Technology in social care: spotlight on the English policy landscape, 2019-2022

Dr Grace Whitfield and Dr Kate Hamblin

SUMMARY

This paper explores developments related to digital technologies and social care in England from 2019 to October 2022, building on **a paper published in the 'Sustainable Care' care series** which examined the period 2000-2019. In the earlier paper, Wright (2020) showed that use of technology involves risks and opportunities for the 'fragmented' and 'broken' care sector. In this paper, we develop his argument and provide an updated overview of factors shaping the use of digital technology in social care. We explore implementation in practice, looking at pilot schemes developed by local authorities involving digital technologies in five categories, and examine government policy statements to highlight the forms of technologies they promote. We also focus on a shift in government policy towards localisation of technology use in care through the recently introduced Integrated Care Systems (ICSs), and other changes in central government strategy – focussing on the consolidation of previously separate health and care digital transformation bodies. Lastly, we discuss the encouragement of private sector innovation by the governments in this period, the proliferation of equity-backed platforms, and the contribution this is making to the 'financialisation' of social care.

INTRODUCTION

As elsewhere, experience of the Covid-19 pandemic has exacerbated existing challenges in the social care sector in England. These include issues with workforce supply (UNISON, 2021; Turnpenny and Hussein, 2021); a reliance on, and poorer outcomes for, unpaid carers (Bennett et al, 2000a, b, c); and increased unmet need (ADASS, 2021). English local authorities and care providers operating in England – already under intense and sustained financial pressure – have had to adapt and reassess how care is provided. Within this pressured context, digital technologies have been a growing focus of policy discourse and investment. Digital data collection, for example, became a strategic focus for the Government as it sought to track and ameliorate the impact of Covid-19 (Downey, 2020). Online video calls and remote monitoring technologies also became integral to 'socially distanced' care provision (Warmoth et al, 2022). A 2021 White Paper, '**People at the Heart of Care: adult social care reform**' (DHSC, 2021a), claimed these changes to practices amounted to a 'transformation' of care provision. The White Paper included a commitment to allocate 'at least' £150 million to digital programmes over the next three years (funded through a planned but subsequently cancelled 'social care levy[1]' to further pursue this transformation).

Whether the promised funding was sufficient, given what the Government hoped to achieve, was immediately questioned by care providers, campaign groups, research organisations, and trade unions (Disability Rights, 2021; Carers Trust, 2021; Carers UK, 2021; UNISON, 2021; Kings Fund, 2021).

In the analysis that follows, we build on Wright (2020)'s identification of different categories of digital technologies used in social care: 1) *to deliver, or facilitate the delivery of, social care;* 2) *digital infrastructure;* and 3) *technologies related to data and information.* Reflecting the increased role of digital technologies and systems to *monitor* people receiving care and used by employers to organise the social care workforce and *record* the practice of care, we identify five categories (acknowledging that in practice their deployment and use is often blurred and less discrete than described below). Some technologies referred to in the paper were not designed for care contexts specifically but are increasingly deployed there – and are sometimes advocated in policy discourse and strategies (Wright, 2021; Hamblin, 2022a; DHSC, 2021a). As in all our work in **the Centre for Care**'s **'Digital Care' Theme**, we focus on digital technologies *used* in social care, irrespective of what they were designed for. Our analysis is grounded in the lived experience of all actors in the 'care ecosystems' we are studying and acknowledges the role that people play in co-creating technologies and in shaping their outcomes (Peine and Neven, 2021).

> **The Centre for Care frames social care as an ecosystem, thereby recognising its complexity and adaptive and emergent properties**

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CATEGORIES OF TECHNOLOGIES USED IN CARE

1. *Technologies used to assist:* These are mainly assistive digital devices that support people with physical or learning disabilities to undertake tasks and/or provide social or cognitive assistance.

2. *Technologies used to monitor:* These include telecare, telehealth and telemedicine devices (collectively known as TECS ['Technology Enabled Care Services'] connected to systems for monitoring and response purposes). We include in this category mainstream 'smart' and 'Internet of Things' (IoT) devices increasingly used in social care to monitor people at home (Wright, 2021; Hamblin, 2022a), such as home hubs, mobile devices, sensors, security systems, and wearables (smartwatches, activity trackers). The use of technologies to monitor risks and behaviours in some contexts have shifted TECS away from reactive alerts towards proactive and preventative data collection (LGA & IPC, 2016: 12).

3. *Technologies used to organise and record care:* This category includes technologies used to facilitate the management of care work by providers, and communications between, care workers, those who use care services and their unpaid carers. Some of these technologies require a smartphone for use and are increasingly used in social care practice (Hirvonen et al, 2022). They may be mainstream (e.g., messaging services like WhatsApp, or email platforms), or have been developed specifically for use in social care. For example, homecare workers frequently use specialised apps to digitally record notes about care provided, and care providers often use digital platforms for administrative functions such as payroll and shift allocation. We also include technologies such as electronic monitoring systems that record care worker entry/exit times from client homes.

4. *Technologies used to collect and analyse data:* Information in the care sector can be generated by systems used for monitoring and security, by mainstream communication and entertainment technologies, or by systems that organise caring labour. Once data are collected, they can be analysed using algorithms and artificial intelligence (AI refers to software that replicates functions such as classifying, analysing and

predicting, associated with human intelligence [Mistry, 2020]).

