



# Improving senior living with technology

How to enable residents' wellbeing and security,  
while enhancing the staff workplace

Brochure

Alcatel·Lucent   
Enterprise



# Overview

The world's population is aging. Many countries are experiencing growth in the number and proportion of older persons in their population. In fact, the number of aging people who need support for daily living activities in developing countries is forecast to quadruple by 2050<sup>1</sup>.

However, caring for an aging population is not the same as providing healthcare, which means we need to look at aged care from a different perspective. It's about keeping the elderly comfortable, safe and healthy, for as long as possible.

That means building a system from the ground up; rethinking long-term care from a basic safety net for the most vulnerable, to a broader system that maximises seniors' functional abilities and enables their autonomy and dignity.

Anti-aging technologies – from memory-enhancing drugs to high-tech joint replacements – and healthier lifestyles are not merely increasing longevity but also improving quality of life for the senior population.

In terms of the aged care and assisted living environment two key areas along the resident care pathway need to be addressed:

- Enabling a better resident experience to maximise their wellbeing
- Equipping staff with collaboration and mobility tools to deliver cost-efficient, quality care

The aged care provider is entering a new realm of hyper-connectivity that enables residents to have the same technology experience as they would have at home, coupled with professional medical and aged care.

1 - [Microsoft Word - Key Findings WPP 2017 Final EMBARGOED \(un.org\)](#)

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# Reshaping the future of aged care and assisted living facilities

Digital innovation and transformation are reshaping the future of aged care by making care delivery more efficient and more accessible. Poor quality care and unsafe living conditions are no longer acceptable. New care delivery models must adapt to changing expectations with coordinated, convenient and customised solutions to improve emergency response and safety, and the overall care experience.

Aged care facilities are accelerating their digital transformations, implementing electronic resident medical files, tele-consultation and leveraging technologies such as virtual health/telehealth, wearables and other IoT sensors.

Cloud-based software as-a-service (SaaS), cloud-based computing, Robotic Process Automation (RPA), Blockchain, digital and virtual reality, Artificial Intelligence (AI), robotics, Internet of Medical Things (IoMT) and virtual health will be the next step in moving aged care into the 21st century. However, digital innovation impacts more than just clinical and resident environments — it also improves back-office operations like supply chain, finance, revenue cycles and human resources.

Additionally, regulatory compliance and cybersecurity must be top of mind as innovations, digital interconnectivity and market complexity, address new government policies, regulatory oversight and risk management in aged care. As data becomes the new currency, protecting it is imperative. Technologies that address regulatory compliance and tackle cybersecurity concerns will be key.

Digital innovation is also key to developing and retaining top industry talent. Recruiting, developing and retaining staff can be a challenge when faced with:

- Increased demand and heavy workloads
- Poor work and life balance
- Declining morale
- Wellbeing concerns
- Complicated processes and workflows
- Lack of training and qualifications

Technologies that address these issues can go a long way to creating a positive environment for clinicians, caregivers and residents.

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# Four key elements to consider for your digital transformation

Aged care is different from healthcare, so it needs to be looked at from a different perspective. It's about keeping residents comfortable, safe and healthy in their golden years, as well as enabling a better front-line staff and resident experience.

In an aged care facility or assisted living centre, no unique system provides a single view of services. Connectivity can help solve aged care challenges by tying together components of the ecosystem such as:

- Applications
- CRMs
- Clinical management
- Human resource
- Rostering
- Community animation
- Nurse call and sensors
- IOTs and IoMTs
- Business Intelligence and ERP and entertainment
- and others

Connectivity enables improved operational efficiencies, reducing the burden on caregivers and increasing the time spent with residents.

Evolutions in mobility and IoT are directly impacting the network infrastructure, driving aged care and assisted living organisations to fundamentally reconsider their technology choices. The aged care provider is entering a new realm of hyper-connectivity that enables residents to have access to the digital experience they would have at home, combined with on-site medical care.

Our approach for the future of assisted living considers four key areas of improvement including:

1. **Create a digital workplace for a better staff and resident experience:** Empower the care team with easy, borderless mobility and collaboration tools for better coordination
2. **Optimise alarms, notifications, automated processes and workflows:** Enable caregivers to deliver optimal care with an efficient notification system to help prevent alarm fatigue and turnover
3. **Improve residents' wellbeing while providing security:** Create age-friendly environments where safety and comfort are the primary concern, with social interaction and access to services, as well as avoiding the spread of a virus or disease with contact tracing
4. **Optimise IT operations and workflows:** Control costs by optimising operations, administration and technology investments

Tackling these challenges requires modernising your communications and LAN/WLAN infrastructures. We provide a wide range of private, public, or hybrid cloud communications solutions to provide comprehensive and mission-critical connectivity, mobility, communications and collaboration solutions. An always on, robust and secure network infrastructure with Wi-Fi 6/6E, location services and IoT connectivity provides an improved experience for the resident, the family and the caregivers, as well as practitioners working across several care environments.

