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Research Article

"Trying to Find People to Fit the Tech. . .": A Qualitative Exploration of the Lessons Learnt Introducing Artificial Intelligence-Based Technology into English Social Care

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Digital technology is expected to improve care and address significant service pressures within the National Health Service and social care though evidence on how their implementation might be optimised is lacking. This study explores how one such example, home-based sensors with artificial intelligence capabilities, was implemented in English social care to identify changes in behaviour that indicate the onset of potentially more serious issues. Its focus was staff perspectives on decision-making processes and implementation, to inform recommendations for others exploring the potential of new and emerging technology. Qualitative data were collected from 18 semistructured interviews conducted across three sites delivering social care, with senior decision makers, operational leads, and care staff. We identified several issues with the selection process and implementation of AI-based technology in social care, including a lack of consensus around what success would look like, problems identifying and evaluating alternatives, and technical challenges to implementation, as well as obstacles to developing a longer-term, more preventative approach in a system experienced as focused on responding to acute needs. Ultimately, the research confirmed a number of recognised implementation challenges associated with training, resource, and acceptability to staff and patients. It added particular insights around the anxieties experienced by frontline staff and the cultural shift required of preventative interventions in a system geared to meeting acute crises. That many barriers are familiar suggests a particular need to focus on helping policymakers/local leaders avoid similar pitfalls in the future.

1. Introduction

The social care system in England is under significant and increasing pressure from the ageing population, the increase in the number of working age and older adults with care and support needs, and widespread financial, service, and workforce pressures [1–4]. These figures highlight the need for significant innovation to ensure the long-term sustainability of social care [5], and in this context, the potential of new and emerging technologies is often cited as a way of easing pressure on health and social care services whilst promoting independence, improving consistency and quality of care and reducing costs [6–9].

Sensor-based artificial intelligence technology (SAT) is one example of an emerging technology engendering high expectations amongst policymakers [9]. The technology consists of a combination of remote sensors monitoring a range of individual activities (e.g., the number of times the kettle is used or the fridge opened) and physiological parameters (e.g., temperature or heart rate). These data are then pushed to the artificial intelligence (AI) software, where mathematical algorithms enable computers to learn from the data they are accumulating, establishing earlier and with better accuracy subtle changes in patterns of behaviour and physiological responses [5]. Those that draw on care and support can then be more effectively linked with appropriate

health and care services preventing crises before they arise [7, 10, 11]. It is also hoped that the data collected by the remote monitoring element of the system can be used to improve the accuracy of assessments and diagnoses by providing more numerous data points and support independence amongst those that draw on care and support by providing alerts if an acute problem arises, increasing reassurance for family members. The technology is summarised in Figure 1.

Despite the expectations of policymakers, there are recognised gaps in the understanding of how SAT and other emerging technologies can best be utilised in health and social care, including precisely which technologies should be used in which circumstances and how they might be incorporated into existing workstreams [5, 10, 12–14]. This has led the English government to issue recommendations for public sector organisations to assess how services can plan for the safe and ethical implementation of AI-based technologies [15, 16].

The work presented here describes the experiences of three care organisations that deployed the same example of SAT. We spoke to senior decision makers, operational leads, and care staff to explore the systems and processes underlying the selection and implementation of the technology. Our data were analysed and presented using the non-adoption, abandonment, scale-up, spread, and sustainability (NASSS) framework, developed specifically to help plan the implementation and rollout of technology programmes and share structured learning from previous experiences [17]. We conclude with a series of recommendations for care organisations contemplating introducing this type of technology.

