare, 2020)
- Investment in digital technologies, such as remote monitoring devices, voice-activated assistant (Skills Platform, 2020)
- NHSX provided over 10,000 tablets to social care settings to facilitate residents connecting with family and friends (Institute of Public Care, 2021)

In summary, while there is a lot of anecdotal evidence on how the COVID-19 pandemic has affected the use of digital technology in the health and care sector, there is only limited evidence to provide quantitative measures of change and impact of the pandemic (see also: Hutchings, 2020). Tunstall Healthcare (2020), for example, reported that GPs now carry out about 70% of consultations remotely, which is almost the same percentage of consultations held face-to-face before the pandemic.

The pandemic also made the general public aware of their digital skills (or lack thereof). Lloyds annual UK Consumer Digital Index showed that the pandemic has escalated the need for digital skills (Lloyds Bank, 2020). While most people have used technology to home school, communicate, transact and for their well-being, 30% of the respondents have improved their digital skills solely for work-related reasons. The majority of

respondents also indicated that they would continue to work on their digital skills after the pandemic.

Figure 1: Report by Skills for Care (2021) showcasing the impact of COVID-19 on use of digital technology



4.5 Digital exclusion in the sector

Ecorys UK (2016) showed that in the UK economy there are a high share of workers in low-skilled jobs, which do not require or only require limited digital skills.[2] If this trend continues, paired with other occupations which require high-skilled or medium-skilled employees to develop their digital skills, workers in low-skilled jobs could be at risk of digital exclusion. Considering the evidence presented in this chapter, it could be argued that the social care workforce is less at risk of digital exclusion. This, however, depends on two factors: 1) how much will be invested into digital technologies in the care sector and 2) how long-lasting is the impact of the COVID-19 pandemic.

Another factor that could determine whether parts of the adult social care workforce are at risk of digital exclusion is the language barrier. According to a report by Skills for Care (2020c), in 2019/20, around 16% of the adult social care workforce identified as non-British, including 7% EU nationals and 9% non-EU nationals. This percentage of

[2] The report did not mention the social care sector and thus it cannot be assumed that social care workers would be necessarily considered low-skilled.

non-British workers is higher than the average of the population in England (8% are non-British). Some reports suggest that non-native speakers might struggle more with adopting digital technologies in the UK than native speakers (Health and Social Care Board, 2016; Lillis, 2019). However, research evidence is generally inconclusive in terms of how big the impact of language is on digital technology adoption (Brittain, 2020).

Besides that, digital exclusion is more likely to affect certain groups of the population, such as older and disabled people (Age UK, 2018; Honeyman et al., 2019; Lloyds Bank, 2020). The overview of digital skills frameworks in chapter 3 showed that "understanding the digital needs of people using services" is a frequently mentioned digital skills, which is particularly relevant to the adult social care sector. This means, care staff should be aware of what digital exclusion could mean to care home residents and how technology could be used to prevent digital exclusion. In practical terms, this could be as Public Health Wales (2019) argue, "Digital inclusion means that those with the greatest health needs are not left behind in an increasingly digital healthcare system" (p.8). Alternatively, when digital interventions are developed, accessibility needs to be a priority. The digital tool or product needs to be accessible to as many people as possible (e.g. Piercy, 2019; Public Health England, 2017; Royal College for Occupational Therapists, 2020). As a result, while the social care workforce might not be at risk of digital exclusion, its clients might be.

5 Approaches to learning and development

Overview

Approaches to learning and development can be split into formal and informal opportunities. Formal approaches include: learning pathways, with or without accreditation/certification; academy approaches to developing specialist skills, technology enhanced learning for example virtual workshops, eLearning etc.

Digital champions are emerging in social care as a less formal approach to learning and development. This involves an individual being available to help digitally upskill others. There is no standardised approach to digital champions however, emerging evidence would support the concept as an effective enabler to supporting the development of skills in staff.

Other informal approaches include peer-to-peer support platforms and networks which allow staff to share knowledge and build confidence to lead and develop skills. Finally, intergenerational methods where younger people upskill older people (e.g. primary schools working in care homes) are more likely to succeed when young people understand the barriers their learners face.

5.1 Formal training approaches

Formal training and help from colleagues or managers are the most common forms of digital skills development available in the social care sector (Dunn, 2014). For example, Woolham et al. (2018) reported that training for telecare to use with older people in adult social care was most frequently provided by the telecare manufacturers. This type of training was focussed on the technology and its functionality rather than human or technical issues and its application in the day-to-day service. Conversely, another frequent type of training, peer-to-peer learning, was considered more appropriate and informal. However, this type of learning heavily depends on the knowledge of the person delivering the training and the ability to find time to deliver it. Woolham et al. (2018) further showed that local authorities and universities provided barely any training and only a limited number of training courses led to any kind of formal qualification.

Dunn's (2014) report further showed that there are only minimal differences in how helpful social care staff rated different type of training approaches, such as formal training, peer-to-peer learning, or self-guided learning.