5. *Technologies used to connect:* This category includes micro-level technologies that facilitate social communication between people receiving care or support and their carers or family members. Examples include virtual reality technologies, mainstream technologies (smartphones, tablets and computers), and apps (such as Zoom, Facetime and WhatsApp). Their development responds to growing awareness of the importance of relational wellbeing and 'sociality' for securing a 'good life' (Austin, 2020). At a more fundamental level, this category also includes the digital infrastructure required to make other categories of digital technologies function; telecommunication networks, internet services, 5G and fibre broadband; **5G mesh networks and LoRaWAN networks.**

The public bodies driving the strategic direction of digital technology implementation in England have undergone significant change in recent years. Until 2021, most public funding for care technologies was allocated to pilot schemes run by local authorities (LGA et al, 2022; Wright, 2020) by NHS Digital and NHSX. The latter was established in 2019 to 'transform' digital health and care (by a former Secretary of State for Health and Social Care Matt Hancock); NHS Digital, previously referred to as the Health and Social Care Information Centre, was first established in 2013 as a service to collect, utilise, and provide health data. In 2019, these two organisations were merged (along with NHS Improvement and NHS England) into the NHS Transformation Directorate. Subsequently, decisions about digital technologies and care development, funding, and use have been delegated to the newly-created 'Integrated Care Systems' (ICSs). ICSs are partnerships of local authorities, NHS organisations and private care providers involved in planning and delivering health and social care[2]. *The Health and Care Act 2022* set out the statutory basis for 42 ICSs from July 2022 – previously, they existed as informal partnerships between health and social care stakeholders.

Through a range of recent policies, draft papers, plans and legislation, the Government since the 2019 general election has disseminated a vision in which ICSs will use technologies to enable individuals to live independently for longer, increase the personalisation of care provision, and reduce workforce pressures. This vision is viewed as optimistic by some; Freed (2018) refers to a 'hype cycle' – whereby stakeholders highlight the potential of digital technologies – and notes the difficulties of implementation and unmet expectations. Researchers have emphasised that digital technology is no 'silver bullet' (Eccles, 2020) and that implementation outcomes rely on context-dependent factors and processes (Hamblin et al, 2017; Greenhalgh et al, 2020). We contribute to this debate by outlining the main issues impacting outcomes, looking at which forms of technology have been implemented (largely via local-level pilots); ongoing changes to national level strategies; and the growing role of private equity in developing and using care technologies. In analysing these factors, we offer an overview of recent policy decisions and analyses of the practical context of care in which implementation is locally led (Hendy et al, 2012), and highlight processes of financialisation.

'PILOTITIS': IMPLEMENTING TECHNOLOGY THROUGH THE NHS DIGITAL SOCIAL CARE PROGRAMME

While national funding implies some central oversight and shaping of digital technology developments in the care sector, implementation of technologies in social care has generally occurred at a local level. Many technology and digitalisation initiatives in 2019-2022 were funded by NHS Digital through its **Social Care Programme**, which ran 2016-2021. The total investment of £22.8 million was administered by the Local Government Association and NHS Digital. Rounds of funding within the period included:
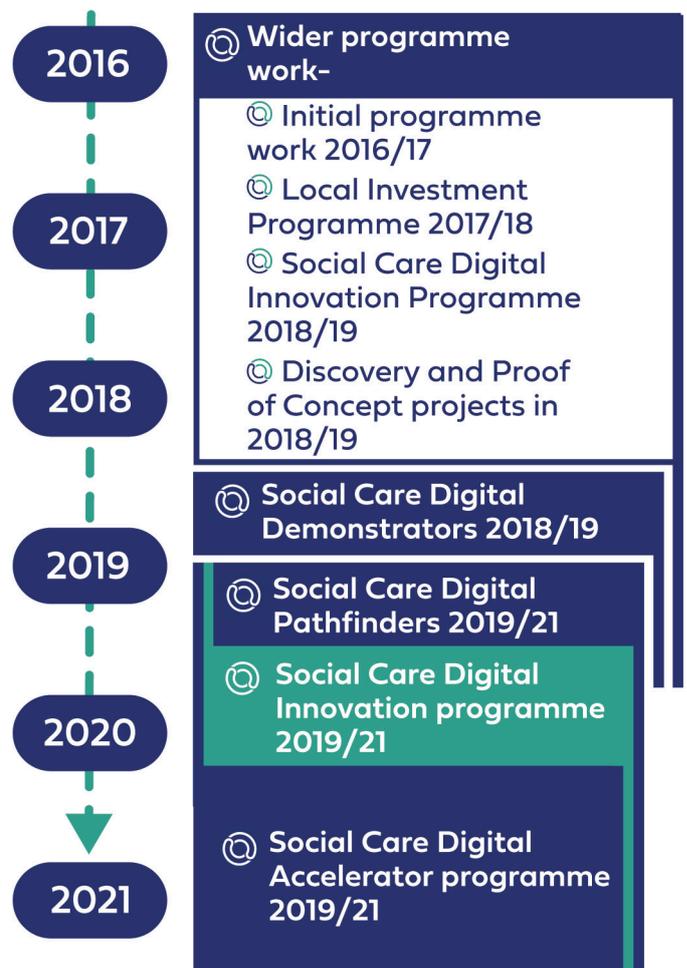

Figure 1: Timeline showing projects and pilots funded between 2016-2021

To receive Social Care Programme funding, local authorities had to submit bids in the programme's 'discovery' and 'implementation' phases.[3] Themes within the programme's remit included: data across boundaries; personalised care and support planning; sharing records; technology in the home; efficiency and strengths-based approaches; managing markets and commissioning; sustainable and integrated care and health systems; and predictive analytics. [Table 1 outlines examples of projects and pilots funded by the programme, by category of digital technologies (as outlined above).]