2. Methods

2.1. Study Design. The work aimed to explore the experiences of key stakeholders of a single example of SAT (pseudonymised here as "IndependencePlus") introduced across a number of care organisations in England. This is a stand-alone SAT system that can collect both behavioural and health data and can be accessed by care staff and families of those that draw on care and support via its bespoke dashboard. The cost of the equipment was provided by each case study site and the use of the data produced was regulated by the UK's General Data Production Regulation, though there is currently no specific legislation in the UK that governs AI or its use in healthcare [18]. We used semistructured interviews to gather data which were systematically analysed using the NASSS framework. The work focused on the processes of selection and implementation of IndependencePlus, as opposed to a targeted evaluation of the technology [19]. The work received a favourable ethical approval from the University of Birmingham Research Ethics Committee (ERN_13-1085AP41).

The non-adoption, abandonment, scale-up, spread, and sustainability (NASSS) framework consists of seven domains that provide a holistic interpretation of the variety of influences that impact the success of a technology-supported health or social care program [17]. These domains relate to the nature of the technology, the impact on those adopting the technology, the organisational structures in place, and the broader context for supporting the implementation. These seven domains are defined alongside the elements that influence the sustained and wide-scale implementation. These domains and their constructs are summarised in Figure 2 and further defined and described in Supplementary Table 1: "NASSS framework: domains, definitions, and influences on implementation."

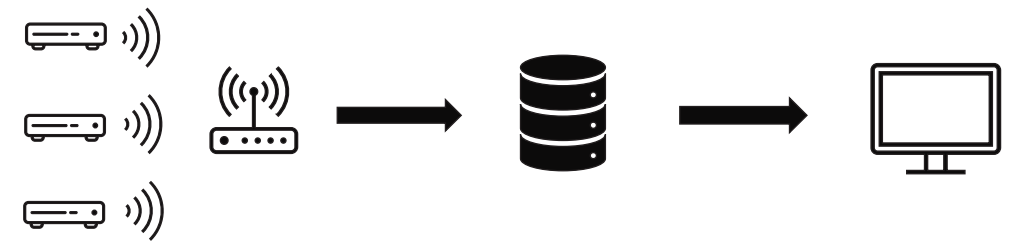
2.2. Settings/Recruitment. We approached all eight sites (local authorities and care providers) that were believed to be implementing IndependencePlus, formally inviting five to participate (three local authorities and two service providers). However, two sites were subsequently unable to take part due to extreme service pressures exacerbated by the unprecedented policy and practice challenges resulting from COVID-19.

A lead contact was identified in each participating site (two local authorities and one large service provider) with responsibility for identifying key stakeholders as potential participants. Originally, these were intended to include those that draw on care and support and their carers but due to the underusage of the technology, further hindered by the onset of the COVID-19 pandemic, our ability to recruit this group of participants was very limited. Ultimately, site contacts identified key decision makers, operational leads, and frontline care practitioners involved in the introduction of IndependencePlus and sought permission to pass details to the research team. Where such permission was granted, they were provided with a participant information sheet by a member of the research team via email and were given the opportunity to ask questions before being consented prior to their participation. No incentives were offered to the participants.

2.3. Data Collection. Two topic guides were developed for the interviews; one for decision makers and operational leads and another for care staff. These were designed to encourage reflection on how decisions were made about the selection of IndependencePlus, the process of implementation, early experiences of its use, and the expected and perceived impacts. Care staff were also asked about practical realities of using the technology. A summary of the topic guides is provided in Supplementary File 2: "Topic guides for care and senior staff."

Semistructured interviews were conducted between April and December 2021 by [Author 1], [Author 3], [Author 4], and [Author 5]; experienced qualitative researchers who were previously unknown to the participants. Interviews lasted between 30 and 60 minutes and were conducted via video or voice call. Each interview was digitally audio recorded and transcribed verbatim by a registered transcription service and managed using nVivo software.

2.4. Data Analysis. A directed content analysis was used to interrogate the data informed by the seven domains of the NASSS framework [20]. This process involved the allocation



Sensors placed in key locations in individual homes – connected to a smart hub by Wi-Fi:
Used to collect information about an individual's daily activities and physiological variables, includes data on sleep patterns; putting on the kettle, when they leave the house, and heartrate.

