

ASSISTIVE TECHNOLOGY POSITION STATEMENT

NORFOLK COUNTY COUNCIL EXTRA CARE HOUSING

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Summary

Despite significant technological advancements over the past few decades, the implementation of assistive technology (AT) within Extra Care Housing (ECH) schemes across the UK has largely remained the same, using outdated and inefficient products and services that do not contribute to the independence, quality of life and safety of the resident. While AT is only one component of a broader, more holistic care package, it must be implemented properly to provide the best possible care to tenants at the best possible price.

The purpose of this document is to clearly define assistive technology, illustrate how it improves the quality of life of the service user, and how it can reduce costs for the provider while improving the quality of care. Ultimately, the aim is to provide a baseline that all ECH schemes must meet. This is to ensure that AT enhances the quality of care provided to residents of such schemes.

Definition

Assistive technology is broadly defined as ‘any product or service designed to enable independence for disabled and older people.’

It is important to note however that the definition of AT has undergone a shift in emphasis over recent decades from a previous emphasis on compensating for the user’s disabilities, to the current emphasis on utilising the user’s abilities to foster their independence.

A 1991 study of assistive technology defined it as ‘devices and techniques that can eliminate, ameliorate or compensate for functional limitations.’ In recent years, the definition and goal of assistive technology has shifted from (dis)-ability to ability, meaning that the technology is not meant to make up for a perceived deficit within an individual, but rather to enhance the abilities that he or she may possess for them to live a more fulfilled and independent life. For example, the Audit Commission, writing in 2000, defined AT as ‘Equipment that enables children and adults who require assistance to perform essential activities of daily living to maintain their health and autonomy and to live a life as full as possible.’

While the term ‘assistive technology’ covers a wide range of technologies, this document focuses exclusively on the application of AT within ECH schemes.

Examples of assistive technology

Traditional examples of AT can be as simple as grab rails and walking aides. However, this document is primarily concerned with more modern forms of AT. The most common AT service/product within homes in the past few decades is the pull cord that alerts someone that the inhabitant has fallen or needs help. While the simplicity of this AT has made it popular and widely implemented, it has obvious drawbacks. For example, if the client falls out of reach of the pull cord, or is unconscious, he or she will not be able to pull the cord, and the care staff will not be alerted that the accident or emergency has occurred.

Digital forms of AT – the focus of this document – seek to ameliorate this deficiency by using sensors that can detect abnormalities (for example, a fall), and alert care staff immediately without the need for the tenant to push any buttons or pull a cord. These advanced, digital forms of AT include the following types of installation:

- Sensors which manage risks such as fire, flood or gas leaks
- Personal pendants which enable clients to request assistance and may include built-in fall detectors
- Sensors which will alert staff if the user's behaviour has diverged from the norm; e.g. they have not got up at the normal time or they have not moved for a period of time
- Epilepsy, occupancy or incontinence sensors which reduce/remove the need for intrusive night-time checks
- Environmental sensors to control curtains, heating and lighting
- Door contact sensors which can be used to monitor eating, medication compliance or wandering
- Sensors to monitor visitors such as care and support or health workers
- Access control and automatic door openers
- Aids to support bathing and toileting
- Cognition and communication aids
- Wearable sensors and activity trackers

Hardware and software (mechanical and digital systems)

AT encompasses both physical and digital products and infrastructures.

The connection between hardware and software is demonstrated most clearly when considering how the data collected by the hardware is communicated to the care staff, which is a crucial component of AT. Advancements in this sector provide the possibility for tenants to live a more connected and fulfilled life and allow for care/medical staff to monitor their health and safety remotely.

Internet access and AT for homes

While the goals and definitions of contemporary AT have not changed significantly since its shift in emphasis towards “independence”, recent technological advancements, particularly in the field of Internet of Things (IoT), have invited a more diverse group of actors and institutions to engage with AT, resulting in an expanded idea of what AT of the future will be capable of. Access to internet communication is an essential part of a quality of life that affects health, social engagement, and well-being.

The Government now sees Internet connectivity as a basic human right and has voiced a commitment to giving everyone 10mb Internet by 2020 so it is likely all modern ECH schemes will be required to provide connectivity (which is also likely to be a chargeable service). Traditional AT tends to rely upon a hardwired fixed telephone line, which, like internet solutions, have their own weaknesses – yet these do not provide a future proofed solution given fixed telephony may be phased out in the medium to long term.

How assistive technology improves quality of life

When implemented correctly, AT can significantly improve the quality of life of a resident, their family members and care workers. AT can be used across the spectrum of “care need” from those with low care need (below 9 hours/week), medium care need (10 – 15 hours/week) to those with high care need (15+ hours/week).

Sensors detect events that traditional monitoring cannot. For example, service users who have fallen and hit their head in the bathroom are found after no movement is detected in the remainder of their home after their entry to the bathroom, or after the fall is automatically detected by a wearable fall detector.

The use of an incontinence sensor to send a discreet SMS alert (not a siren or a pager) to a care giver stops people being left wet or woken up and regularly checked to see if they are wet. Not only can they be changed as and when needed and disruption kept to a minimum, but positive and preventative interventions can be put in place and data used to manage the condition.

Digital AT communication aids mean people can, not only speak to loved ones, but can video call them too at the touch of a button. This reduces social isolation, can be used for easy access to services (e.g. hairdresser, taxi, meal services), and can reduce or even eliminate expensive phone call and visit costs (particularly when a family member is not in proximity).

Care workers can be monitored to check that the care being commissioned is being delivered and the quality of care is good. Although it is crucially important to spot where performance needs to be improved, it can also be used to spot and celebrate good performance.

