ICAA® Forum 2016

International Council on Active Aging®

The future of technology for active aging

Planning and evaluation for successful implementation

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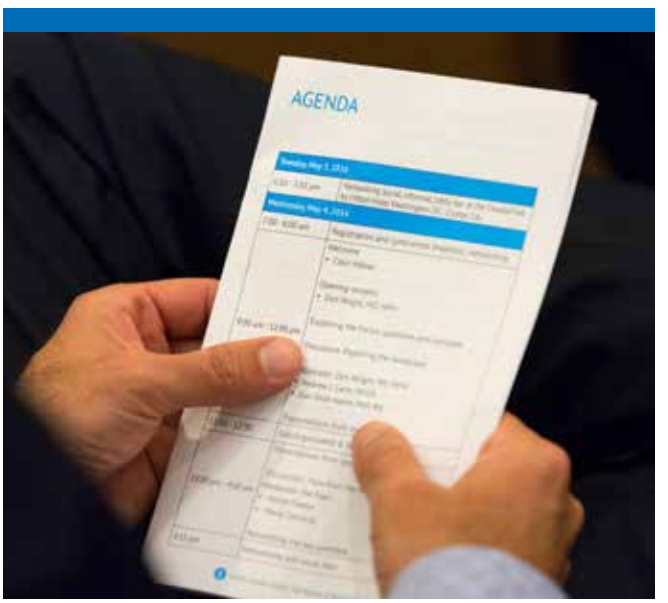
Contents

The ICAA Forum brings together thought leaders from many organizations—both private and public—to form a think tank that develops strategies to turn the challenges facing senior living providers into opportunities. Launched in 2005, the meetings forge connections among industry leaders while promoting understanding and cohesive action around the ultimate goal: health and quality of life as people age.



Benefits and barriers

Technology surrounds our lives. Whether we are pushing the cap on a mechanical pencil to eject more lead or sending texts using a smartphone, technology is a common tool for our work-related and personal activities.

Technology is developed to solve a problem, enhance productivity, deliver a service or entertain. There are a multitude of options, advanced by the widespread availability of computers, the Internet and cellular networks. Medical technology is used to provide more efficient care; assistive technology helps people function independently in everyday life; productivity technology, like software for accounting and word processing, is a given in many businesses; and healthy living technologies, such as pedometers or the apps that track dietary goals, are widely used.

It is clear that there are many technologies to choose from, but it is less certain how technology will impact quality of life for older adults, and how it will benefit the services of organizations that provide wellness opportunities, health care and housing. Does technology solve problems or enhance productivity? Will it make life better—or more confusing?

"We use technology to augment how we do things or to improve our lives. Some technology fits very well for younger generations but doesn't fit well for older generations. Patients are getting used to [technology and telemedicine], but it's not for everybody. Among older adults there is growing adoption, but we need to identify their needs and comfort levels to provide optimal care."

Eun-Shim Nahm, PhD, RN,
Professor, University of Maryland

To explore these questions, the International Council on Active Aging (ICAA) convened the ICAA Forum think tank composed of executives, senior managers, wellness directors and information technology executives. The delegates' goals were to prioritize industry challenges and suggest solutions.

Subject matter experts laid the foundations for the discussions:

Don Wright, MD, MPH, Deputy Assistant Secretary for Health, Office of Disease Prevention and Health Promotion, US Department of Health and Human Services
Andrew J. Carle, MHSA, Department of Health Administration and Policy, George Mason University
Eun-Shim Nahm, PhD, RN, Professor, Organizational Systems and Adult Health; Program Director, Nursing Informatics, University of Maryland
Hollie Fowler, Senior Director, Product & Brand Development, Prestige Care
Maria Connelly, CEO, TheWellnessEdge

During presentations and summaries of the proceedings, there was a recognition that technology has a lot of potential to aid providers in senior living and community agencies. The ability to capture and report outcomes from all areas of an organization topped the list of values technology can bring to an organization. Real-time reporting for immediate feedback, reporting that can meet regulatory requirements, and data to plan incentives and rewards added to the list. Efficiencies derived from automating tasks, and using technology to manage processes and customize programs and services, were noted.

