Integrating technology into elderly residential care

Technology will become increasingly important and it is vital that care providers embrace change, maintain an awareness of key developments and have plans in place to enable them to adapt quickly, says Jonathan White, commercial director, Adaptive IT

Technology is continuously evolving and with care and working environments in general becoming increasingly reliant on digitisation and internet protocol (IP) - software that integrates applications and services - every effort must be made to ensure that all equipment, software and services operate as effectively as possible.

This is especially relevant in relation to Care Quality Commission (CQC) changes to the key lines of enquiry (KLOE) framework that encourage the use of technology to improve efficiency and accessibility and to promote person centred care. A clear strategic plan for all technology use is needed regardless of how many sites you run and key to this is the integration and consolidation of the systems used.

Initially there is a need to bring technology onto your premises by selecting which hardware and software best suit your needs before physically installing or commissioning the installation. The challenge is to get these systems to work together as much as possible for the benefit of staff and residents.

Integration
Staff have never been more receptive to using technology, but for optimum success you need to implement the correct training schedule and support to engage them and ensure they see the benefits of using it in their everyday duties.

A new build care home is the perfect blank canvas to enable the consideration of all options and put a plan in place. However, many care providers will have been operating from their premises for many years. In this case, a common problem is the mix of technologies that are in use, that are of different types and different ages, each with its own point of contact, maintenance contract and individual design. This causes difficulties in terms of management and certainly does not help the end user when attempting to troubleshoot problems.

The best possible platform for all technology use is the correct active and passive infrastructure throughout the premises. A lot of older buildings were not built with structured cabling and WiFi access in mind, but whatever state a site is in, it will need a robust network design above anything else.

This should consist of:
- commercial grade services entering the building to run data and call technology
- tested and certificated structured cabling throughout to at least Category 5e standard
- a dedicated comms room with associated racks and data cabinetry to house equipment
- fibre or copper backbone to link outbuildings or other satellite cabinet locations.

A commercial grade managed wireless solution with coverage in all internal and external areas is essential. This provides the perfect foundation on which to add IP products and engage with initial consolidation and integration. Running services via a network rather than using outdated and closed protocol analogue wiring or stand alone systems will result in immediate operational and management benefits.

Core technologies
Some examples of core technologies that benefit from the use of IP include:
- telephone calls that can be routed via SIP trunks (an SIP trunk will connect your premises directly to the telephone network via IP/broadband) and use a mix of traditional phone system teamed with mobile handsets. Hosted and voice over internet protocol (VOIP) systems can make multiple sites simply extensions rather than necessitating a dedicated traditional phone call, thereby reducing costs. This also provides a platform for billing residents for their individual phone use
- door access control – software can be used to schedule when doors are open or locked over any 24 hour period and staff credentials can determine which doors or areas of the building they have access to. This may require the use of an identity card, a key fob or even fingerprints or face recognition software
- internet access – connections for staff, visitors and residents can be managed easily by creating separate networks for each user profile. Restrictions for those visiting certain sites, such as gambling sites, can be put in place if necessary and staff access to social media can be restricted
- camera systems can be used for external security and internal safeguarding and evidencing. Images can be accessed by staff with clearance on a mobile device or remotely from another location. Cameras can be used as sensors and

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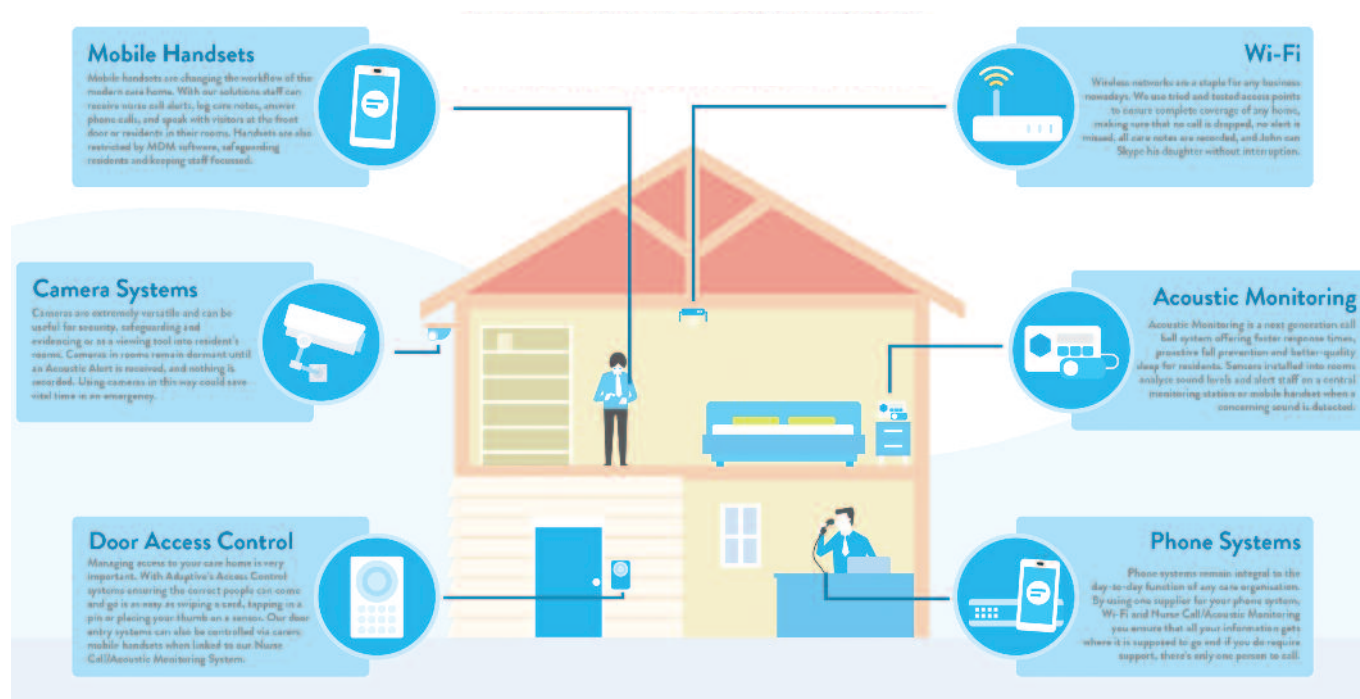
How technology can be integrated into a care home environment