Table 1: Examples of projects funded by the NHS Digital Social Care Programme

Category	Examples
Technologies used to assist	• *Sunderland City Council* – project to test assistive technology using scorecards. • *London Borough of Richmond upon Thames* – project to assist carers in navigating the social care system using chatbots. • *Isle of Wight, PA Consulting and Hampshire County Council* –project using robotic 'co-bots' (exoskeletons to provide physical assistance with lifting) (LGA et al, 2022).
Technologies to monitor	• *Knowsley Council* – project using PAMAN to allow GPs or pharmacists to watch care users take medication, offer assistance, and communicate via two-way voice communication (using a Medihub device). • *Friends of the Elderly, Allycare, and KareInn* – project exploring acoustic monitoring.[4]
Technologies used to organise and record care	• *Peterborough City Council* – council systems using Servelec database software 'Mosaic' aligned. • *North East Lincolnshire Council* – project improving staff communication, tracking of visits, and rostering.
Technologies used to collect and analyse data	• *South Gloucestershire Council and Sutton Council* – received funding to bring together health and care records, enabling staff across services to access data about an individual's needs (referred to as Digital Red Bags)[5]. • *London Borough of Bexley (NHSX, 2020)* – deployed DOC@HOME, a platform which allows care staff to record health data and transfers data to GPs.
Technologies used to connect	• *Essex County Council* – pilot of video calls. • *Hampshire County Council* – pilot of Amazon Echo devices (LGA, 2021).

REFLECTIONS ON THE NHS DIGITAL SOCIAL CARE PROGRAMME

The White Paper 'People at the Heart of Care' stated that Government would "*build on best practice across the country, including the Social Care Digital Innovation Programme*" and "*produce a shared roadmap of priorities*" to (DHSC, 2021a: 43). To do this effectively, the Government will need to confront the challenges that the Social Care Programme faced. In particular, it will need to respond to the finding that it is difficult to advance collective, sector-wide knowledge of the forms of digital technologies that work through isolated pilot projects, a difficulty referred to as 'pilotitis' (Wright et al, 2021). A 2021 evaluation of the Social Care Programme by RSM UK Consulting LLP (RSM), IMPOWER and the Institute of Public Care (IPC), refers to this challenge. The report notes challenges of low levels of funding (versus high level aims); inadequate timeframes; difficulties in 'moving' funding; the impact of Covid-19; and unrealised potential for scaling-up projects. It also predicts that projects funded by the programme would produce a lifetime benefit of £103.2 million, and highlights some of the successes and challenges experienced in the programme, including: raising the profile of investment in digital care technologies; achievement of improved outcomes for users of the programme; collaboration and team stability; and improved ability to respond to the pandemic.

Some themes from the Social Care Programme themes are continuing via the NHS Transformation Directorate. The Directorate has detailed a 2021 national funding round for local authorities (the **Unified Tech Fund**), allotting most resources to: frontline digitalisation for the NHS and Integrated Care Services (£308 million); diagnostics (£248 million); and the elective recovery technology fund (£250 million). £8.2 million was also made available for digitising social care, with

an expectation that applicants would provide match funding (NHSX, 2021). Improving digital social care records (to facilitate communication between health and care organisations) is listed as one of the aims of the fund, with infrastructure and falls prevention technology (in particular, acoustic monitoring) listed as other aims. Policy papers have focussed on similar priorities: the 'People at the Heart of Care' White Paper (DHSC, 2021a) commits to expanding use of digital care records, developing and improving infrastructure and cyber security, improving digital skills, and funding 'Caretech.'[6] This would build upon the work carried out by **Digital Social Care**[7], which emphasised the importance of developing digital skills (in partnership with the workforce development body 'Skills for Care') and cyber security – through its 'Better Security, Better Care' initiative, that includes a Digital Care Records assured supplier list. Digital care records are the focus of the recent strategy paper **'Data saves lives: reshaping health and social care with data'** (DHSC, 2022b). The paper commits to ensuring that 80% of all social care providers will have digital records in place by March 2024 (an aim also stated in the 2021 White Paper, which said that in November 2021, 40% of providers were 'fully digitalised' [DHSC, 2021a: 44]).