As a communication tool, delegates believed technology aids communication within the organization and outside of the organization, allowing

quick access to colleagues and to informational websites. Technology serves as a bridge between younger and older people as one group helps the other, and connects older adults to their families, friends and personal interests.

While there is defined value for organizations in using technology, there are also barriers to adoption. Delegates prioritized the following:

- Any technology must support the organization's business strategies.
- Personal interactions between older adults, family members and staff remain a priority. Technology can increase communication, but it does not replace human interaction.
- The cost for installing infrastructure and new technologies is high, so the return on investment must be clear.
- Interoperability, the ability for systems to exchange information, is a critical need.

"We have systems in thousands of communities, and the programs that are most successful have several things in common: 1) commitment from the top down—management is clear in their support; 2) a program champion, someone who believes in the product and takes ownership of the program; and 3) a dialogue is maintained with us, so when there is staff turnover or Internet issues, for example, we can partner to help solve them quickly."

Lori Snow,
Director of Marketing, It's Never 2 Late

- Technology will benefit older adults, staff members and the organization only if it is easy to use and it meets a need that is clear to the users.
- Ongoing training of the workforce is necessary for the adoption of any technology.

The role of technology

Technology is at home in retirement communities. In the office, there is typical business software for word processing, database records, accounting and human resources. Each department likely uses technology specific to their work. Perhaps dining is managing supplies, vendors and costs with specialized software. There are point-of sales swipe cards to track resident meals, entry to the wellness center and use of services. In departments providing health care, medical records and progress reports are held in specialized software. Workers report their hours electronically.

The activities/engagement staff have their software for creating calendars, flyers and announcements, both in paper and online. They may be responsible for posting on social media sites, like Facebook. In fitness rooms, some exercise machines and specialized equipment for balance training have associated software, and staff use spreadsheets and cloud-based systems to track participation and store results of functional tests.

Then, there is the software used by residents for cognitive challenges, creative endeavors, entertainment and connection. Already well-used are emails, text and video calling software such as Skype and FaceTime. Phone and monitoring system, in-house television stations and online message boards are available to communicate resident-to-resident and resident-to-staff.

A familiar technology adopted by health care is the electronic health record (EHR), where physi-

Don Wright, MD, MPH, Deputy Assistant Secretary for Health, Office of Disease Prevention and Health Promotion, US Department of Health and Human Services

cians and nurses enter the outcomes of an office or hospital visit, and Internet portals allow patients to access their health care information. While the use of EHRs in skilled nursing environments or assisted living is not as common, some facilities do have these systems, which also helps them provide the reports required by Medicare and Medicaid.

From an organizational perspective, the result is a chaos of technologies, often from different vendors, which may or may not communicate with one another. Staff in one department may not be aware of useful information collected and stored in systems in other departments. While each functional area may find its technologies useful and appropriate, a challenge for many communities is seeing how each system fits into the big picture of organizational needs.

"You have to show [insurers and policy makers] the value proposition with research. We need researchers to show the numbers, show how the technology can help save lives, show how keeping people out of hospitals by getting their medications correct will stop wasting billions of dollars on hospital bills. We need to work together on that."

Andrew J. Carle, MHSA,
Department of Health Administration and Policy, George Mason University

Practical issues

The mission statements of organizations for older adults are likely to contain wording about the lifestyles, health and well-being of their clients. The options offered by community providers can be constrained by funding obligations from grantors and governments. Senior living, with its combination of housing, services and lifestyle opportunities, is a complex business with an operational objective to maintain the resident population. All providers want to offer the highest quality services while controlling costs.

For technology to be a solution that improves services for older adults while maintaining operational efficiencies, decision makers look at multiple considerations.