AI server: Once data is collected on an individual for a sufficient period of time, a personalised baseline can be established. Machine-learning based AI then uses algorithms to identify small but significant deviations from these baselines.

Data dashboard: Data from sensors for each individual are displayed on a data dashboard. This interface is accessed via computer terminal, tablet or smart phone by care practitioners, individuals drawing on care and support, or their carers and provides and allows carers to identify issues earlier and take more timely action.

Figure 1: Summary of sensor-based AI Technology.

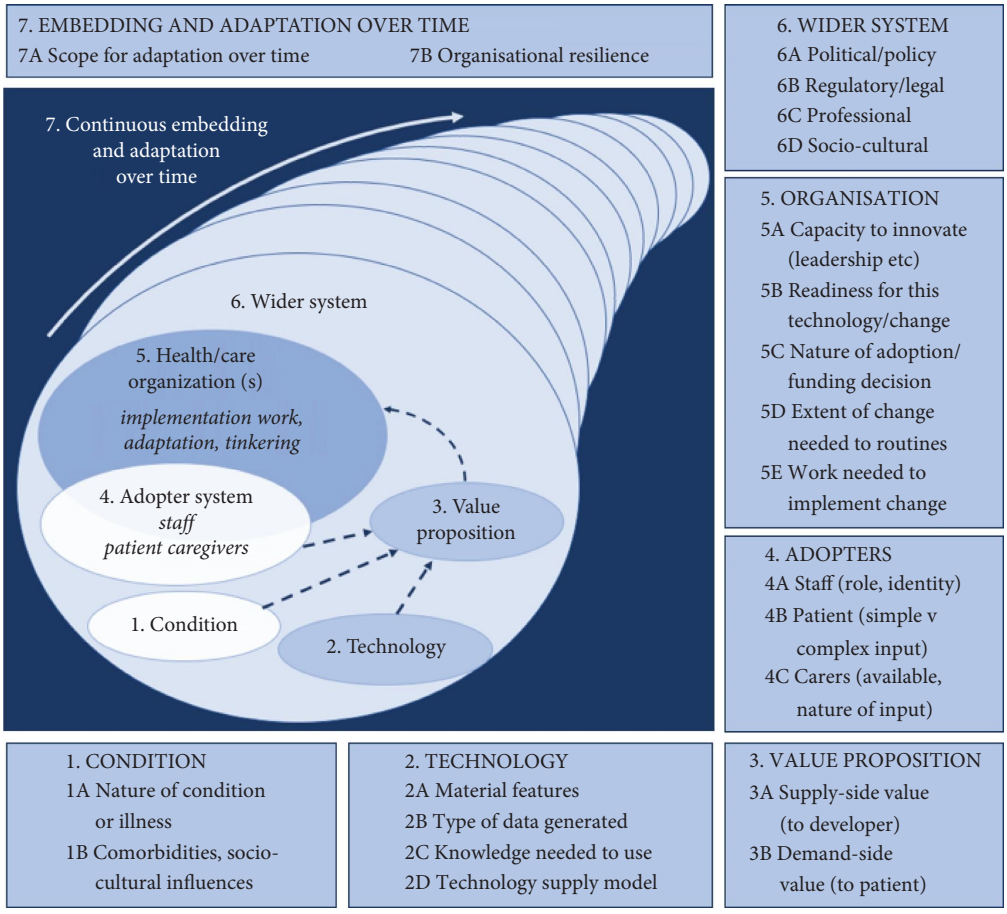


Figure 2: The NASSS framework [17].

of data within the seven domains and the development, definition, and placement of emergent themes within the established NASSS framework [20, 21]. The initial coding was agreed by [Author 1], [Author 2], and [Author 3] and the final coding and allocation of the data within the framework was consensually agreed by all coauthors.

3. Results

3.1. Overview of Case Study Sites and Participants. Interviews were conducted with 18 participants drawn from the three case study sites. A total of 15 were managers and operational leads, while three delivered care. A summary of site characteristics and the participants interviewed is provided in Table 1.