A key area not addressed by the Social Care Programme and less of a focus in recent policies, but of priority for industry bodies related to TECs, is readiness for the digital switchover. The shift from analogue to digital telephone lines is gradually being rolled out across the UK, with a completion date of 2025. Analogue TEC devices do not reliably operate via digital networks, with signals becoming corrupted. There is mixed evidence on local authorities' preparations for this in terms of the decommissioning of analogue devices and their replacement, as well as the need for Alarm Receiving Centres to move to using digital signalling. Many local authorities have developed Digital Social Care Strategy documents, outlining

their plans for using digital technologies, and industry organisations such as the TSA (Technology Enabled Care Services Association) have been assisting care providers to prepare for the 'analogue to digital' switchover. Some local authorities have focussed on developing free internet access networks able to support Internet of Things (IoT) technologies to try to ensure certain geographical areas or population groups are not digitally excluded in terms of access to connectivity. Liverpool Council, for example, has established the Liverpool 5G Create Project, a consortium of health and care providers, researchers, and tech organisations collaborating on a large-scale, free, and independent network. Sunderland City Council has announced a city-wide roll-out of a 5G network to enable scaling-up of assistive technologies that use home sensors, as well as building a Low Powered Network (LoRaWAN) that connects devices such as telecare wearables to the internet internet (Wray, 2021)8. Suffolk County Council and Norfolk County Council are engaged in similar LoRaWAN projects.

Industry remains concerned, however; the managing director of TEC company Astraline, Joe McLoughlin (a member of TSA's programme board) highlighted the need for care providers and housing associations to prepare for digitalisation. In a post on the Astraline website, he commented: *"The vast majority are yet to make provision for the switchover in either their budgets or plans and this is not something that can be done overnight [...] The implications of not delivering the switch successfully in a timely fashion is unthinkable"* (Astraline, 2021). DHSC's July 2022 policy paper **A plan for digital health and social care** (DHSC, 2022c) offered little reassurance on this. It focussed primarily on digital records and claimed: *"Ahead of the telecommunications industry-led transition from analogue to digital telephone lines, completing in 2025, [we will] work with the telecare sector to co-ordinate a stakeholder action plan for those who commission, deliver and supply telecare services and equipment"*. Here 'co-ordinate' suggests that ICSs and providers will ultimately be held responsible for a successful switch. In 2021, NHSX commissioned a survey to assess progress in making the switchover from connectivity consultancy firm FarrPoint. Its report was due to be published in summer 2022' (FarrPoint, n.d.), but a presentation of the findings (Parkinson, 2022) indicates that while awareness of the digital switchover is high amongst providers, the roll-out of digital TECS is limited at present and as a result, around half of providers and suppliers have experienced issues with the reliability of connections between devices and Alarm Receiving Centres.

TRANSFORMING TRANSFORMATION: CHANGE AT THE NATIONAL LEVEL

Central funding for care technologies, such as the NHS Digital Social Care Programme and the Unified Tech Fund, is to be phased out as part of the implementation of new Integrated Care Systems (ICSs). NHSX has stated that from *"2022 to 2023, we propose to start moving away from central funding of frontline tech, and ICSs will increasingly be given control over the resources with which to deliver their tech plans"* (NHSX, 2021: para. 1). Plans for ICSs to bring commissioners and providers of NHS services, local authorities, and care providers together within a geographical region are detailed in the papers '**Integration and innovation: working together to improve health**

and social care for all' (DHSC, 2021b), '**Build back better: our plan for health and social care (the plan)**' (DHSC, 2022d), and '**Health and social care integration: joining up care for people, places and populations**' (DHSC, 2022a). These plans emerged from the Sustainability and Transformation Plans (STPs) put in place in 2016 (the effects of the STPs were uneven: in some areas, the integration of local authorities was 'very weak' [Alderwick et al, 2016: 34]).

It is unclear at time of writing (Autumn 2022) how their responsibilities and decision-making powers in relation to digital technologies will be allocated. The 2022 integration paper (DHSC, 2022a) refers to an intention that *"to support place-based organisations, ICSs will develop digital investment plans for bringing all organisations to the same level of digital maturity"* (DHSC, 2022a: 11). Local authorities and other stakeholders have questioned, though, whether ICSs will be able to deal with this level of responsibility. Speaking at the 2022 UK Authority Integrating Digital Health and Care conference, Hannah Gill (a senior adviser at the Local Government Association (LGA9) said: *"structures alone do not create change [...] [we] need huge investment [...] it's great to see digital within policy, but the risk is that there is a huge amount of top down change coming that councils will have to adapt to quickly"* (Say, 2022a: 'Under-investment risk' section). The LGA (2022) has also questioned whether the DHSC has considered the extent of work involved for local authorities to implement data requirements. Providers registered with the Care Quality Commission (CQC) will be required in future to meet information standards, and those that fail to abide by required standards could be fined. The Secretary of State for Health and Social Care or NHS Digital will also be able to request information from providers; this increased oversight was commented upon by the Healthcare Financial Management Association (HFMA) and Chartered Institute of Public Finance and Accountancy (CIPFA) in a roundtable report, that referred to *"concerning centralisation with additional interventional powers for the Secretary of State"* (HFMA and CIPFA, 2021: 3). The report also contended that Government had not 'fully accepted' the extent of reform and additional funding required within the social care sector, and that it had not thought beyond collaborative working within ICSs should that strategy fail.