More formal approaches include:

- The CARER+ partnership in Europe produced a set of learning paths and educational resources for care workers to develop their digital skills. Using a tablet device, care staff can access the eLearning resources and receive motivational badges and a certificate at the end of the course. This approach is supported by peer-to-peer and intergenerational learning methodology. As a result, over 70% of the participating care workers reported to use a tablet device in their caring practice in the future. Similarly, the capacity and competence to use digital devices was improved (European Commission, 2015).
- The NHS Digital Academy to 'create' digital leaders in the health and care workforce. The participants in the first cohort reported an increase in confidence and digital knowledge, but argued it was too early to establish an impact on their organisations. The success of the programme was hindered by lack of buy-in of the participants' organisations and a lack of on-going support for participants following the end of their programme (Price-Dowd, 2019).
- In terms of the general public, several initiatives have been outlined to help people develop their digital skills. These include, for instance, a new computing curriculum for English schools, degree apprenticeships that allow students to gain a University degree alongside job training, and a National College for Digital Skills, which facilitates continuous professional development for adults (see Ecorys UK (2016) for a more comprehensive list of government initiatives).
- Technology enhanced learning, which encompasses "wide range of methods to support learning, including eLearning courses, mobile learning, online assessments and resources, interactive digital media, videos for learning and reflection, teleconferencing and webinars for virtual workshops and meetings, and simulation using virtual reality" (TEL, 2017, p. 3). ELearning however needs to be an inclusive and well-integrated process. Keenan et al. (2020) showed that care staff felt lost and isolated as they accessed training independently. Social care workers preferred to access learning in a group rather than alone. The authors further argue that staff need to understand the benefits and implications of accessing the training and how it can directly impact and improve their service delivery rather than perceiving it as a box-ticking exercise.

5.2 Digital champions

A less formal approach to learning and development are digital champions models. Digital champions are a flexible, continuous skills support that is targeted at the needs of a learner (NHS Digital, 2020b). Digital champions could be anyone, that is a member of staff, volunteers, people using services or family members. These individuals then access learning and development opportunities to build their own teaching and support skills. Crucially, these people already have a connection with the learner. For example, a social care worker could be a digital champion for both his or her colleagues but also residents. The idea behind digital champions is to provide 'relevant, contextualised, and impactful' support, as the person being helped is already engaged with the digital

champion (Kennedy & Yaldren, 2017). Thus, digital technologies are accepted more easily, as the learning is more informal and digital skills are spread more cost-effectively (Karania, 2016). According to Health Education England (2016a), in a digital champion model, there should be a mix of three types of digital champions: 1) Formal, where people are given the role formally, 2) informal, where a passionate individual self-appoints to the role and 3) spontaneous, where an individual is sharing their digital knowledge informally, unconsciously. Examples in the social care sector include Barclays Digital Eagles, Cosmic's Health and Social Care Digital Champions, Stockport's 'DigiKnow' Alliance, Connecting Scotland, etc.

However, there is no standardised approach to digital champions within the NHS, but a clear appetite to create a centralised network to provide resources and support (NHS Digital, 2020b). For organisations outside the NHS, One Digital established a Digital Champions Network (DCN) to standardise learning and development for employees who want to serve as digital champions (Dunn, 2020). This is crucial for organisations to build sustainable champion models in their organisations to cascade digital skills (Health Education England, 2016b). The DCN has been praised and celebrated first successes (Karania, 2016; NHS Digital, 2019). An evaluation of the DCN (Dunn 2020) concluded that:

"The DCN provided an entry point, framework and impetus to organisations wishing to support essential digital skills for their own workforce and their clients. While it is not a turnkey solution – setting up and sustaining a Digital Champion approach requires considerable and sustained commitment and resource from the organisation at all levels – the DCN has been shown to be an effective enabler" (Dunn, 2020, p. 16).

5.3 Informal approaches

Similar to digital champions, peer-to-peer support platforms and networks provide an opportunity for social care staff to digitally upskill themselves and possibly facilitate the knowledge transfer to their colleagues. This is a rather informal approach to learning. It is particularly useful when there is no time for staff to attend external training. At the same time, it can build confidence among staff to lead and develop their skills individually and apply their knowledge instantly (NCVO, 2015; NHS, 2020; Skills for Care, 2020b).

Another informal approach is the intergenerational methodology. In this case, younger people, who have grown up in the digital age are helping older people develop their digital skills. It could even go so far as connecting care home residents with local primary school children (NHS Digital, 2019; Randall, 2015). This approach is most likely to succeed, if the young people have an understanding of the barriers older people may face when it comes to developing digital skills (Moroney, 2020).

6 Barriers to learning and development

Overview

Barriers to digital adoption generally are important to understand in order to provide a context for learning. They include:

- Resource and capacity
- Lack of leadership
- Infrastructure and interoperability issues
- Concerns around workforce skills
- Supply of digital technology for adult social care

In terms of learning and development, the barriers are less well researched but include:

- External factors around coordinated learning opportunities, formal and informal as well as lack of end goals or a framework for learning
- Organisational factors including lack of investment and motivation to support workforce development, lack of resource, assumption that learning will transfer across contexts, cost of training as well as the lack of an organisational culture of learning and development
- Workforce factors like finding time to train, confidence to become involved if starting from a low base, lack of incentives to develop digital skills, sometimes associated with lack of opportunities to embed any new skills.

6.1 Introduction

There has been work conducted to look at the barriers to both general adoption of digital technology, and to a much lesser extent, barriers to workforce development. It is important to understand the broader context of adoption before focusing on the barriers to workforce development as they have a strong influence on developing skills. The barriers to adoption reported in the health and social care literature are discussed in detail in a parallel report (Institute of Public Care, 2021) but outlined below in summary.

6.2 General barriers to adoption of digital technology

An unpublished report commissioned by Skills for Care (2019) identified four key barriers for digital adoption including **resource and capacity**, **lack of leadership**, issues with **infrastructure and interoperability,** concerns around the **workforce.** IPC (2021) identified a fifth final challenge around **supply** of digital technology.