3.2. Qualitative Results. The data were from all the participants were aggregated, and although smaller numbers of care staff were interviewed than intended, there were no notable differences in attitudes between senior staff and carers. Within each domain of the NASSS framework [17], a number of themes emerged relating to the introduction of SAT into care settings. These themes are further explored below within each domain alongside illustrative quotes. Interviewees are identified by a code encompassing their case study site (CS#) unique study identifier (P#) and whether senior staff or carer.

3.3. Condition. IndependencePlus was expected to support independent living for a range of individuals who draw on care or support in care homes, assisted living facilities, or their own homes, many of whom are over the age of 80 and include those with mobility or cognitive issues, including dementia. However, the lack of a prior definition of exactly for whom and in which circumstances the technology was to be implemented led to difficulties in finding potential beneficiaries. For example, people with dementia were confused by the technology and in some cases tampered with or removed the sensors:

> *"They have to wear this, and they have to not touch this, and they have to put the seatbelt on, and this, that, and the other. . . for us, the kind of people that we could guarantee that compliance. . . are most likely not the people that we would want to use it for."* (CS2 P02–Senior staff)

Another significant issue that arose during the deployment of IndependencePlus was its reliance on robust digital connectivity which is not always present in the homes of more vulnerable members of the community:

> "*We were almost doing was looking at this with a group of individuals who were coming in probably with an average age of 85 years, most of them didn't have Wi-Fi and therefore it restricted the use of the technology."* (CS4 P03–Senior staff)

The mismatch between intended cohort and the technology led one manager to reflect that they were left with a large amount of purchased technology that they could not use:

> "*Well, the original thinking was that we were going to deploy IndependencePlus kits around various cohorts . . . and it soon became apparent–and again we've learned from our mistakes which is always good–that we had actually bought a sizeable amount of tech and were then trying to find people to fit the tech . . . and very quickly the cohorts and the amounts that we could potentially deploy to, the numbers started reducing and reducing."* (CS2 P03–Senior staff)

There also appeared a gap between the expectations and aims of senior decision-makers and the needs of those working at the frontline of care delivery due to the limited lines of communication between the two groups. As one senior manager described:

> *"I think sometimes we have a danger of working in siloes so like the . . . team who are looking at different types of technologies . . . they might not necessarily understand what is definitely needed on the front by a practitioner in order to benefit their assessments, and what was really appealing and really exciting and innovative from their [senior team] isn't necessarily the same from my perspective."* (CS2 P07–Senior staff)

3.4. Technology. Similar remote sensors without the AI capability had been installed and used previously by some care staff, which meant there was an element of surprise that specialists were required to install IndependentPlus and the amount of time necessary to maintain the system:

> *"We didn't understand the resource involved. . ."just plug it all in, get it all set up and then you'll never have to mess with it again, it'll be really easy." And we found that on one site that had 19 people using it, it took one person 40 hours a week just to keep all the sensors plugged in, turned on, charged, and connected to the Wi-Fi. He spent all day, every day, just going room to room and reconnecting everything."* CS1 P01–Senior staff)

The remote sensors routinely produced large quantities of data that were presented via a graphical interface intended to be readily interpretable by the end user. However, the "data dashboard" proved overly complex and time consuming to interpret. As one senior staff member described as follows:

> *"Fundamentally the issue with IndependencePlus as a concept . . . was the amount of human analysis it required. So, I remember once sitting in a room with the director, me, some other directors, a load of important well-paid people, and we were able to get some meaningful data out of analysing a particular customer, but I did, I made the point, I was like "That's just taken us 45 minutes and we're all very clever people!". . .."* (CS4 P02–Senior staff)

3.5. Value Proposition. In terms of potential value, the understanding amongst senior staff was that this type of technology would minimise the amount of time and resource spent monitoring individuals in person, reducing costs whilst enabling independent living:

Table 1: Overview of the three case study sites and participants.