Key considerations for successful implementation

Business strategy. Any technology must support the business objectives of the organization, becoming another tool to realize the mission. The coolest "new thing" is not a fit if it does not serve the organization's purpose.

A technology roadmap that prioritizes the needs of all areas of the organization is an important document for determining which technologies will assist in implementing the organization's mission and business strategies.

"Technology adoption is a huge consideration. User friendliness is important so that even those who are not tech savvy can embrace the system. You have to get buy-in from the users before implementation. Organize focus groups, let the staff look at the technology and play with it. If people have to use the system as part of their jobs but are always complaining about it, that's not good adoption."

John Couture,
Director of Information Technology, LifeSpace Communities

Cost. Technology requires wired or wireless systems, hardware and software. This is particularly the case with older buildings, which need to be retrofitted for the infrastructure required by technologies. Implementing a technology across an organization, and multiple sites within an organization, can cost hundreds of thousands of dollars.

For example, nursing care and assisted living units seek to provide good care for a controlled cost. While technologies, such as electronic health records, could aid in this quest, currently the US government does not incentivize technology investment in long-term care as it did for hospitals and physicians. Without external funding, the costs for implementation can be too high for private organizations.

Senior living administrators have many issues to deal with, and many needs for budgeted dollars, so a new technology is not at the top of the list unless there is a defined need that can be met with the technology. The technology roadmap and a strong business case are critical to decision-making.

A business case may contain projections for how a program or technology can influence census—the number of residents—for a clear return on investment (ROI). Extending a resident's length of stay in her or his current home can be related to the dollar value of those additional years. Staff efficiency is another element if the technology will improve productivity. Resident satisfaction can also be a return on investment, although it's harder to put a dollar value to it. It's noteworthy that technologies available today can capture the data used in the business case.

Interoperability. Interoperability, the ability of systems to communicate with one another, becomes a large issue when considering how to follow residents through their lives, and provide the best care and services along the way. There can

Elements of a technology roadmap

A technology roadmap is a plan that outlines the short-term and long-term technology needs of the organization. The roadmap plots how technology can help implement the organization's business plan and strategies.

The technology roadmap is useful for the Information Technology (IT) function, as well as everyone else across the organization, since it clarifies what technology will be prioritized to meet the business goals, and the timelines for implementation. It also helps people in each department "see" the big picture of the organization and understand the needs of all others, an asset since functional areas may operate in silos.

1. The first step is the prioritization of the business strategies, and the timelines for realizing them.

2. A needs assessment is conducted for each department. What are the biggest challenges? Where do the leaders in each area want to be in 3–5 years? What do staff members believe would support them in their work? What are operational needs? What major systems, such as in accounting or health care, are needed? How will sales leads be managed? What are the needs in lifestyle and fitness areas? What reports are needed to manage the business? What are the gaps that technology can help to fill?

3. A draft of the roadmap is circulated for feedback, revised, and circulated again. Building the roadmap is a collaborative process, and participation in the planning will aid buy-in down the road when new systems or upgrades are being implemented.

4. Details in the roadmap include the prioritized list of new or updated projects, the estimated cost, and a timeline for completing each phase of implementation.

5. The technology roadmap is finalized and made available throughout the organization. The roadmap will be updated as direction or needs change.

6. A technology steering committee of 3–4 people is identified and uses the roadmap to evaluate requests for technology and serve as technology champions. An internal owner of a portion of the roadmap works with the IT leadership to directly oversee projects. Technology solutions require a champion in each place where they will be used; it is not solely the job of the IT director.

be good systems in place in each department, but when these systems do not communicate, information that could inform a care plan or explain a change is not available.

For example, a person in assisted living who regularly visits the fitness center may have the results of functional assessments with the fitness director, but this data is not shared with the assisted living director or reflected in a care plan. Another example is a long-term care residence that operates one brand of EHR accepting a patient from a hospital that runs a different brand so the systems don't "talk" to one another. As a result, the patient's status and history don't travel from the hospital to the long-term care setting.