lie dormant until they are activated and recordings archived if required

- nurse call – the use of traditional alarms such as call bells can be eliminated by sending alerts to a mobile device. This can drastically improve staff and resident wellbeing by creating a much more peaceful environment and avoiding residents being disturbed unnecessarily. Digitised reporting and audit trails can be created to drive improvement, highlight trends or to be presented to a third party as evidence
- digital signage – replacing notice boards, bespoke digital content can be created and managed by staff on site or across an entire estate. News, video, RSS feeds and so on can all be displayed on LED screens in communal areas such as reception as well as in individual rooms.

In relation to core technologies, it is advantageous to keep the number of suppliers to a minimum. Not only does this help in terms of deciding who to call, it aids troubleshooting and financially it should help you get a better deal.

In an ideal world, you would employ one company to look after everything, but it is possible to go from eight to 10 suppliers to two to four for the same products and services relatively easily and see improvements.

For businesses with multiple sites, standardisation can be achieved by introducing the same technologies. This helps create a coherent and uniform approach and will help staff if they work across different sites. Service level agreements can also be negotiated across multiple sites to reduce costs. Central points of contact should be given to staff to ensure they know who to contact in an emergency and how to log any faults.

The technology

After integrating technologies onto an IP platform, it is possible to explore the further integration and consolidation of equipment. A key component to use is an internet enabled mobile device as this can draw together many separate systems and consolidate them into a single unit for care staff to use.

For example, such a system can replace the traditional DECT telephone handset, pager, panic alarm, hard copy notes for care planning and medication and keys to the building that would ordinarily need to be carried by staff and managed. These can be replaced by nurse call alerts, phone calls, mobile care planning, a server-based electronic medication administration system and access control, all of which can be downloaded as apps to mobile devices.

There are some very exciting emerging technologies that are being embraced within the care sector. If these solutions are not currently in operation in your home, it is recommended that you consider implementing them as they will be very simple to introduce into a networked environment.

Acoustic monitoring can help with overnight care by providing continuous non-intrusive monitoring of residents in their rooms while they sleep. Sensors are mounted and when a concerning sound is heard, an alert is sent to a central station or forwarded to a mobile device.

As you only intervene in rooms when necessary, the instant operational benefits include: improved response times; better sleep cycles for residents; abuse prevention; falls prevention; increased privacy and dignity; safeguarding for staff; and more effective use of staff time.

It is also possible for residents to enjoy new experiences, re-visit meaningful locations and attend events without leaving the comfort of a chair. Some may be too frail to contemplate an overseas journey or participate in an activity such as diving or horse riding that may have been an important part of their past life. A simple virtual reality headset with a WiFi connection can give residents the opportunity to pay a virtual visit to the beach or when used with a 360° video camera, enable them to experience a family gathering, such as a wedding when they would otherwise be unable to do so.

The introduction of digital mobile care management has had a dramatic impact on the day to day workflow of front line care staff. Every element of care can be accounted for and documented accurately rather than having to be recorded by staff as part of the handover process at the end of a shift.

For example, the data can be used to monitor the progress of an individual or, for example, across an entire home to determine whether a hydration target is being met by showing how much liquid has

been consumed by residents overall. This software is available in the form of an app that can be downloaded onto a handheld device for each carer for ease of use.

Digital management

Keeping an up to date record of people who enter and leave the building generally relies on individuals signing in and out in a book at reception. However, GDPR compliance and the strengthening of health and safety and safeguarding protocols have meant that improvements must be made in this area.

Using a touchscreen interface in reception for staff, visitors and contractors has immediate benefits. A fire evacuation roll call that is 100 per cent accurate can be generated immediately and sent via an app to a mobile device to ensure everyone is accounted for in an emergency. Full reporting software can also interrogate any other data in order to provide details of anyone who has had access to the building over a particular period of time.

Many care providers have a stand-alone nurse call system that may not be very old but still sends alerts to call bells. This can be very disruptive, particularly at night. Rather than having to replace a relatively new installation, a third party

middleware solution that translates the alerts generated from the main alarm panel and sends them directly to a mobile device is available. Again, this is in the form of an app on a mobile WiFi enabled device and will be of immediate benefit.

Touchscreens are a common form of physical interface and can be extremely helpful for cognitive therapies, improving motor skills as well as having a whole host of other benefits.

The future

In the future, hardware and software providers that sell into the care market will naturally look to integrate even further, becoming more accessible and far less insular in their approach. This will improve efficiency and operations as well as helping to provide a better level of care by improving processes and generating data that can be used to drive effective change.

However, in the short term, following the steps outlined will put care providers in a much better position to harness the potential of using technology in the best way possible. Technology will become increasingly important and it is vital that care providers embrace change, maintain an awareness of all key developments and have the necessary plans in place to enable them to adapt quickly.   TCHE

Jonathan White

Jonathan White is an award winning IT professional with 15 years of experience servicing the healthcare market. He is a champion of innovative and emerging technologies and uses them to help improve care quality and efficiency. Clients have included NHS England, the Nursing and Midwifery Council (NMC), hospital trusts and care providers across the UK.