	Case study 1	Case study 2	Case study 3
Characteristics of case study sites			
Organisation type	Social care provider (charity; lots of services across the country)	Local authority (rural)	Local authority (urban with some rural areas)
Care setting	Care home with nursing services	Care in the community	
Numbers of service users who used IndependencePlus	23 service users	9 service users	20–30 service users
Demographics of people using IndependencePlus	People with complex physical and sensory impairments	People with physical impairments/learning disabilities/mental health problems/dementia, older people	People with learning disabilities/physical impairments/dementia
Length of time of IndependencePlus pilot	Less than 12 months	12 months	12–18 months
Roles of staff interviewed			
Senior staff (decision makers and operational leads)	3	9	3
Care staff (care staff and care providers)	0	1	2
Total	3	10	5

"We wanted to change the way we did things in order that we can make our money go further basically, and our way of doing that is to take a strength-based approach and to promote independence and we feel that the technology influence and potential is something that really aligns with that vision." (CS2 P03–Senior staff)

Within this broad aim, there were a variety of expectations of the technology voiced by individual stakeholders, including improving the accuracy of assessments and diagnoses, reducing the volume of in-person care, and offering reassurance to concerned family members. As one participant explained as follows:

"We had a few young people . . . moving on from living at home but parents were very concerned but wanted to have paid support in the environment, they wanted people in the house all the time, whereas we were convinced . . . they would be safe, so this was just a reassuring piece of kit that would hopefully support the parents a bit more, so they weren't so anxious." (CS2 P06–Senior staff)

However, sites recognised that they did not have the expertise to determine whether IndependencePlus possessed the required functionality, or evaluate the evidence that the technology could deliver the desired outcomes:

"What we're experts in is providing social care to people. So, having somebody who understands these things and can kind of be a sense check and go "sounds good but can it actually. . .? Where's that evidence base for this? Has that company tried this out somewhere? Do they have really good data to back up their claims?". . ." (CS3 P01–Senior staff)

3.6. Adopters. For care staff, the reliance on smart sensor technology required a fundamental shift from the way they traditionally provided care. How this transition is managed requires careful consideration, and one senior decision maker reflected on the importance of early engagement with the frontline staff:

"I think first and foremost with any tech, regardless of what it is, I think the first step forward is always talking to the staff, training the staff, and giving them that information before you go ahead and start doing anything. Because I think what's happened here is we've put stuff in and then done a little bit of a "Look! We're doing this!". . . and it's proven to be problematic." (CS1 P03–Senior staff)

In some cases, staffs trained and accustomed to delivering in-person care were uncomfortable with an unprecedented extension of their responsibilities that included monitoring health-related data. As one senior manager described as follows:

"Our lead domiciliary care provider, they're not geared up to looking at health data and making health judgements based on that, so quite rightly they were saying "We've got this thing that says heartrate spike, what does that mean? Do we have to contact a GP? What's going on?" So, there was a lot of confusion around that. . ." (CS3 P01–Senior staff)

Engagement with those that draw on care and support (or their carers) is also a key and at a minimum, informed consent is needed from these individuals before this technology can be installed. However, having consented, some were subsequently distressed by the presence of the sensors, leaving some staff morally conflicted. As one participant explained as follows:

"I think there's a lot of complexity to unpick with safeguarding in terms of having people who can't provide consent for themselves and putting these sensors in their living space and then using that information to determine kinds of care decisions . . . is it the ethically right thing to do at the expense, which might be kind of discomfort from that person? . . . Does the value for us keeping them safe outweigh them not feeling very safe?" (CS1 P01–Senior staff)

3.7. Organisation. Sites did not appear to have a systematic approach to implementing and evaluating IndependencePlus or any similar technology-enabled service innovations. Perhaps as a result, fundamental issues around staff capabilities and digital infrastructure were uncovered only once implementation had begun. For example, at one care home site, they relied on a member of catering staff to provide the necessary technical support:

". . . within the care home there is nobody technical, there are pockets of accidental technical expertise, but this is really just people like the chef who have an interest, but his job is cooking the food, not supporting the technology!" (CS1 P01–Senior staff)

Another key stumbling block that emerged post-implementation at the same site was the lack of digital infrastructure including WiFi or a working computer:

"We didn't know that, you know, that there would be places that staff don't know their email addresses . . . and there's no staff computer. So, we're telling them "You just log into this database with your email address, and you can see all this data from this person." and they're like "We don't have a computer here." That is a problem." (CS1 P01–Senior staff)

3.8. Wider System. Participants reflected on the expectations of the government that the adoption of technology-enabled care would help them manage the financial, demographic, and service pressures being exerted on adult social care:

"Politicians having a belief that technology was the magic bullet for social care and it would save millions and, you know, make all the needy people go away, kind of thing. . . We were under a lot of pressure to innovate and be seen to

be forward looking and, you know, all of that stuff." (CS2 P03–Senior staff)

However, the accelerating reliance on technology also needs to consider public suspicions of the automated collection and management of large amounts of personal data. For example, the participants reported the concerns expressed by some of those that draw on care and support and their families that privacy might be compromised:

"The challenge with this, even as a concept is this idea of it's all a bit Big Brother like, it's all a bit you know, sort of a bit "spying". . .. The challenge would be to break down some of the stigma that might come with that. I'm not necessarily saying that it's true, that it's like a bit Big Brother-like, but I think that is the perception amongst some people who might be resistant to using the technology. . .." (CS2 P03–Senior staff)

3.9. Embedding Over Time. Participants described the difficulty of trying to develop a longer-term, preventative approach in a system which is often focused on responding to acute needs. While the technology was designed to build a picture of people's routines and identify any potentially significant changes (to support proactive care), much of social care is based on relatively short-term, episodic contacts and its quality is measured and rewarded when it reacts accordingly:

"Social care doesn't have a predictive, preventive culture. It will be great if someday we do, but right now all of the incentives and all of the monitoring and the way sites are graded for quality is not based on preventing issues, it's based on handling the ones in front of you. So, there's a lot of work, kind of, at a more systems level on how social care is monitored and how quality is assessed." (CS1 P01–Senior staff)

4. Discussion

4.1. General Findings. If the expected benefits of SAT and other technology-enabled care solutions are to be realised, then it is important to understand how social care services can be supported to select and sustainably implement the most appropriate forms of this technology. As far as we are aware, this work is the first time these processes have been explored from the perspectives of senior staff and care providers working in the UK social care. The NASSS framework successfully allowed us to unpick the various contextual factors that can affect its sustained and widespread use. We found that the cohort and setting expected to benefit from SAT was poorly defined (condition); the system was complicated to install, maintain, and use (technology); a lack of evidence and expertise confused the procurement process (value proposition); staff felt uneasy with their new roles (adopters); gaps in training and infrastructure were apparent (organisation); there were policy driven imperatives to adopt technologies (wider system); and the culture shift towards more preventative care had yet to be realised in practice (embedding over time). The implications of these findings are explored in further as detailed below.

4.2. Specific Findings

4.2.1. Condition/Technology. The assumption that the technology would support independent living amongst those with cognitive impairments is widely held [22, 23] but staff reported agitation and noncompliance amongst intended beneficiaries, alongside limitations of their digital infrastructure that have been encountered previously in explorations of AI in social care [24]. This led to participants describing how the lack of clarity about the condition and intended service setting meant they were left "trying to fit people to the tech." This may be attributed to the selection and implementation of the example SAT apparently being informed by a top-down task analysis approach that failed to understand the experiences and environments of those that draw on care and support and the workforce [25]. For example, IndependencePlus was complicated and time consuming to maintain and use (in contrast to alert-based sensor systems previously used in social care [26, 27]), and the interpretation of the data was frustrated by a user interface that seemingly failed to adhere to the established design principles previously employed in health and care settings [28, 29].