In health care, interoperability may lessen as an issue in the United States because the Medicare Access and CHIP Reauthorization Act require there to be "widespread" interoperability among electronic health records systems by the end of 2018.[1] Currently, there is no industrywide standard, such as those published by the International Organization for Standardization (ISO), that organizations can use to evaluate a technology. A standard is being developed for electronic health records, and this may assist providers in the future.

"It's a myth that seniors don't like technology. What they don't like is reading the 60-page manual. We have to make it seamless in their lives. It's the great divide between geeks and grans. The problem is, most of the people inventing the technology are 20 years old. They have no idea what it's like to be 85 years old. And I think that's the role we play, to be that United Nations interpreter."

Andrew J. Carle, MHSA,
Department of Health Administration and Policy, George Mason University

Lack of interoperability likewise impacts Information Technology (IT) management, requiring the department to learn about and support many different softwares and platforms, while protecting the information contained in each.

For the whole organization, one approach is the enterprise resource planning (ERP) method, which integrates all departments and functions across a company onto a single computer system. Other solutions are choosing systems built on an open architecture platform or those with an Application Program Interface (API) option.

Workforce. The workforce in senior living is diverse and often multicultural. A combination of full-time, part-time and contract workers, not everyone in the workforce may have access to a computer. Staff who use technology daily as part of their management or administrative roles may be very comfortable using it. For those who work directly with residents, for example, as a server in the dining room, a fitness instructor or a personal aide, technology may not be part of the workday.

In assisted living and nursing homes, the current and future lack of professional caregivers suggests that technologies to help fill the gaps are needed. Providers are interested in technologies that can help prevent injuries and increase productivity, such as patient lifts, remote monitoring systems and tablet-based apps that allow nurses to easily carry documentation with them.

Another arm of the healthcare workforce is the unpaid family caregiver. An estimated 34.2 million Americans provide unpaid support to family members 50 years and older. Among them are those aiding a person with Alzheimer's disease and other dementias. Caregivers are aging themselves, and they can suffer from poorer physical and mental health because of their work.[2]

Andrew J. Carle, MHSA, Department of Health Administration and Policy, George Mason University (L), Eun-Shim Nahm, PhD, RN, Professor, Organizational Systems and Adult Health; Program Director, Nursing Informatics, University of Maryland (R)

Online sources of information and socialization, devices to find a person who has wandered off and technologies similar to those used in nursing could help them.

The goals of adopting a technology are to reduce the workload of current staff, increase productivity or provide information for informed decision-making. If technology is going to be used by all staff members, then they need to either be hired with those skills, or trained. The issue of training leads into technology adoption.

Adoption. For technology to be adopted, potential users must have access to it, understand how it will benefit them, learn how it works, and be given

"It is less a question of wanting to share information [across the industry]; you need to share to be a good provider along the continuum of care. The question is more one of how do you share it. If the IT staff say it's not possible, push back. Explain that other companies are doing this, and we need to do the same. Ask, 'can you go back and think about it? How can you solve that problem?'"

Mark Crandall,
Chief Information Officer, Consulate Health Care

the time and encouragement to take advantage of the technology's capabilities.

Access comes first. The digital divide refers to people who do not have computers or Internet access because of affordability, geographic location or personal interest. This is an issue because the larger society has converted access to services and information onto web-based platforms. Without Internet-connected devices, these are not available. Public computers are available in libraries, some cafes and business centers, although these assume a person can travel to that location. If technology is to be a tool, then people need the ability to access it.

Access is also an issue for professionals. Not every worker in senior living or a community center has access to a computer or device that connects to a technology. For example, personal aides, dining staff, part-time instructors or contracted services may not be connected to an organization's technology. Wireless and Internet-based technologies require reliable access to the Internet, which is not available everywhere. Bandwidth that enables higher speed Internet connections, especially when many users are on the system, is not always available either.