The shift towards ICSs has been accompanied by changes to national level bodies responsible for innovating and transforming technology in social care. As already noted, an 'NHS Transformation Directorate' is set to act as a single leadership body for health and care provision, sponsored by the DHSC. This builds on the 2019 merger of NHS Improvement and NHS England, NHSX, and NHS Digital – the purpose which could be to mitigate controversies around NHSX. For example, the appointment (initially proposed as temporary) of NHSX CEO Matthew Gould was questioned, as Gould was confirmed in the role without advertisement or an interview process (and had no prior experience in health and social care). Another point of contention was the ambiguous relationship between NHSX and NHS Digital. A DHSC spokesperson told Digital Health News that *"NHSX will bring together existing teams into one unit so no new funding will be required"*, yet the NHSX website initially included the statement: *"we will be funded through existing budgets, transfers of staff and savings from NHS Digital, which is currently restructuring"* (Crouch, 2019).

Some initiatives put in place by NHSX then faced criticism. Under Hancock's direction, NHSX produced the 'Care Workforce App,' which workers were encouraged to use to access information related to Covid, learning resources, and discounts. The union GMB highlighted the potential for employers to access workers' smartphone webcam and access their private messages. *"Exposing users' personal details on this app in this way is grossly incompetent at best"*, said Rehana Azam, GMB's national secretary, arguing that *"bosses can quite easily use [the app] to spy on workers, see what they're saying and potentially sanction them"* (Syal, 2020). A partnership in 2019 between NHS Digital/ NHSX and Amazon, to provide health advice using Amazon Alexa devices, was similarly criticised for its approach to data. The deal afforded Amazon free access to copyrightable content and data, information that could be used to develop *"new products, applications, cloud-based services and/or distributed software"* (Walker, 2019). The service was also denounced as it was unable to answer questions on topics like sexual health and gender dysphoria – information available on the NHS website (Downey, 2019) while the suitability of Amazon as a partner of the NHS was questioned given the organisation's reputation regarding tax avoidance.

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Further issues arose when former Prime Minister David Cameron lobbied NHSX on behalf of his employer Greensill Capital, which had developed an advance payment app (Earnd) for use by health staff. Emails from Cameron to Gould read: *"Our ask is about electronic staff records, as Earnd will be much slicker if it can obtain access to employee data [...] I think some help from you would go a long way"* (Downey, 2021). Gould passed Cameron's request to the semi-privatised firm responsible for electronic staff records, NHS Shared Business Services (SBS), sidestepping normal open competition procurement rules. Critics argue that advance payment schemes like Earnd are, in effect, similar to payday lenders (Makortoff, 2021) and should not be involved in public partnerships. There were also issues associated with the launch of the NHSX 'Covid-19 Data Store' which combined health and social care data to predict trends during the pandemic using AI. The project was criticised for a lack of transparency in awarding a contract to the private firm Palantir. Cori Cryder, CEO of Foxglove Legal, who reported on the award, commented: *"[a]ny long-term relationship with a tech firm should meet stringent tests of moral probity and value for citizens"* (Downey, 2020).

The relatively brief tenure of the organisation can also be attributed to Hancock's resignation from his position as the Secretary of State for Health and Social Care in 2021; the organisation was commonly viewed as 'his' project (Cooper, 2020). Another issue was integration. An independent review of NHS Digital, NHSX and NHSEI in 2021 (Wade-Gery, 2021) concluded that tech transformation requires a level of integration and collaboration of health and social care that NHSX had been unable to achieve. This integration is set to be a key focus of the NHS Transformation Directorate. Simon Bolton, interim CEO of NHS Digital, has said *"we all know that the services we need are not just about healthcare, it's about social care as well, and we have to find a way of joining it up"* (quoted in Say, 2022b). However, a potential issue with uniting social care and healthcare under the banner of the NHS Transformation Directorate is that their services have divergent funding models. Bolton (quoted in Say, 2022b) comments that *"the link between healthcare and social care in digital is really unclear and the models are massively different [...] in social care there are lots of smaller organisations who are typically, but not always, less digitally enabled"*. A major challenge for the government in top-down strategy implementation will therefore be continuing to justify the difference in funding models whilst highlighting the connections (and mutual reliance) between health and social care provision.

FINANCIALISING CARE: THE ROLE OF TECHNOLOGY COMPANIES

As part of the less interventionalist approach to funding technology, the Government appears to be shifting the drive for innovation into the private sector. NHSX's 'Who Pays For What' proposals (NHSX, 2021) aimed to explore *"barriers to investment in digital technology"* and outline ways to *"start to fix them in 2021 to 2022 and beyond"*. This document positions the role of government as *"improving access to funding and procurement support for digital investments"*, and the 'People at the Heart of Care' White Paper (DHSC, 2021a) describes *"a significant opportunity for UK-based innovators to develop the next generation of care technologies."* The Kings Fund (Maguire et al, 2021: 26) has argued: *"there is a need for clarity on what is expected of industry and providers using digital products and services"*, noting that 'boundaries' in relation to development, implementation, and monitoring of tech will need to be clearly established.

These boundaries are increasingly important, given that tech providers in the sector have differing funding models. In particular, private investment has intensified across areas of social care, including in the context of care technologies: *"private equity investors in health care are gaining notoriety [...] as their profit motives conflict with well-being outcomes for care recipients in their institutions"* (Durano, 2022: 'Unhealthy outcomes' section). Providing an example of this, in 2021 the charity and think tank Future Care Capital formed a partnership with RYSE Asset Management to generate investment in care technology. Andrew Whelan, founding Chairman of Future Care Capital, said: *"there has never been a more vital moment for entrepreneurs, investors, charities, the NHS, other commissioners and policymakers to come together to reimagine health and care"* (Davidson and Whelan, 2020: 'Why did we do it?' section).