The principles of sociotechnical design describe how consultation with end users should begin at the design stage where frontline experiences can help ensure a better match between device and context [30, 31]. This would then allow for more effective codesign of the workstreams that utilise care technology [32]. The process of consultation and engagement in the design and delivery of technology-enabled care should equally involve those that draw on care and support and their carers [33, 34]. Despite fears that technological concepts such as AI may be too complex for lay users, research indicates that by carefully choosing appropriate language understanding and meaningful engagement can be facilitated, improving codesign and the acceptability of technological solutions [35, 36].

4.2.2. Value Proposition. That IndependencePlus was seemingly unsuitable for purpose reflects the widespread confusion reported among local authorities and commissioners about the care technology available, what works where, and which represent the best value for money [7]. Any decision on spending is expected to be based on an evidence-informed evaluation of alternatives [37, 38]. However, in the case of technology-enabled care, the process is complicated by the plethora of new and emerging technologies, a fragmented market place [37], lack of expert knowledge [36], and an inconsistent evidence base [7, 39, 40]. This includes the lack of evidence specific to SAT in social care where targeted research is scarce and inconclusive [24, 41, 42].

The absence of dependable information is exacerbated by the lack of standardised methodology or metrics that present

benefits in a consistent way and facilitate comparison of technologies across and within care settings [36] nor is there ready access to previous experiences of early adopters of new and emerging technology [43]. It has been suggested that by helping to establish and regulate a clearer market for care technologies, the UK government can make a real difference in encouraging the uptake of the most effective, useful, and secure systems, spreading best practice beyond individual local authorities and providers [44, 45].

4.2.3. Adopters. It is understood that using emerging technologies in the care sector will fundamentally reshape existing roles and create new forms of work (requiring dedicated investment and staff time) [46]. In any work environment, the introduction of technology designed to absorb manual labour creates uncertainty and anxiety [47, 48]; resistance in the workforce can emerge, fostered by perceptions of a technology's unreliability [49, 50], its interference with the values or aspirations of staff [51], and incompatibility with existing work processes [52]. Our participants described disquiet at the implications of using SAT, notably over responsibility for monitoring medical data, an issue identified in the previous work that explored the use of digital technologies in domiciliary care [53]. In response, it has been recommended that where sites are intending to introduce SAT, they should involve health partners in discussions around clinical oversight and escalation pathways at the earliest opportunity [33, 54].

4.2.4. Organisation. By 2040, it is estimated that 90 per cent of all jobs in the health and care sector will require some element of digital literacy [55] and this study has again highlighted how many care staff need training in the digital skills necessary to navigate a technology-enabled care environment [5]. In recognition of this potential shortfall in digital skills, the UK government's white paper on social care has allocated £500 m for the necessary training, with a further £1 m earmarked for a new centre for assistive and accessible technology [11].

Although the experiences of the participants were remarkably consistent, the slightly different technical challenges they faced might be attributed to the differences in approaches to technology taken by local authorities between regions [7]. The government's white paper on social care reform proposes addressing these geographical disparities to create more equitable access to digital care [11]. This includes providing fibre broadband for care homes, and smaller amounts pledged to digitally adapt the homes of those that draw on care and support [11], though it is important that these reach the underserved populations most at risk of digital exclusion [56–58].

4.2.5. Wider System. Despite the lack of consistent evidence of the benefits of new and emerging technology [7, 59], participants described the political pressure to engage with digital care solutions [9, 44, 60] as a means of meeting an estimated funding gap in the UK social care of at least £10 bn [2]. Amidst these ongoing financial challenges and the constant evoking by senior politicians of "inevitable digital revolution," there is a risk that debate on the circumstances in which it is most appropriate is precluded and the experiences and findings of the care sector are unheeded [46, 61].