Second, what practical value will a technology bring to an older adult or staff member? Technology that allows a person with mobility limitations to remotely open a door or chat with friends might be appealing, although the ability to text a photo of a dinner plate may not be of interest. Workers want to know how a technology will help them do their jobs. If your job is direct care, how will software help you bathe the resident? If your job is leading a class, how will sitting in front of a computer get the work done? How a technology will help the user accomplish a task or support the organization's mission needs to be clear.

Third, adoption relies on adequate and consistent training. A one-time presentation will not get users excited about using the technology, nor qualified to use it. A dedicated training curriculum should fit the needs of the users, whether the best fit is online, face-to-face or through a telephone help line.

Training and support is an ongoing issue, due to staff turnover as well as the need to follow up and make sure that the technology is implemented successfully. Training extends beyond employees to include residents and family members. A resident cannot visit the community's Facebook page if that person doesn't know how to set up a password. A virtual reality program to train driving skills won't meet the purpose if the user is not clearly taught how to operate the program. Family members also need to know why a technology was instituted, then be trained so they can encourage residents to use it.

Fourth, staff must be given the time to learn new technologies, at a pace that is effective for the staff member. Freeing staff hours for training can be very challenging for providers. However, without adequate staff training and time for training and ongoing support, the return on investment in technology will not be realized.

Glossary of terms

Application Program Interface (API)

An API is a set of commands, functions and protocols that programmers can use when building software for a specific operating system, such as Windows, Unix and the Mac OS. The API allows programmers to use predefined functions to interact with the operating system, instead of writing them from scratch. SOURCE: TechTerms.com

Electronic Health Records (EHR)

An EHR is a digital version of a patient's paper chart. EHRs are real-time, patient-centered records that make information available instantly and securely to authorized users. SOURCE: HealthIT.gov

Enterprise Resource Planning (ERP)

A management tool to integrate all departments and functions across a company onto a single computer system that meets company needs. ERP is intended to facilitate information sharing, business planning and decision making on an enterprise-wide basis. SOURCES: Enterprise Resource Planning.com; inc.com encyclopedia

Interoperability

Ability of computer systems or software to exchange and make use of information, even when made by different manufacturers. SOURCE: Oxford Dictionaries

Open architecture

Computer hardware or software architecture that allows users to add, upgrade, modify or swap components. For example, replacing the graphics card that came with a desktop with one provided by another company. In software, the code is available to developers who can build products that work on the open architecture system. SOURCES: Concise Encyclopedia of System Safety: Definition of Terms and Concepts; Business Dictionary

Standards

Standards are set by organizations and companies voluntarily adopt them. Standards list the requirements, specifications and characteristics that are used to determine if the product or process is fit for the purpose. For example, the HL7 (Health Level Seven International) standard for electronic health information defines how information is packaged and communicated from one party to another, setting the language, structure and data types required for seamless integration between systems. SOURCES: International Organization for Standardization (ISO); hl7.org

Telemedicine

The use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health status. Telemedicine includes a growing variety of applications and services using two-way video, email, smart phones, wir eless tools and other forms of telecommunications technology. SOURCE: American Telemedicine Association

Action steps

It would take a lengthy catalog to list all the technologies available to providers of services for older adults. A technology is rarely stable—many require updates or replacement as the rapidly evolving technology field races forward, making a current system obsolete.

A theme that ran through the conversations at the ICAA Forum was that technology developers often were not aware of the perspectives of older adults or the business models in senior living or community-based services. Increasing communication between organizations and developers will be a giant step in finding technologies that meet a need and support business strategies.

Recommendations for aging services providers

- Begin today to examine the role technology can have in supporting business objectives and improving the quality of life for older adults. Lay the groundwork by assigning the job of writing a technology roadmap that looks to the future as well as the present.