Resource and capacity

Firstly, issues around resource and capacity to invest in adopting digital technology exist. Literature identified focused on:

- The limited resources in the sector that are available to ensure delivery at pace (Digital Health and Care Scotland, 2018; Institute of Public Care, 2016; Skills Platform, 2020)
- The lag between initial ideas and pilots being developed and delivered against the longer time period for wider scale adoption often linked to process (Bashford & Finucane, 2017; Health and Social Care Board, 2016; Social Care Institute for Excellence & The British Association of Social Workers, 2019; Tinder Foundation, 2016)
- At an organisational level, the lack of priority given to investing both time and money in digital technology (Asthana et al., 2019; Castle-Clarke & Hutchings, 2019; Digital Social Care, 2019; Randall, 2015; Social Care Institute for Excellence & The British Association of Social Workers, 2019)
- Limited time available often to make decisions and implement (Bashford & Finucane, 2017; Castle-Clarke & Hutchings, 2019; Skills for Care, 2020b; Williams et al., 2020)
- The overall perceived high cost of technology (Brittain, 2020; Deloitte Centre for Health Solutions, 2019; Maguire et al., 2018; Skills for Care, 2020b; The South East Health Technologies Alliance, 2016)

Leadership

Leadership is key to digital adoption and in particular, the literature identified the following specific issues:

- Lack of leadership, or a culture of innovation in the sector, which has been identified as an ongoing theme for a number of years (Consilium Research & Consultancy, 2018; Deloitte Centre for Health Solutions, 2019; Digital Health and Care Scotland, 2018; Digital Social Care, 2019; Institute of Public Care, 2021; Keenan et al., 2020; Randall, 2015; Skills for Care, 2020b)
- Lack of engagement at an organisational level as technology is not seen as a priority (Skills for Care, 2020b; Williams et al., 2020)
- Lack of clear evidence for social care employers to understand the impact of digital technology (Collins, 2020; Hamilton et al., 2014; Health and Social Care Board, 2016)

Infrastructure and interoperability issues

Being able to connect to the internet is fundamental to digital adoption and despite progress made across the UK, this is still being reported as a barrier for the social care sector (Alty, 2020; Department for Digital Culture Media and Sport 2017; Digital Social Care, 2019; Institute of Public Care, 2021; Welsh Government et al., 2019). Digital Health and Care 2018. There are various initiatives ongoing to help address this at a national governmental level, in particular, via NHSX.

The issue of interoperability is a key barrier to innovation and this becomes even more pertinent as we move further toward integration with health (Bashford & Finucane, 2017;

Deloitte Centre for Health Solutions, 2019; Digital Health and Care Scotland, 2018; Digital Social Care, 2019; Health and Social Care Board, 2016; Institute of Public Care, 2016; Social Care Institute for Excellence & The British Association of Social Workers, 2019).

Concerns around the workforce

In terms of workforce development, understanding current barriers to adopting digital technology is vital. Skills and capabilities can be thought of at two levels, organisational and individual. While factors above (e.g. leadership) tie into the organisational level capabilities, it can also include the following aspects:

- A mismatch between technology available and task to be completed
  (Alty, 2020; Brown et al., 2020; Digital Social Care, 2019)
- Lack of organisational capability or skills to navigate a busy market to choose the right product to meet service needs
  (Alty, 2020; Consilium Research & Consultancy, 2018; Deloitte Centre for Health Solutions, 2019; Hamilton et al., 2014; Skills Platform, 2020; Social Care Institute for Excellence & The British Association of Social Workers, 2019; The South East Health Technologies Alliance, 2016)
- Concerns around staff skills and comfort levels using digital technology in a work environment
  (Brittain, 2020; Institute of Public Care, 2020; NHS Digital, 2019; Skills for Care, 2020b; Skills Platform, 2020; Welsh Government et al., 2019; Woolham et al., 2018)
- Lack of belief or confidence in technology as a positive tool for delivery of care and support is an ongoing theme that has yet to be resolved. Staff are concerned that using technology might be more time consuming, and potentially take time away from face-to-face contact
  (Alty, 2020; Asthana et al., 2019; Brown et al., 2020; Department for Digital Culture Media and Sport 2017; Digital Social Care, 2019; Health and Social Care Board, 2016; Keenan et al., 2020; Kispeter, 2018; Leeds City Council, 2016; Lloyds Bank, 2020; Newman, 2019; NHS Digital, 2019; Papadopoulos et al., 2020; Read et al., 2020; The South East Health Technologies Alliance, 2016; Woolham et al., 2018)
- Concerns around data protection, security and privacy act as a barrier for both organisations and staff. However, many organisations now have a data protection champion in place alongside policies to help with cybersecurity.
  (Alty, 2020; Brown et al., 2020; Department for Digital Culture Media and Sport 2017; Digital Social Care, 2019; Health and Social Care Board, 2016; Leeds City Council, 2016; NHS Digital, 2019; Read et al., 2020; Skills for Care, 2020b)

6.3 Barriers to learning and development

Less work has been done to identify barriers to learning and development in this area, particularly for social care, although we can learn lessons from other related fields, health in particular. Barriers can be split into external, organisation level and workforce factors.

Table 6: External barriers to learning and development

External
There are limited learning and development opportunities available to meet the needs of employers and staff.
Current opportunities are described as fragmented as there is no common goal to work toward; inflexible which does not meet user needs.
Limited opportunities for peer-to-peer learning, which staff have reported as appropriate for digital skill development, are currently on offer although digital champion approaches are on the increase nationally.
The lack of common understanding and standards for learning creates issues for as employers are not sure what digital skills should be developed in staff.
Sources: (Castle-Clarke & Hutchings, 2019; Deloitte Centre for Health Solutions, 2019; Department for Digital Culture Media and Sport 2017; Health Education England, 2016d; Institute of Public Care, 2020; Kispeter, 2018; Leeds City Council, 2016, 2018; Pownall, 2019; Skills for Care, 2020b, 2021; Woolham et al., 2018)