Our communications and collaboration solution provides a critical regulatory and technical framework, ensuring health data security.



## Customer case

This organization provides community care, independent living and residential aged care services. They were facing competition from industry-disrupting companies that offer at-home services, including food delivery and entertainment.

They are adopting industry-leading technology to gain a competitive advantage in the aged care market and offer superior quality and service to their residents.

To create differentiation in the marketplace and address these new challenges, they have adopted ALE Wireless LAN, notification and unified management solutions, to build a leading edge experience that enables residents to have the same technology experience they would have at home, coupled with professional medical and aged care.

# Create a digital workplace for a better staff and resident experience

Empower the care team with simple, borderless mobility and collaboration tools for better coordination and improved work efficiencies. Our elderly population deserve the best quality of care — and technology can enable it. Work process optimisation can reduce the amount of time spent on tasks so caregivers can spend more time focusing on residents. Access to tools such as remote monitoring, teleconsultations and simplified medication dispensing can help improve staff efficiency and resident interactions. Integrated connectivity to applications used by caregivers can provide better mobility with borderless collaboration to get the information they need, when they need it.

- **Enable teleworking:** Ensure continuity of care; receive professional calls on a unique number used by multiple telephone devices (including smartphones, desk phones, wireless phones) or through a secure softphone. Particularly suited to medical or paramedical assistants, administrative and technical teams. Service continuity is maintained because of telephone services like automated attendant, group calls, access to the facility's telephone directory; and always available and secure access through a client VPN solution for reliability.
- **Facilitate teamwork:** Creating an easy-to-deploy and effective digital workplace in a cloud communications and collaboration platform, offering chat, screen and file sharing, voice and video calls, and conferencing capabilities contributes to working as a team despite the distance.
- **Fluidify interactions:** With connectors from the cloud collaboration platform to the resident medical record application: click-to-call and file pop-up are made possible to ease interactions and reduce the amount of walking from the resident rooms to the office.

- **Enable full mobility:** With a solid Wi-Fi or Digital Enhanced Cordless Telecommunications (DECT) infrastructure foundation, caregivers can communicate and receive alarm notifications on the move on hardened DECT handsets or WLAN handsets, as well as access health data from a mobile device or computer on wheels from any place, even at the residents' bedside. Urgent alarms can also be distributed on smartphones or laptops with a persistent ring to differentiate them from "standard" alarms.
- **Improve care coordination:** A collaboration platform enables remote multidisciplinary meetings involving caregivers inside, and specialists outside the facility to improve coordination. The same platform can serve as a telemedicine solution to enable caregivers assisting the resident on-site to consult external specialists, without the need to move the resident, providing better comfort and safety, as well as respect for barrier measures. A video room solution dedicated to small rooms can also help set up conferences and optimise time-to-connect with one-click video meetings.
- **Save staff time:** Caregivers spend about one hour<sup>1</sup> per day searching for equipment and colleagues, or residents who may wander or want to leave the premises without permission. That is time that could be better spent with residents. An asset tracking solution can help staff locate people and assets in real-time on a building floorplan map from a desktop or mobile app, including locating medical or non-medical equipment such as wheelchairs, beds, biometric monitors, as well as high-risk residents or other staff members. Results are improved care delivery, increased safety and workforce satisfaction.

<sup>1</sup> ROI of Locatable RTLS for Healthcare whitepaper, April 2015

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# Optimise alarms, notifications, automated processes and workflows

Enable caregivers to deliver optimal care with an efficient notification server reducing alarm fatigue and turnover. This alarm processing is key to enhancing real-time situational awareness, staff responsiveness and personal safety.

A PBX connected solution, and a robust alarm notification system, together with Unified Communications can offer an effective approach for aged care and assisted living facilities to improve staff responsiveness in the event of a critical alert, to enable collaboration and ensure resident and staff safety.