- Discover technologies that are currently available or in development. Form a technology advisory group to identify and categorize technology options. Speak with other providers to find out what they are using and how it works for them. New technologies are referenced in professional publications, industry reports and professional networking groups such as the online ICAA think tank and LeadingAge listservs.

"A pilot is extremely important. When you meet with the vendor, identify the goals and objectives and determine how you will measure success. How can you decide if it's a successful pilot if you don't know how you're going to measure the success of the program?"

Maria Connelly, CEO,
TheWellnessEdge

- To instigate change at the governmental or corporate level, long-term care providers need to be involved at the policy level. Join advisory groups or working groups to explain how long-term care providers are valuable partners in health care and deserve the same incentives as hospitals and physicians.

- Partner with researchers to track the outcomes from technology you pilot or adopt for older adults. For private insurers, Medicare or other funders to pay for solutions that use technology, they need research to provide evidence that the technology is effective. A business case also needs a cost/benefit analysis for the technology that a researcher could provide.

- Weigh the use of technology against maintaining the human social connections with residents, families and business partners. The goal is to improve quality of life, not to spend so much time with technology that human relationships are broken.

- Advocate for the industry and for older adults by educating technology developers about the business model of senior living, about the end user, and about why they should seat older adults and professionals in the room before they start development.

- A successful implementation of technology requires long-term thinking and investment. Allocating the appropriate dollars and people resources sets the stage for success. Once the technology is in place, establish a periodic check-in to see that it is being used, staff are trained, and the results meet the business objectives.

Recommendations for technology developers

- If your company wishes to market to senior living and long-term care organizations, then first

Checklist for evaluating technology

Evaluated	Element	
		Discovery phase
	Focus groups	Include staff, residents and family members to discover what the issues are and what might help solve them. Seat cross-functional teams from operations, wellness, dining, clinical and other areas. These groups can identify features or characteristics that will be important, and may not emerge otherwise.
		Evaluation phase
	Need	Does the technology fill a need that has been identified, or may arise?
	Connectivity	What wired, wireless or Internet infrastructure is needed? Is the facility able to support the connections?
	Hardware	What hardware is needed to efficiently use the system? What screens, input devices, computers, kiosks and connections are required?
	Interoperability	Can the system communicate with other systems? Or, is it enterprise capable so multiple modules can share information?
	Lifespan	Is the technology a legacy product that will not be upgraded, or are there plans to improve on the system? Is the company developing new or similar products?
	Scalability	Can the system be scaled up for implementation in multiple sites? Or, are additional modules available?
	Adaptability	How well can the technology adapt to the users, or how well will users will be able to adapt to the technology?
	Learning curve	How easy is it to learn to use the system? How is training provided? How long does it take for users to become expert, and how often will skills be refreshed?
	Usability	Is the Graphic User Interface (GUI) simple and easy to understand? Are the steps to move from screen to screen clear? Does the text make sense? Can tasks be performed efficiently?
	User experience	Has the technology been designed to take into account the users' needs, abilities and limitations? Will users appreciate the design and navigation?
	Monitoring	Does the technology have built-in tools to monitor how the system is used or accessed?
	Ownership	Who owns the data? The technology developer or the organization?
	Security	How is the data protected to insure privacy? Who has access to that data?
	Standard	Is the software built to a standard, such as those provided by the International Organization for Standardization (ISO)?
	Comparison	How does the technology compare with other similar technology solutions?
	Roadmap	Will the technology be a tool to implement the business strategies and fit within the technology roadmap?
	ROI	Is there a business case for using the technology with a reasonable time frame for the return on investment?
		Pilot phase
	Champion	Select a champion who explains the benefits of the technology, relays confidence in the system and follows the progress of the pilot.
	User group	Select a small group of people who will give feedback on effectiveness, usability and functioning.
	Tracking	Track how long it takes users to learn the system; identify the areas of confusion.
	Measurement	Establish in advance how the results of the pilot will be measured. What results are needed to show the pilot was successful?