Medication reminders are sent to an in-home tablet device. The user acknowledges they have taken it by a simple "ok" button, and an alert created if they have not acknowledged it. This can be coupled with a sensor on the medication cupboard or dispenser with an accompanying alert issued only when medication isn't taken in the appropriate time window. This promotes independence and self-management of medication, while giving others reassurance that it won't be forgotten or missed.

Data collected gives workers a better understanding of the behaviour of the people in their care. They can time interventions better to suit them and have greater insight into their conditions. In-home communication devices can be used to get feedback through automated survey tools. Daily interactions done by the same person create a better customer experience than a stream of different support workers.

Cost savings, how assistive technology saves money

In addition to improving the care service provided and quality of life of the service user (as illustrated in the above sections), AT has the potential to provide significant cost savings for the care provider and/or Local Authority, with cashable efficiencies already proven in various ECH schemes. The initial costs of setting up AT infrastructure are often more than offset by the longer-term cost savings that can be achieved. Previously efficiencies promised by classic AT have been hard to quantify due to the limitations of the devices at allowing safe reduction in manpower (alarms to pagers or classic door alarms to warden control systems do not allow for this).

The cost savings associated with AT are primarily derived from changes to staff structures within ECH schemes. Specifically, when proper AT is implemented into a housing scheme, the care provider may be able to reduce the number of waking night care staff by replacing them with sleep-in care staff

(where real-time alerts wake the worker in a potential emergency – for example, when a seizure is detected, or someone wanders from their flat at night); reduce staffing ratios; or share night time support across schemes.

Despite costing more to implement, there is no evidence to suggest the “Waking Night” system is any safer than a “Sleep-in” system utilising digital the sleep-in system can enable better safeguarding as workers are directed to where they are needed most, and customers have a better experience with quicker, better informed responses. With the “waking nights” system, the care worker may be required to do scheduled checks, often waking the service user multiple times throughout the night to check on them. This leads to an irregular sleep cycle that can worsen the health of many individuals. With the ‘sleep in’ system, however, this need to check is reduced or eliminated, as the monitors will immediately inform staff if any abnormalities, such as a seizure or enuresis, occur.

In respect of Norfolk County Councils’ ECH Programme, there is potential for the use of digital AT to support “sleep-in” care workers as a possible alternative to the provision of waking staff during the period 10pm to 7am. There is also potential to look at the impact of digital AT on daytime staffing structures; for example, the provision of support remotely from a centralised location using in-home tablets for non-manual tasks.

AT can also be used to support reablement and provide evidence of its impact (e.g. teach people how to use a microwave and have data to support that they are using it to prepare meals). For any ECH Scheme, using technology to best support people to help themselves, will likely reduce care need and provide long term saving to care packages

Implementation of AT within a 60 apartment ECH can potentially deliver significant cost saving – in the region of £40,000 - while supporting a greater level of independence for the service user.

AT Infrastructure: basic building requirements (generic)

All new build and retrofit schemes must meet certain connectivity requirements to implement the appropriate digital AT.

At the most basic level, this includes internet connectivity throughout the scheme and ideally into each individual unit. If an Ethernet cable is the preferred method, some digital AT data controllers will themselves provide Wi-Fi, the costs of which can be charged to residents.

Bandwidth and latency requirements will vary depending on what form of AT is used. Communication aids that use video calling functionality probably have the highest demands on both (bandwidth = min. 300kb/s, latency = under 250ms).

Barriers to delivery and steps required for adoption

The rollout of AT nationwide has been varied, with no set standard of which technology to adopt or how best to go about delivering the technology. This has been compounded by the limitations of standard/traditional AT equipment that is entirely reactive and has not been shown to deliver significant cost saving efficiencies.

Difficulties associated with procurement have also been a barrier to the implementation of digital AT; e.g. tenders specifying traditional AT and preventing non-compliant bids. Digital AT can usually be bought outside of OJEU procurement process. Most cloud-based services can be bought directly through the G-Cloud on the Digital Marketplace.

Care providers will often deploy traditional equipment to tick the “Assistive Technology” box when building new schemes, often not looking at the alternatives and/or the best solution for the residents. There is often a one size fits all approach taken rather than looking to personalise AT to the individuals it is meant to help.

Smart assistive technology has recently started to emerge. This Smart assistive technology completely replaces older versions of AT. The new technology delivers significantly more functionality and better customer experience through improved interconnectivity via wireless networks.

Privacy concerns of the individual and security risks to the system must be considered when choosing any digital AT; but the benefits of keeping residents safer, more secure and better looked after is often seen as a beneficial trade for the use of data. It is made clear to residents when signing up to any service what their data is to be used for. Mitigation factors must be in place to minimise risk and keep customer data secure.

Providers should be brought on board early in the process to ensure the benefits of using AT and creating efficiencies is understood. The introduction of AT is about standard of care and the encouragement of independent living, providers should not see AT simply as a top down approach by the County to reduce funding costs.

All stakeholders (e.g. social workers, OTs etc.) should be trained in the benefits of AT so that referrals are made and communicated clearly with citizens and their families.

Conclusion

AT can provide substantial care service benefits, both in terms of the level of care for an individual but also in the substantial care cost savings that AT can bring.

Service users will need to be advised appropriately to bridge any issues that they or their immediate family may have regarding their individual privacy. Any concerns should be addressed by communicating the benefits of digital AT its non-intrusive nature. All digital AT systems and installations will need to ensure that they are designed and operated to be as secure as possible.

Providers will need to be approached early in the development and planning process to ensure new or retrofitted schemes and buildings are designed to accommodate future installation of digital AT.

Further reading

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