- **Integrate existing alarm systems** with a notification server to protect investments: existing fire alerts, wander prevention, industrial alarms and building management systems, among others, can be reused by leveraging the multiple ready-to-use connectors provided with the notification server. Alarms can be also triggered by a third-party application or IoT device such as a video surveillance camera or smart sensors, so you can benefit from all of your existing equipment capabilities.
- **Reinforce staff security especially isolated workers or night staff.** Lone Worker Protection features available on the hardened DECT handsets range ensure mobile staff protection while on the move. In case of loss of balance, immobility or fall, a notification is automatically triggered to the security team, nursing home facility, or assisted living centre executives even outside on an external number.

Staff can also pull a cord or press a button on their DECT handset to inform the team of a physical threat. With geolocation capabilities, the alarm origin location can be identified on a floorplan map for timely intervention.

- **Reduce alarm fatigue** by streamlining notification workflows. They are optimised, delivering the right information at the right time on the right device (such as a DECT handset, desktop application, or mobile application on a smartphone) in the right manner (for example; e-mail notification, SMS, voice message, or even social media message) to the most appropriate person to respond to the alarm, covering multiple use cases with maximum flexibility.
- **Send automated alerts/geonotifications.** Our asset tracking and contact tracing solution sends automated alerts/geonotifications to individuals or groups using either geofencing or with the press of a tag button, in real-time. This can be used for a variety of events such as area entries/exits, nurse emergency, resident assistance, room cleaning and maintenance, among others. Alert history is available for post-event/notification analysis.
- **Connect smart building IoT devices** to greatly improve the quality of service in aged care facilities, where different sensors can instantly notify staff about the behavior and status of residents, identify issues thus increasing resident safety



## Use case: Alarms and escalation

Let's look at a simple asset tracking notification scenario:

A resident needs assistance, so they press the alert button on their wristband tag which have been pre-programmed for "need of assistance". As soon as the asset tracking system receives the alarm, it sends the notification to one or more caregivers who were listed to receive the notification, on their smartphone. The caregiver(s) can then locate the resident on a floorplan map via their smartphone app and tend to the needs of the resident.

## Improve resident wellbeing while providing security

Keeping connected while staying autonomous can be a challenge. For residents that can mean access to services and staying in contact with family and helpers to maintain social interactions inside and outside the aged care or assisted living facility. Things we take for granted everyday need to be considered. The main concern is to create age-friendly environments where safety and comfort are the primary concern, with social interaction and access to services.

Wellbeing is the priority. Improving security and reducing risk can help residents feel empowered and safe at the same time. Wander detection, contact tracing and density management are also important for maintaining resident, staff and visitor safety, particularly during and after a pandemic or disease outbreak.

- **Provide residents with connectivity** to keep a link with family, caregivers and other residents: based on a reliable communication server and its welcome solution, resident's relatives/healthcare professionals can easily be connected to the residents' room phone or mobile phone. Conversely, residents can make outside calls using any ALE room phone in the facility. Having a phone in every residents room that is connected to the central PBX allows for simple wellness checks by family members. If the resident phone is unanswered, the call can be automatically re-routed to the nurse/caregiver/supervisor to check in on the resident. An intuitive videochat solution can also be added to a residents' room or a dedicated video room, enabling residents to see their relatives for a more interactive and livelier video session.

- **Keep residents safe.** Several solutions can be implemented to ensure seniors are safe, whether reactive (such as an event notification) or proactive, to protect them from being infected by a virus. Many portable alert solutions exist on the market. Residents can be monitored and a notification can be sent to the right person in case of an event (such as wandering beyond a designated area or the need for assistance, when using the alert button). Moreover, aged care or assisted living facilities should consider a telehealth solution, enabling a caregiver to assist residents in their consultation with a remote doctor or specialist, reducing the stress of travelling to another facility. As we move toward the future we will see video telephony and alert solutions embedded in robots to facilitate lock-down for instance, and fully respect social distancing measures.
- **Break virus transmission chains** with a contact tracing solution that helps reduce virus-associated mortality. By providing real-time and historic analytics and letting people know they may have been exposed to a virus, facilities can proactively track and protect all people within the environment. A contact tracing application of this type manages the number of people in a specific area and enforces social/physical distancing by providing real-time density monitoring and occupancy management. It enables you to understand how a virus or contagious disease spread may have started and who may have been in contact during those times, to make informed decisions about getting people tested, isolated or quarantined.