Technologies that are reliant on equity investment typically fall into the categories of technologies used for monitoring and for organising and recording care provision (such as the care management platforms utilised by local authorities, e.g., Person Centred Software [PCS] and Servelec). These platforms have increasingly been consolidated into large, financialised firms operating across social care. Servelec, for example, was purchased by the Access Group in 2021. Access Group also purchased Elemental Software and adam Human Touch Technology (adam HTT) in 2022 (Lydon, 2022). Another care management service, Liquidlogic, is now part of the health technology supplier System C, which was acquired by CVC Capital Partners in 2021 (Hoeksma, 2021a). Supercarers, an app and platform which acts as an intermediary between care workers and users of care services, was purchased by the large international domiciliary care franchise Home Instead for an undisclosed sum (Albert, 2021). Home Instead was then acquired by Honor Technology – a global care and technology platform which achieved 'unicorn' status[10] in 2021 (Honor and Home Instead, 2021). A further example of a growing private-equity funded organisation is Cera, a technology-enabled 'smart' homecare provider which uses a platform to organise care provision and an AI-driven app that predicts care needs. Cera was launched in 2016 using finance invested by the former CEO of JustEat and current 'Cost of Living tsar', David Buttress, and Peter Sands, the former CEO of Standard Chartered (Williams, 2021). Cera acquired major homecare players in recent years, purchasing Mears group in 2020, and the homecare division of Allied Healthcare and CRG Homecare in 2021.

There has thus been an escalation in platforms either purchasing or being purchased by care providers. Another aspect shaping the market of digital care technologies is that for platforms to function, arrangements with other organisations – in particular, producers of physical technology – are required. For example, the monitoring platform Oxehealth's department Oxevision uses security cameras manufactured by Samsung to assess data collected. The private equity backed platform Anthropos, which provides a remote, cloud-based monitoring service, also relies on utilising technology developed by other organisations; the Anthropos sensors connect with Google Home to 'nudge' service users (Clarke, 2021) and the sensors themselves are produced externally. CEO of Anthropos, Jim Patience, has commented, *"[w]e don't make the devices, but we buy the best available sensors on the market to do the job"* (Clarke, 2021: 'Competition' section). As platforms like Anthropos send information through an app, a dashboard, SMS messaging or emailing, they also implicitly assume that the family members or friends supporting the care user will have a smartphone – and will be able to access reliable infrastructure.

Returns on investment in digital care technologies appear substantial. The investment platform FS Ventures refers to the targeted return for investors in Anthropos as *"[i]n excess of 4x capital invested"* (FS Ventures, n.d.). The CEO of Oxehealth, Hugh Lloyd-Jukes comments that *'Oxehealth more than doubled annual recurring revenue in 2020'* (Oxehealth, 2021). The following year it received an additional £10 million in funding from shareholders to fund the expansion of Oxevision (Oxehealth, 2021). Both Oxehealth and Anthropos have expanded outside the social care market. Oxehealth has implemented its monitoring systems in prisons, including a trial in Broadmoor Hospital supported by Innovate UK (Oxehealth, 2015), and Anthropos has used its platform in probation services (Anthropos, n.d.). The large monitoring service Tunstall has similarly installed its monitoring systems in prisons; a report on its partnership with Lancashire County Council predicts that cost savings resulting from its monitoring systems used in these settings will be *"significant"* (Tunstall, 2019: 'Results' section).

This expansion of technologies initially designed for social care provision into other sectors raises potential issues, as investment in innovation may not exclusively benefit the care sector. There are also questions as to whether substantial returns on investment are accompanied by a reduction in costs for local authorities. The Ipsos MORI and NHSX 'Adult Social Care Technology and digital skills review' (Ipsos MORI et al, 2021) noted that the technology suppliers interviewed all claimed that their services aimed to reduce public costs. Care providers, however, were more reticent. They emphasised that tech initiatives could themselves be costly: 37% said the costs of digital technology exceed savings in the short term, but the financial cost could be recouped; 32% said the costs of implementing technology would not be recouped (Ipsos MORI et al, 2021: 31). In addition, there is no necessary correlation between firms achieving high returns for investors and firms providing quality of care and employment. Cera, for example, achieved a turnover of £200 million (TechBlast, 2021) in 2021 – yet Cera has faced issues with workforce capacity, which has impacted on care provision. An article in the Daily Record (Marzella, 2022) outlined the experience of a user of Cera care services based in rural Stirling: '[the local authority] *said this week that it was aware of "workforce capacity issues" being experienced by the local provider, Cera Care. However, yesterday [...] Mrs Dunn had been informed that her care provision was to be reinstated and provided directly by the council"*. As highlighted in the Sustainable Care programme[11], an overly 'techno-centric' approach by local authorities underplayed the importance and associated costs of 'wraparound services', such as assessment, installation, monitoring and support, in mediating outcomes. As such, seemingly low-cost technologies can require additional unplanned expenditure to support their use (Hamblin, 2022a, b).