Table 7: Organisational barriers

Organisational/regional
Lack of investment in staff development or motivation to develop staff digitally from within the organisation, potentially linked to a lack of leadership.
Limited offer of support to access online learning and resources available for employers to help with workforce development.
Lack of resource to invest in staff development available at an organisational level.
Limited strategic vision/digital leadership/ management support to upskills staff and embed learning within the organisation.
An assumption that learning will transfer across contexts, so for example if someone is able to use a smart phone, they have the necessary skills to do other tasks.
The costs associated with upskilling staff, including the cost of the course itself, staff time out to participate in training as well as potential costs for staff cover to allow this to happen.
Not all organisations have developed a supportive learning and development culture which can act as a barrier for staff. Again, linked to leadership.
Sources: (Allbutt, 2015; Brown et al., 2020; Castle-Clarke & Hutchings, 2019; Digital Social Care, 2019; Ecorys UK, 2016; Health Education England, 2016b; Hughes, 2018; Keenan et al., 2020; Leeds City Council, 2016; Pownall, 2019; Price-Dowd, 2019; Skills for Care, 2020b; The South East Health Technologies Alliance, 2016; Tinder Foundation, 2016; Woolham et al., 2018)

Table 8: Workforce factors

Individual
Finding the time to develop digital skills amongst a busy workday.
Lack of initial digital skills and literacy can act as a barrier to accessing learning and development.
Lack of incentive or motivation to learn new skills in this area.
Lack of opportunities to embed new skills within an organisation, meaning skills are lost.
Sources: (Hamilton et al., 2014; Hughes, 2018; Keenan et al., 2020; Kispeter, 2018; Pownall, 2019; Price-Dowd, 2019; Welsh Government et al., 2019)

7 Opportunities and facilitators

Key benefits of digital technologies:

- Professional development of social care workforce through eLearning, social networking, access to information
- More efficient care delivery through digital care planning, staff management, data management
- Better joined up care through electronic health and care records and improved hospital discharges
- Time-efficient and cost-effective care through telecare, remote home visits, telehealth
- Financial savings
- Improved individuals' experience through assistive technologies, more frequent care visits, more time with staff, increased involvement in treatments

Key facilitators of digital adoption and learning and development

- Leadership and management factors
  - Clear strategies and vision, with buy-in on all levels of leadership and management to motivate employees
  - Right infrastructure to support and facilitate digital change
  - Open and trusting organisational culture with an ethos of information and knowledge sharing, where learning is rewarded and encouraged
  - Focus on accessibility to remove barriers and inequalities among staff and people using services
  - Talent management, understanding the skill gaps, recruiting appropriately, and support staff to develop skills
- Hands-on factors
  - Provide time for staff to develop skill
  - Establish personalised needs assessments
  - Encourage informal learning and peer support
  - Provide digital devices and make a variety of learning and development resources accessible.

7.1 Opportunities/Benefits

The rapid evidence review identified many reports and studies that describe benefits and opportunities through digital technologies. As Institute of Public Care (2021) points out, "there is no standardized methodology or metrics to present benefits in a consistent way that facilitates comparison across and within services" (p.5). Social care services differ in scale, setting, maturity and type. That means the impact of digital technologies in one care home, for example, are not necessarily transferable to another care home.

As a result, the following overview represents an approach to categorise the different types of benefits digital technologies could have in the adult social care setting.

Digital technologies may contribute to productivity improvements, including:

- Professional development
- Business operation
- Impact on people using services.

Professional development

Digital technology can facilitate professional development through networking, learning opportunities, collaboration, and finding information. Examples include:

1. Social media can facilitate knowledge exchange among health care professionals and promotion of occupational therapy services (Hughes, 2018) and help build professional networks (Royal College of Occupational Therapists, 2019).
2. Flexible learning and development, allowing for greater access to more resources and facilitate collaboration among learners (Kennedy & Yaldren, 2017). These resources can also include information on self-care for social care workers (Health Education England, 2016d).
3. Digital devices help make information readily available and workers can upskill while they work (Leeds City Council, 2016), which is particularly helpful to workers on remote home visits (Copeland, 2019; Read et al., 2020).
4. The internet can make public services more accessible (Age UK, 2018).
5. Digital technologies allow staff to meet professional standards by facilitating continuous professional development (Social Care Institute for Excellence & The British Association of Social Workers, 2019).

Business operations

Digital technology can streamline existing processes and enable new operating models (Copeland, 2019) and thus not only improve patient/service user experience but also create financial savings (NHS Providers, 2020). Care homes can benefit from “even the simplest and most commonly found technologies in any business, including accounting software, staff-rostering software, text messaging, social media and websites” (The South East Health Technologies Alliance, 2016). For instance, digital systems are more time efficient than paper-based systems and thus provide more time for clients and residents (Skills for Care, 2020b; Social Care Institute for Excellence & The British Association of Social Workers, 2019). Information is available and paperwork cannot go missing if digitally stored. Thus, care records and notes can also easily be shared with clients’ families to involve them in the care process (Skills for Care, 2020b). During the COVID-19 pandemic, a study showed that use of NHSmail, digital rostering and visit logging reduced administrative effort by care home providers (Digital Social Care, 2020).

Digital technology can improve the process of hospital discharges. By allowing, for instance, a remote review of an individuals' home environment, occupational therapists reduce their travel time and costs and people feel less intrusion into their properties (Alty, 2020). As a result, users could receive equipment more quickly and 'remote home visits' could offer more regular check-ins with patients (Read et al., 2020).

Electronic health records (EHRs) can improve communication between nurses (between shifts), care personnel, and increase involvement in care of individuals and families if they have access to EHR and understand EHRs (Brown et al., 2020; Health and Social Care Board, 2016; NHS Digital, 2019). Electronic care planning can also increase care worker engagement, particularly for those care workers who are motivated to engage in digital change (Brittain, 2020). While digital records support service management and planning, they can also minimise risks, such as medication errors, dehydration or missed visits (Care Quality Commission, 2020). Thus, it can also improve clinical outcomes (NHS Providers, 2020).