### Use case: Teleconsultation and assistance

Video empowers consultation and collaboration for residents with mobility issues. With presence information, the nurse sees when the doctor is available and launches a video call to share the residents' condition. The video call can include the resident and nurse as well as a doctor, or specialist. Instant messages can be used to get a quick response if needed, even if the doctor is already on the phone. Teleconsultations enable remote access to care wherever residents are located, avoiding unnecessary transportation to a hospital.



# Optimise IT operations and workflows

Optimising the network means ensuring the quality of the data throughout its transmission. It means secure sharing and maintaining confidentiality. It is imperative that residents' health status, that is monitored 24/7 using collected data, be safe and secure. In addition to data security, an optimised network can also enable smart building automation including IP cameras, IoT smart sensors, support for a third-party system for nurse calls or fire alarm, bio vitals monitoring, and event flow management.

To achieve all this and prepare for the future of robotics, AI, and machine learning in aged care and assisted living facilities, investing in a centralised supervision tool in the cloud can make it easy to manage the network infrastructure without local IT skills on site. An automated and simplified IoT-enablement process for onboarding puts less burden on IT resources as well. These efforts will result in pooling, for economies of scale and infrastructure security with the optimisation of operations, administration and technology investments. Some ALE solutions can be deployed with zero-touch provisioning in a small facility.

- **Adopt IoT easily and securely** by automating the onboarding of connected devices. Features like automated IoT identification, authorisation and onboarding with ALE networking gear, simplifying and securing the connection of users, devices and applications in the network. It means including open APIs in our products so that they can more easily participate in IoT-driven workflows enabling a device to “talk” with other devices, or people in real-time.
- **Evolve your business model.** ALE technology deployment and financial models are incredibly flexible. If you want on premises equipment too, we can do that. If you want the technology delivered from the cloud, we can do that. If some locations need on premises and others don't justify it, we can do that as well — CAPEX, OPEX or Hybrid. The user experience is the same in every case. This includes both ALE networking and communications portfolios. Flexibility can be increased with Managed Services to let you concentrate on your core business activities.
- **Manage and operate your IT infrastructure in the cloud.** ALE technology is simple to deploy, operate and maintain due to a unique Network Management System (NMS) in the cloud for both the network and communications systems, automated network configuration and provisioning to ease installation. IT staff can even be located remotely and manage several facilities. A single Network Management System (NMS) provides an

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additional level of integration between wired and wireless networks. This reduces the IT manager workload as they no longer need to handle two management systems with two sets of policies and configuration rules (one for the LAN and another for the WLAN). The NMS provides unified service management and network-wide visibility, which can improve IT efficiency and business agility.

- **Centralise communication services** between departments, residential sites, nursing homes and other assisted living facilities with a single communication server that can handle multiple entities. The automated attendant can also be managed centrally for several entities; call flows, welcome messages and voice guides are customisable per department/service/entity. Centralised management of the communications platform and applications saves your IT team time and complexity.
- **Secure data exchanges and communications.** Your network and communications infrastructure must be protected against cyberattacks. With strong built-in security features (zero trust network approach including cybersecurity, macro- and micro-segmentation and automation capabilities, ISO 27001 and other industry certifications, common criteria, native encryption of voice protecting personal and communications, among others), you can operate securely on your network, including protecting personal and health data.







## Summary

Digital transformation is reshaping how we care for our aging population by making care delivery more efficient and more accessible. Digital innovation and technology are helping to create new care delivery models and address changing client expectations with adapted, customised and future-proof solutions. This digital innovation will help create a superior staff experience, which is also key to developing and retaining top talent in the field.

Alcatel-Lucent Enterprise makes this possible with:

- **Converged and future-proof infrastructure** to deliver the communications and data staff require to efficiently respond to residents' needs
- **High-quality Wi-Fi connectivity** to ensure caregivers and residents stay connected inside and outside the facility
- **Mobile communications** for real-time interactions and enhanced personal security

- **Efficient collaboration** to enable caregivers to connect in real-time with teams on-site and remotely
- **Location services** locating people and equipment to free up time to spend with residents
- **Messaging and notifications** to reinforce resident and staff safety, with a streamlined alarm workflow
- **IoT-enablement** providing the tools to empower residents with the autonomy they desire
- **Optimised operations and workflows** to ensure the facility runs like a well-oiled machine enabling easy IoT onboarding, mobility, and secure, simple, reliable, scalable and efficient operations for admin personnel, with no IT skills required on site.

Learn more about how [Alcatel-Lucent Enterprise healthcare solutions](#) are delivering the innovation and connectivity to create healthy, independent and secure living environments for our aging population.