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DISCUSSION

Wright's (2020) overview for the Sustainable Care Programme of the implementation of digital technologies in social care in the period to 2019 noted a lack of top-down leadership, and despite recent White Papers, policy papers and strategies outlining government's plans for the sector (2021a, b; 2022 a, b, c, d), the complex picture of digital technology and social care still lacks clarity. An abundance of evidence is available from the pilots implemented through the NHS Digital Social Care Programme, yet scaling up successful pilots is impeded by insufficient funding: one report evaluating the programme notes that *"many respondents suggested that further funding or resource would be needed to see this scale-up in practice"* (LGA et al, 2022: 57). In addition, recent policy does not appear to be using the collective knowledge generated through the programme, and instead there seems to be a disconnect between evidence and policy direction. The 'People at the Heart of Care' White Paper (2021a), for example, emphasises acoustic monitoring – technology which is not currently in widespread use – while assistive technology, infrastructure, and employment platforms have not been the focus of concrete plans or direction. The White Paper did outline a roadmap for digitisation of records, but the approach to improving infrastructure was less clear: there has as yet been no programme for the digital switchover, an area of concern in the technology-enabled care sector (TSA, 2021; Appello and HousingLIN, 2022). There thus remains ambiguity about which types of care technology will be prioritised and why, and how (and by whom) these forms of technology will be implemented. Sector stakeholder groups such as the LGA (2021) have also expressed concern that funding within ICSs will be funnelled towards the NHS, as opposed to social care, and uncertainty remains over the effectiveness of ICSs within different contexts (and a lack of any alternative should issues arise).

It is also unclear what role the NHS Transformation Directorate will have in integrating health and social care. Currently, it seems that the Government will take a 'light touch' approach in terms of funding technologies, but an interventionalist approach in increased regulation of ICS decisions. Contentious collaborations between NHSX and firms such as Earnd and Amazon suggest that clearer ethical guidelines are required regarding whether organisations should have access to public data for commercial purposes. The increased interest among local authorities in harnessing consumer technologies such as Amazon Alexa in care delivery raises similar concerns about privacy and latent public endorsement of particular firms – firms about which concerns have been raised, regarding both their relationship with the UK's tax system and their production ethics (Hamblin, 2020). While technology-enabled care devices such as pendant alarms are subject to specific standards, 'Internet of Things' devices, including smart speakers, are currently subject only to a voluntary 'code of practice' for security (DCMS, 2018), though this may change if the *Product Security and Telecommunications Infrastructure ("PSTI") Bill* (November 2021) progresses into legislation.

The transformation and innovation aspect of the NHS Transformation Directorate appears to be shifting towards private sector innovation, with the effect that the landscape of digital technologies in social care will increasingly be shaped by private investment. This is in line with a general financialisation of care provision (Burns et al, 2016). Mergers of firms providing platforms (e.g., for monitoring or organising care) and care providers suggest potential issues around competition, cus-

tomer choice, and monopolisation. These issues have arisen already in healthcare; for example, health technology firms Imprivata and Isosec were prevented from merging in 2021 by the Competition and Markets Authority. A further consideration is that platforms developed for use in social care may be used elsewhere – such as in the prisons industry – raising issues of transparency, should innovation of these technologies by supported by public funds. As noted by the King's Fund (Maguire et al, 2021: 41), the 'complex picture' of digital technologies *"requires boundaries to be agreed and rules to be articulated and clearly understood"*. In addition, processes need to be in place to ensure that technologies are developed according to the needs of users, as opposed to their financial potential.

In sum, while the use of digital technologies has increased in care provision and care arrangements during the pandemic, the issues facing the sector remain embedded. Staff turnover levels are high, the sector has long standing difficulties attracting workers, and unpaid care work (provided by family members and friends) has been relied upon by the Government to mitigate staff shortages and inadequate care packages. These challenges with recruitment and retention – which negatively impact care quality – connect to inadequate pay and precarious employment conditions in the sector. There are also competing tensions within the sector which impede the potential of digital technologies to transform care provision. Collaboration between local authorities, private care providers, equity-funded digital platforms and large tech producers assumes that the aims of these stakeholders will be contiguous. Quality of care and of employment do not always align with the profit motives of private firms, however (and could be regarded as antithetical to these). In addition, collaboration in ICSs could mean that in practice social care continues to be overshadowed by the demands of NHS services. For care technologies in England to be effective and user-led, the Government will need to recognise and address these structural issues within the sector: competing financial motivations of stakeholders, insufficient funding levels, and absence of strategic direction.

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ENDNOTES

[1] The Health and Social Care Levy was a proposed tax in the United Kingdom to increasing revenue for the health and social care sectors. It was proposed that from April 2022, National Insurance contributions would increase by 1.25%, to return to previous levels from April 2023 by which time a separate Health and Social Care Levy would have been introduced. However, in November 2022, the Health and Social Care Levy Bill was repealed in an effort to 'spur growth' (DHSC, 2022e).

[2] For a detailed explanation of of ICSs, see: **Integrated care systems explained | The King's Fund (kingsfund.org.uk)**

[3] Previously, local authorities could also apply for funding from the European Union (EU). The EU project 'Activage' (2017-2020), for example, included Leeds and Shropshire as their deployment sites.