The public must also be convinced of its benefits and safety, and participants described how carers and family members needed reassurance of the system's security and privacy. These public concerns over the security of AI systems used in healthcare have surfaced previously [45, 62, 63], particularly when used in partnership with private technology providers [64, 65]. If the public should lose trust in these technologies, it could have serious implications for the future of digital care [66], and there have been recommendations for greater transparency and more pronounced engagement with the public over how their data would be stored and used [64].

4.2.6. Embedding Over Time. Despite a widespread desire to move to more preventative approaches to care delivery [67], such fundamental shifts in culture are constrained by a system which is primarily short-term and crisis focused and compounded by factors such as workforce, budgets, and organisational attitudes towards risk [36]. Considering these challenges, it is perhaps unsurprising that organisations are reluctant to invest limited resource in long-term improvement strategies without evidence they work [7]. This work has identified a number of ways in which organisational risks might be minimised, and the use of these technologies become more securely embedded. These include early and thorough engagement with the workforce and people who draw on care and support, establishing a repository of evidence and links to peers with the experience of implementing new and emerging technologies and ensuring that resources are available to train staff, upgrade infrastructure, and maintain the technology. We have created a series of questions or prompts (within each domain of the NASSS framework) that local authorities/care providers can use when seeking to implement new and emerging forms of technology. These can be found in Supplementary File 3: "Questions to consider when exploring new and emerging technology in social care."

5. Strengths and Limitations

The use of a single example of SAT meant we could compare decision-making and implementation processes across different sites, without the obfuscation of using different technologies [36]. The pandemic and the perceived lack of success of local pilots reduced the number of participants (and our ability to include people who draw on care and support and carers). However, the themes which emerged were remarkably consistent across all the participants/locations and with the previous literature. This gives confidence in our findings, supported by consensual theory where "experts" with shared knowledge about the topic under discussion are more likely to exhibit common values [68].

The use of an a priori framework might be considered to constrain the interpretation of the data [69]; however, the comprehensive nature of the NASSS meant we were able to locate all of the data within one of its domains. This does not mean that the range of influences on the implementation of SAT described here are definitive (data saturation in terms of exemplifying every construct was not our intention in this instance), and there is still much to explore including the attitudes and expectations of those that draw on care and support and their carers.

6. Conclusion

While it cannot replace personal care, technology has the potential to support independent and active lives and to assist those providing care and support. For the first time, this study has identified a series of practical lessons for researchers, policy makers, and practitioners seeking to understand and implement new technology in social care environments. Many of these findings are consistent with the previous research into the implementation of more established forms of care technology. Therefore, we will be working with key policy, academic, and service partners to share our findings for without making significant changes to the way in which new and emerging forms of technology are selected and implemented, and social care services risk encountering previous challenges over again.

Data Availability

The qualitative data used to support the findings of this study are available from the corresponding author upon reasonable request.

Additional Points

What is Known About This Topic? (i) Artificial intelligence-based technologies are expected to play a key role in the future of social care. (ii) Little is known of how the most appropriate technological solution can be identified and effectively implemented. (iii) Policymakers recommend that the learning of early adopters of AI technologies is shared to support sustainable implementation. *What This Paper Adds?* (i) Senior decision makers felt pressure from policymakers to employ technology-enabled solutions, yet organisations lacked the appropriate levels of digital infrastructure and trained staff. (ii) There is a need for greater consideration of the required cultural shift to preventative care enabled by AI technologies. (iii) Greater engagement with all stakeholders including staff and those that draw on care and support is a necessary first step.

Disclosure

Jon Glasby is a Senior Fellow of the NIHR School for Social Care Research.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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Supplementary Materials

File 1 contains "Table 1. NASSS framework: domains, definitions, and influences on implementation." This provides an overview of the "the non-adoption, abandonment, scale-up, spread, and sustainability (NASSS) framework." File 2 contains "Topic guides for care and senior staff" used in the semistructured interviews conducted with care staff and senior managers and service leads. File 3 contains the "Questions to consider when exploring new and emerging technology in social care," and these are designed to support service leads when considering introducing new technology in social care settings. (*Supplementary Materials*)

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