Digital technology has the potential to enable stronger therapeutic relationships, for example, through allowing more regular interaction than typically possible through face-to-face interactions alone (Collins, 2020). Replacing some face-to-face meetings with digital technology can increase financial efficiency through therapist time and reduced travel costs.

Telecare can prevent avoidable hospitalisation, prevent or delay a move into a care home, and support family carers (Woolham, 2019). It can also reduce loneliness amongst older people (Sanders, 2020; Woolham et al., 2018). Video consultations can help with daily activities and isolation, which has been particularly useful during the COVID-19 pandemic (Local Government Association, 2020). People using services can be supported in their own homes by care workers using mobile technology to access data and records (Digital Scotland, 2017). Technology enabled care services can also include pressure sensors, fall, smoke and flood monitors. Allowing patients to read their vital signs remotely can make them more engaged with their medical condition (Tunstall Healthcare, 2020; Voluntary Organisations Disability Group, 2017; Welsh Government et al., 2019). As a result, digital technology can improve patients' adherence to medicines and treatments (NHS Digital, 2019). Telecare and assistive technologies not only reduce hospital admissions but also prevent incidents in the first place. This also improves patient experience (Maguire et al., 2018).

Technology can trigger financial savings in care homes that offset the initial purchasing and set-up costs of TECS. As The South East Health Technologies Alliance (2016) pointed out, sustainability of TECS can be ensured if the following conditions are met: 1) resource efficiency is improved, i.e. staff workflows and workloads are optimised or reduced by decreasing medical incidents with residents; 2) rates of referral are improved, i.e. improve reputation of care home by excelling in official inspections and improving patient experience, as well as refined marketing activities; 3) insurance bill is reduced, i.e. implementation of robust systems to reduce number of incidents, as well as more effective responses to incidents and increase in staff training.

Impact on people using services

Digital technology in care homes can be seen as a life-enhancing activity as it supports person centred care (Moroney, 2020). It also allows for self-monitoring and self-management of treatments, diseases and symptoms (NHS & Health Education England, 2019). This, as mentioned above, can make individuals more engaged with their medical condition (Tunstall Healthcare, 2020; Voluntary Organisations Disability Group, 2017; Welsh Government et al., 2019). Assistive technologies can enable care to focus on patient's needs, e.g. when people have communication needs (Social Care Institute for Excellence & The British Association of Social Workers, 2019). Thus, digital technologies can enhance the quality of life and independence of people using services.

7.2 Facilitators

The rapid evidence review identified various 'factors of success'. The first list includes facilitators which targets leadership and management levels of an organisation, whereas the second list focusses on the frontline staff and includes more 'hands-on' factors.

The leadership and management facilitators are split into three 'categories'. There are generic facilitators that apply to digital transformations of organisations but can also be applied to learning and development. Also, there are facilitators that are specific to workforce development as well as to digital adoption. The hands-on facilitators are focussed on digital adoption on a staff level as well as workforce development.

The final list includes demographic and ambiguous factors, which could either be facilitators or barriers to digital change, depending on the circumstances or the individual.

Generic leadership and management facilitators include:

- Government support: support to enable health and care providers to achieve a minimum technology standard, provide a supportive policy context
- Strategy: clear strategy to improve the digital skills of the workforce on a macro level, run campaigns to raise awareness of benefits of digital skill development
- Digital ecosystem: systemic approach to take a holistic approach rather than focussing on individuals and using multiple partnerships, invest in local and co-produced digital approaches and focus on interoperability as well as clarity of purpose for the use of digital technology
- Leadership: buy-in at all levels of leadership and management. Importance as well as opportunities and benefits of digital skills need to be clearly articulated to the workforce.
- Organisational culture: open and trusting culture with an ethos of information and knowledge sharing. A transformational change may be seen as threatening rather than motivating by staff.

Leadership and management facilitators specific to workforce development

- Talent management: Recruiting for digital skills, recognising skill gaps in the organisation, and identifying transferable skills that can be transitioned into a digital work context
- Digital development of skills: Utilising online/digital resources and tools for learning and development, providing ongoing training opportunities; provide and encourage opportunities for both formal and informal learning
- Reward learning: encouraging and motivating workforce by celebrating successes and achievements (and potentially provide promotional chances for continuous development)

Leadership and management facilitators specific to digital adoption

- Infrastructure: Providing solid internet connection, a network of suitable speed to connect digital devices, buying the right technology, laptops and desktops and software licenses
- Focus on accessibility: Implementing accessible systems, e.g. electronic health records, e-rostering, secure communication systems, electronic tracking of equipment, patients and staff
- Agile approach: providing a flexible, iterative approach including user research to roll out technological/digital change, collaborative approach, evidence led, to showcase usefulness and clarity of systems (e.g. time saving, communication and quality benefits)

Sources: (Asthana et al., 2019; Brittain, 2020; Castle-Clarke & Hutchings, 2019; Deloitte Centre for Health Solutions, 2019; Ecorys UK, 2016; Health Education England, 2016b; HM Government, 2014; Kennedy & Yaldren, 2017; Kispeter, 2018; Leeds City Council, 2018; Local Government Association, 2017, 2019; Newman, 2019; NHS & Health Education England, 2019; Price-Dowd, 2019; SMCI Associates, 2014; Social Care Institute for Excellence & The British Association of Social Workers, 2019; Technology Enabled Care; Tunstall Healthcare, 2020; Voluntary Organisations Disability Group, 2017)

More hands-on facilitators:

- Providing stable digital systems to avoid disruption of service provision, making small improvements to existing ways of doing things rather than delivering transformative change
- Digital resources and training must be compatible with desktop and mobile devices to ensure accessibility
- Promoting staff self-efficacy and confidence, providing group sessions and facilitate peer support or a buddy system
- Providing time for staff to engage in learning and development opportunities
- Establishing personalised needs assessments, peer mentors
- Providing easily accessible information for staff on policies, guidance, user guides, top tips, technical advice and support to break the technological adoption barrier
- Involving digital champions and digital leaders to evaluate digital change

Sources: (Age UK, 2019; Brown et al., 2020; Collins, 2020; Health Education England, 2016a; Leeds City Council, 2016, 2018; Moroney, 2020; Newman, 2019; Piercy, 2019; Pownall, 2019; Sanders, 2020)

Ambiguous factors:

- Workplace size: smaller sized organisations are less likely to engage in digital transformations due to a lack of time and resources or don't think they need digital skills (Curtarelli, 2016). On the other hand, a corporate home willing to invest in digital might struggle as the corporation has its own objectives (Keenan et al., 2020). Skills for Care (2021) found that larger organisations were more likely to have access to a range of digital systems compared to smaller organisations.
- Demographic factors: age, gender and educational background can all play a role in terms of how developed digital skills are, or how open on developing them people are (Van Laar et al., 2020).
- Managers: Not all managers understand the demand for digital skills or feel comfortable leading the change (Leeds City Council, 2018)
- Social care worker: Professional care workers are different from informal caregivers, in terms of background, skills base, education, etc. (Carer+, 2015b), but also professional care workers are a very heterogeneous group, in terms of educational level, cultural background, previous experience with digital, etc. (Brittain, 2020). Also, there is variety in levels of confidence and motivation to engage with digital technologies (Newman, 2019).
- People using services: A very heterogenous group, which includes people that might react positively to digital changes, but also others who will not (Moroney, 2020).

8 Future skills needed

Overview

This review identified very little published information in this area directly related to adult social care. Skills from the wider literature indicated skills will be needed to make more use of digital technologies across problem solving, use and management of data, communication, security and AI and robotics.

8.1 Future skills

Our searches did not identify many articles that included information on future skills, let alone a specification of what particular digital skills are needed in adult social care. Many reports were rather general in their position and assessment of future skills and did not specify what digital skills exactly might be of importance in the near or distant future. Similarly, ADASS' Nine Statements to Help Shape Social Care Reform only refers to digital technologies without going into much detail (ADASS, 2020). The seventh statement states that access to technological and digital solutions needs to be prioritised so that the social care workforce can benefit from them.

A case in point is the role of artificial intelligence and robotics. As Consilium Research & Consultancy (2018) argue, "Unsurprisingly the focus of any training is likely to be influenced by the design and intended purpose of the AI and robotic technology, the needs of the person in receipt of care and the care setting" (p.9). This illustrates the fact that to understand what future skills the adult social care sector needs to develop or focus on not only depends on which digital technologies are available and financially feasible, but also the care setting and, quite significantly, the people using care service.

However, some reports did specify the type of digital skills, which might become important in the social care sector in the future. The following table includes an overview of these digital skills.

Table 9: Future digital skills

Type	Source
Digital problem-solving	(NESTA, 2018; Skills for Care, 2020a)
Creation of digital outputs	(Copeland, 2019; NESTA, 2018)
Creation of new technology	(Copeland, 2019; Skills Development Scotland, 2018)
Digital communication	(Ecorys UK, 2016; Skills for Care, 2020a)
Digital leadership	(Kispeter, 2018)
Use of digital eLearning platforms	(Skills for Care, 2020a)
Use of digital staff management	(Skills for Care, 2020a)

Use of digital care management	(PAGB, 2019; Skills for Care, 2020a)
Use of digital security	(Ecorys UK, 2016; Skills for Care, 2020a, 2021)
Robotics, artificial intelligence, machine learning, big data	(Dahl, 2014; Makes me digital, 2018; PAGB, 2019; Papadopoulos et al., 2020; The AHSN Network, 2018; The Parliamentary Office of Science and Technology, 2018; UK-RAS Network, 2017)
Digital care assistance	(Ecorys UK, 2016; Reynolds & England, 2020)
Less likely to grow in demand	
Use of software for administrative purposes	(NESTA, 2018)

Understandably, a rising demand in digital skills goes along with an increase in learning and development needs. Accordingly, to meet the demand of the labour market for digital skills, being able to continue professionally develop one's digital skills, which allows flexible working and flexible learning is a necessity. Educational programs need to be reactive to the demands of the labour market and offered in a variety of forms to meet the lifelong learning needs of a highly skilled ICT professional community (Bacon & MacKinnon, 2016). This is particularly important for job roles at the interface of humans and technology translating data, knowledge, and information between them. A shared education route would enable staff to move more flexibly between different roles across the sector (Rimpiläinen et al., 2019; Scottish Social Service workforce, 2020).

9 Gaps in research

Overview

The review highlighted a number of research gaps including the lack of research around digital exclusion, motivations and incentives to access learning, effectiveness of different learning approaches and future skills.

9.1 Gaps in research

The consensus is that there is limited evidence on the impact of digital technology on the productivity or performance of the health and social care workforce (Honeyman et al., 2019). Asthana et al. (2019) summarised the lack of evidence by stating: “While there is an abundance of technology available, the evidence is not there to support adoption in NHS”. While this statement is referring to the NHS, it can equally be applied to the adult social care sector. Research gaps identified (Health Education England, 2016d):

- Evaluation of the impact that a digital literacy strategy has upon any specific workforce’s performance
- Need for systematic literature review on the subject of digital literacy for non-hospital settings in the health and social care sector
- Whilst there is small scale research on acceptability of digital technology to support care, there is little on evaluating how it impacts on improving care delivery
- Explore factors that support the relationship between digital literacy, use of digital technology and innovation.