[4] Recent policies have emphasised the importance of acoustic monitoring and fall prevention, which typically involves a sound detecting device unobtrusively listening and creating an alert should noise levels exceed pre-programmed parameters. The Government's 2022 publication on integrating health and social care states: "[b]y March 2024, over 20% of care homes will have acoustic monitoring solutions or equivalent care tech in place" (DHSC, 2022a). This form of technology is not, however, currently in wide use and the Social Care Programme funded only one project using these devices.

[5] A key aspect of both pilots was the inclusion of 'About me' statements; statements describing preferences and needs of individuals, such as how they take their medication, any allergies they might have, and communication and personal care preferences. These statements were developed as part of the Digital Social Care output of the Social Care Programme, established in 2018 in collaboration with the Care Software Providers Association (CASPA).

[6] 'Caretech' is a term which seems not to have been used in other government documents and is not explained in the White Paper. It is, however, also the name of a residential care company that provides services to adults and children, recently valued at £1.2bn [Provan, 2022]).

[7] Digital Social Care is the name of a group of social care organisations that supports adult social care providers, working in partnership with the NHS Transformation Directorate.

[8] Compared to 5G, LoRaWAN networks use less power, have a longer range, and are more cost efficient.

[9] The LGA is the national membership body for local authorities in England and Wales.

[10] 'Unicorn' is a term used to describe privately owned start-ups with an evaluation in excess of $1 billion.

[11] In the 'Achieving Sustainability in Care Systems: The potential of technology' project, part of the Sustainable Care: connecting people and systems programme, ESRC Grant reference: ES/P009255/1, 2017-21, Principal Investigator Sue Yeandle, University of Sheffield.

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KEY FINDINGS

Wright's conclusions (2020) emphasised the 'fragmented' and 'broken' nature of the social care sector and highlighted a lack of national leadership or direction. Our paper explores this in more depth, highlighting the processes, context and factors (Hamblin et al, 2017) that affect the development and implementation of care technologies, and identifying three main issues:

1. Localisation of technology implementation
2. Shifts in policy focus among governmental bodies
3. Increased financialisation among care and technology providers
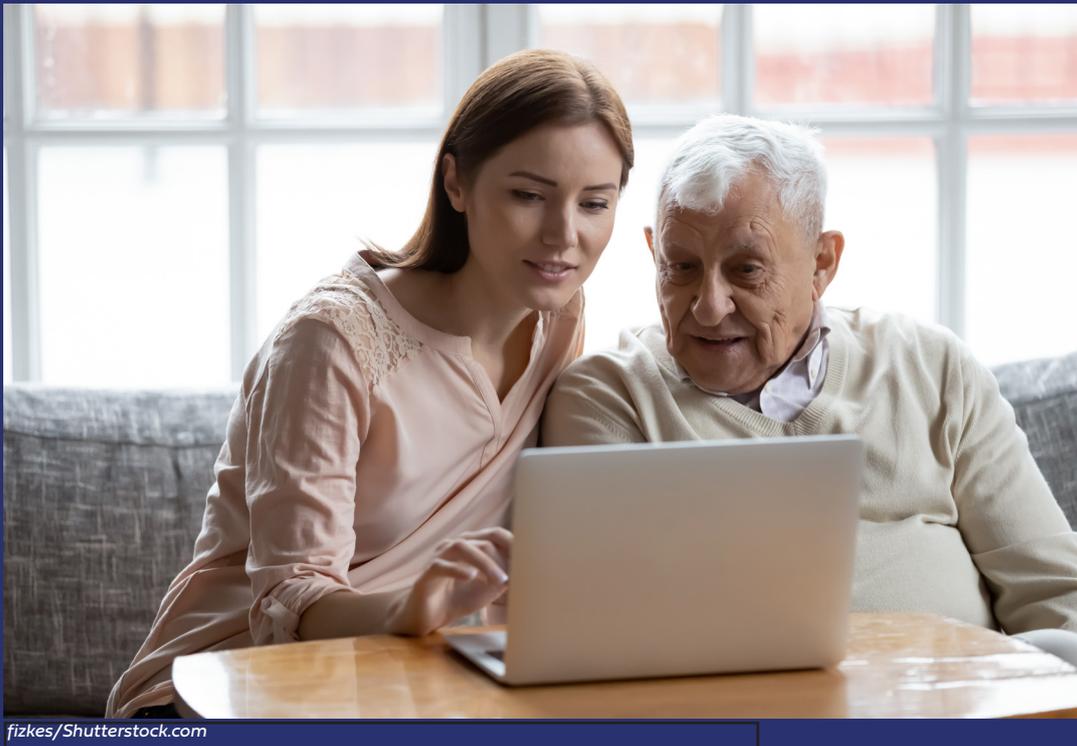
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ABOUT THE RESEARCH

The Centre for Care is a collaboration between the universities of Sheffield, Birmingham, Kent and Oxford, the London School of Hygiene & Tropical Medicine, the Office for National Statistics, Carers UK, the National Children's Bureau and the Social Care Institute for Excellence. Working with care sector partners and leading international teams, it addresses the urgent need for new, accessible evidence on care. Led by Centre Director Sue Yeandle and Deputy Director Matt Bennett, its research aims to make a positive difference in how care is experienced and provided in the UK and internationally.

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CONTACT

Please get in touch if you would like to know more, or to work with us on related issues, by contacting our support team: centreforcare@sheffield.ac.uk

Website: **centreforcare.ac.uk**
Twitter: **@CentreForCare**