As digital hardware and software is so diverse in the health and social care sector, it is difficult to measure generalised self-reported digital experience in the workplace. Rather, a bottom-up approach, focussing on local solutions will enable a meaningful measurement (Newman, 2019).

This review has also identified limited research in the following areas:

- Research that is specific to different roles within the sector, for example nurses in social care. Much of the evidence identified related to nursing in health settings which provides some insight but lacks detail.
- Digital exclusion is an ongoing issue and while there is some research, it is limited. More work to understand digital exclusion both from an individual but also an organisational point of view would be helpful

- There is a growing body of research focused on general barriers to digital adoption however, less is known about the motivations to accessing learning and development from an individual and organisational point of view
- A focus on effectiveness of different approaches to learning and development could help shape our approach to supporting the workforce
- While there is some information on the future skills for digital use generally, less is known for the sector. The NHSX Digital Skills Review will go some way in helping our understanding in this area.

10 Conclusion

Like others, this review has concluded that there is no one definition of digital skills or indeed any consistency in the language associated with describing workforce development in this area. The NSHX Digital Skills Review will help move us toward an understanding of this but there is still a need to develop sector specific understanding of what this might look like and how it can be operationalised.

The review found that there is a perception that the adult social care sector lags behind others in adoption of digital technology, and by association, digital skills. However, there is also clear acknowledgement of the progress there has been, and even more so since March 2020. The impact of the COVID-19 pandemic has moved the sector forward in its use of technology.

A range of skills frameworks exist, and this review has identified the core elements which are typically found in what can be described as ‘basic’ digital skills, advanced skills, future skills and organisational skills. However, the review also identified a range of barriers both to the use of technology generally and learning and development specifically which are important to address as part of any work to support the sector moving forward.

In particular, barriers focused on external factors like the number of opportunities that are currently available, and the appropriateness of those available. Perhaps more importantly though was the emerging view that the lack of a framework or understanding of what constitutes digital skills is a barrier that should be addressed. In addition, organisational barriers, including leadership and culture, are part of the wider picture while considering individual barriers to developing digital skills that are fit for purpose.

Current opportunities for development include both formal and informal learning. Formal opportunities can range from high-level programmes as demonstrated in other sectors (e.g. NHS Digital Academy) through to standardised eLearning or face to face learning. Informal learning is growing in this area and digital champions were identified in the literature as a flexible, continuous support system for individual learners. The limited evidence would suggest that both approaches are required to offer a flexible offer to individuals in the sector. However, more work is needed to understand the impact and effectiveness of learning and development in this area and to have a better grasp of the motivations and incentives required to engage.

Digital technology, especially at this point, offers many opportunities for the sector to potentially improve efficiency, joined-up working and the experiences of people using services. Key facilitators to improving access which focus on the workforce include a clear need to ensure there is strong leadership, culture and talent management in order to provide a safe environment for staff to learn and put that learning into practice.

The future skills needed in the sector needs more investigation, but the wider literature would indicate that skills will be needed to make more use of digital technologies across problem solving, use and management of data, communication, security and AI and robotics.

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Appendices

APPENDIX A: Review Methods

Introduction

This appendix sets out the conceptual framework for rapid evidence review including the key questions, key concepts, any underlying assumptions associated with the review, the search strategy, key terms and the quality assessment processes for included papers. The following is up for discussion and as the review progresses, may need to be revisited to reflect findings emerging from the searches.

Key Questions

Forming the key questions is an important step in guiding the subsequent literature review. Based on our experience, it is often useful to flesh out the initial research questions with subsidiary questions to focus thinking and help to define scope of the work.

What are the current definitions of 'digital skills'? • What does the social care sector define as 'digital skills'? • What can we learn from outside social care (general public) definitions of 'digital skills'? • What commonalities and differences exist in definitions around digital skills?
What digital skills frameworks or tools to measure digital skills currently exist? ▪ What frameworks/tools can we identify specifically for the social care sector? ▪ What frameworks/tools exist outside social care (general public) that we can learn from? ▪ What areas of commonality exist between frameworks/tools? ▪ What can we identify as skills specific to social care sector?
What can the literature tell us about existing skills? • Is there any evidence of digital skills in the sector (across staff groups)? • What is the level of digital exclusion? • What are the current skills gaps in the sector? • Which roles engage with digital technology as part of their work? • What impact has COVID-19 had on digital skills?
What do we know about L+D (including training) to support digital skills? ▪ What do we know about existing approaches to learning and development around digital skills and their effectiveness? ▪ How accessible is L+D and what are the barriers? ▪ What proportion of the workforce have had digital skills L+D?
What are the barriers to developing digital skills? 1 What are the reported barriers that exist when developing digital skills? 2 What can be done to overcome these barriers? 3 What incentives are known to be effective to build an appetite for digital skills?
What do we know about future skills?

- What does the literature tell us about future skills needed in the social care sector?
- What are the main skills gaps that exist?

Scope of the rapid evidence review

The following sets out the proposed key terms to be used in each of areas. Searches would be conducted as combinations of the agreed search terms. In addition, we would apply the inclusion criteria set out below. This is a 'starter for ten' list which will develop as we start the search process.

Digital Digital* Technol* IT Skills Literacy Capabil*	**Frameworks / training approaches** Framework Tools Benchmark* Train* Learning and development Digital champion* Peer to peer learning eLearning
Engagement Incentiv* Participat* Barriers Challeng* Facilitators COVID-19	**Effectiveness** Effectiv* Success* Best practice Guidance
Staff groups Social work* Occupational thera* Nurs* Social care Direct care Care workers Registered manager* Social care leader*	**Future needs** Artificial intelligence Robotics Machine learning Big data

Definitions to frame the rapid evidence review

Of significant importance is obtaining agreement on the language to be used for the purposes of the literature review. The literature review does not seek to impose a set of definitions but rather to provide clarity for the concepts and assumptions of the literature review in order to clearly define the scope and parameters of the research for all involved.

Populations

Given the varied roles in adult social care and the need for multi-disciplinary teams to work together, the review will look at a range of staff groups in the care workforce. Included in this review will be:

- Direct care roles (care workers, care managers) both those directly employed by councils and those commissioned by councils
- Social workers with a focus on adult social work
- Nursing care and occupational therapists who work primarily in a social care setting Local Authority staff with a critical role in care delivery including brokerage services, care coordinators and commissioning roles.

Search strategies

We know from past experience that literature in this area is sparse so we will make every attempt to identify high quality information by following a comprehensive search strategy. This will involve a search (including citations search) of the key databases via EBSCO, a leading provider of research databases, e-journals, magazine subscriptions and discovery service. Access to published literature will be supported by searches of the following websites to identify grey literature, including contact for further information if needed. The table below outlines initial thoughts for the search but will expand as we begin to explore this area.

- ADASS
- SCIE
- NICE
- National Institute for Social Care and Health Research
- National Care Association
- UK Homecare Association
- Age UK
- DMSC
- NHS Digital
- BASW
- RCOT

- LGA
- Skills for Care
- Scottish Social Research
- Social Care Institute for Excellence
- Care England
- Shared Lives Plus
- Care Providers Alliance
- NHSX
- TSA
- HEE
- TLAP
- RCN

Inclusion and exclusion criteria

Inclusion criteria	
Year	Published during or after 2014
Language	Published in English
Nature of evidence	Peer reviewed international literature Primary studies from UK Grey literature from UK only National level guidance documents from UK (where relevant) International guidance where relevant

Study design	Review of reviews Evidence reviews (systematic, rapid, scoping) Primary qualitative and quantitative evaluation studies Primary qualitative and quantitative needs assessment or evidence gathering studies Expert opinion (with cautionary notes)
Topic	Digital skills Learning and developing Gaps in current workforce development Shared learning and reviewing
Settings	All adult social care settings
Outcomes	

Exclusion criteria	
Year	Published before 2014
Language	Not published in English
Nature of evidence	International primary studies Grey literature from international audience
Topic	Focus on information provision Focus on reviewing materials
Setting	Settings outside adult social care

Quality assessment

This literature review will be transparent in process but is not a systematic review of the evidence therefore we will take the following steps to assess quality of studies which match our inclusion criteria:

- Is the study relevant to the review questions?
- Are the methods valid and appropriate (design, sampling, data collection)?
- Is there a strong and appropriate analysis of the data and presentation of the findings?
- Have the findings been interpreted appropriately?
- Have the limitations of the study been considered and amendments made to reflect these?

For reviews of evidence the following questions will be posed:

- Is the study relevant to the review questions?
- Was there a comprehensive search strategy stated and conducted?
- Were the quality of primary studies assessed?
- Were results from primary studies integrated into overall findings adequately?
- Is there adequate data to support conclusions of the review?

For both types of study where, the study will be classified as ‘strong’ (4 or 5 of the stated criteria have been met), ‘adequate’ (2 or 3 of the stated criteria have been met) or ‘weak’ (0 or 1 of the stated criteria have been met). Only strong and adequate studies will be taken forward for data extraction. There is one exception to this, in the case of weak studies where no other evidence is available; they will be included in the narrative report with cautionary notes.

Data extraction

The following information will be extracted directly into Endnote for individual studies:

- Study details
- Target population
- Setting
- Focus of the study
- Included or excluded.

Narrative

Following the screening process and the decision to include, findings from included studies will be directly written into a narrative to highlight the key points and begin the process of synthesising the material available for discussion.

APPENDIX B: List of case studies to illustrate use of technology in adult social care

Case study	Source
Occupational therapists to use video calls to next of kin to facilitate hospital discharge	(Alty, 2020)
Capacity Tracker to provide live care home bed state / capacity to clinical and hospital staff	(Department for Health and Social Care, 2018)
Acoustic monitoring systems to monitor the sleep of patients	
Amazon Echos to support people with care needs	
Whole Systems Integrated Care to support care staff to identify people with increased risks	
GP nurses ALS programme	(Beaney et al., 2019)
Digital Practitioner Programme	(Leeds City Council, 2016, 2018)
Carer+ Project	(Carer+, 2015a, 2015b; European Commission, 2015)
Peer to peer digital skills programme	(Ridgeway, 2018)
iPad engAGE	(Randall, 2015)
Imagine Armchair Gallery Tours	
Imagine Live Streaming City Arts	
Whitworth Art Sense App	
My House of Memories App	
Alive Activities' Guided Reminiscence Sessions	
myKiosk, a multi-user remote health monitoring solution	(Tunstall Healthcare, 2020)
Framework for Frailty	
Lancashire Telecare Service	
Quest for Quality	
Hampshire Telecare	
Teletriage system	
Go to meeting and Attend Anywhere	(Royal College of Occupational Therapists, 2020a)
Moving with dignity	(Royal College of Occupational Therapists, 2020b)
Digital National Early Warning Score system	(Voluntary Organisations Disability Group, 2017)
Blackburn with Darwen Borough Council using assistive technologies	(Local Government Association, 2018)

Hertfordshire County Council using technology to reduce the risk of falls	
Modular care home management software	(The South East Health Technologies Alliance, 2016)
Docobo telehealth in a residential care setting	
Video consultation service between hospital and nursing homes	
Woffington House having a partnership with Georgetown Primary School	(Public Health Wales, 2019)

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