Maria Connelly, CEO, TheWellnessEdge, (L) Hollie Fowler, Senior Director, Product & Brand Development, Prestige Care, (C) Pat Ryan, Vice President Education, International Council on Active Aging (R)

understand the business model and issues faced by these organizations.

- When a technology will be marketed to older adults, or to organizations serving older adults, identify user requirements, and include older adults and a few target organizations in the development team. This will be more successful than developing a technology and expecting it to meet these users' needs.

- Recognize that older adults often prefer tablets over cell phones, staff likely have desktops versus mobile devices, and the method for input is important for both groups.

"We prelaunch any new solution to residents and their families for two reasons. One, it's important they understand what we are trying to do and we gather their feedback so we can modify based on that feedback. And second, to create pull-though, so staff at a community know we are hearing demand from residents."

Hollie Fowler,
Senior Director of Product & Brand Development, Prestige Care

- Understand that senior living communities have diverse, multicultural staffs. It's important to learn the profile of the employee base in order to develop or market a technology they can and will use.

- Provide data that can support a return on investment. Organizations must see how your technology will tie back to providing better care or improving financials or increasing census. Be prepared to provide a timeline before a return on the investment can be realized.

- Provide measures of success that will enable an organization to evaluate the results of a pilot or installation. Performance indicators will show whether or not the technology is a fit for the organization, as well as provide numbers for an ROI.

- Be able to support your claims with research from an outside organization, a university, or the results realized by other organizations.

Future potential

Organizations take care of their business today, but also look to the future. What will older adults benefit from in the next five to 10 years? What will businesses need to fulfill their missions and operate efficiently? Looking ahead, Forum delegates envisioned the drivers and opportunities for technology.

What does the future hold?

Expectations of older adults and their family members indicate that in the future, technology will be the norm in all areas of senior living and long-term care. Residents will expect that the property is wired, that they have Internet access, and that their care is recorded using electronic health records. Families and friends will expect they can communicate with residents using their tablets, cell phones and online social sites.

As each new generation of "older adults" moves into senior living (or remains in their private homes), they will bring with them the smartphones, tablets, computers and software they are accustomed to—and know how to use. Organizations will shift from explaining the benefits of technology and how to use it, to keeping up with the residents' needs for connectivity.

Technologies will help people take charge of their own health and improve access to care. Caregivers and their patients or loved ones will be more engaged and empowered because they can learn about a health condition online and join virtual support groups or access services. Telemedicine will continue to extend the reach of a limited health care workforce. Research shows that telemedicine improves outcomes in terms of patient satisfaction, management of a health condition and connection to the healthcare provider. The opportunities for technology in health care are such that "Health Communication and Health Information Technology" is a topic in Healthy People 2020 goals.[3]

Medication errors are a primary cause of hospitalizations among older adults.[4] Today, robotic pill boxes with sound and light signals help older adults correctly take their prescribed medications and then alert a caregiver when there is a missed dosage. In the future, ePills will help doctors prescribe correct dosages. An ePill, approved by the FDA in 2012,[5] uses a microchip about the size of a grain of sand that is ingested and reacts with the digestive system. It sends messages to a skin patch that relays information to the physician, such as heart rate, body position and activity. Such a technology would allow physicians to fine-tune dosages and accurately monitor results.

Assistive technologies will be more in use and more advanced, aimed at helping older adults remain independent for a longer period of time. Motion detectors and "smart" home technologies are examples. Another is a technology available today for people who wander because of cognitive decline. A miniature GPS device in the midsole of a shoe sends a text message, making it easier and faster to locate the person.[6] In the future, robots will play an increasing role by taking care of daily tasks and helping people with rehabilitation and mobility. Assistive robots are being developed to function in the human environment, maybe putting away the dishes or sweeping the floor.

In about 10 years, wearable technology will be in T-shirts, trousers and underwear. The technology will monitor heart rate and perspiration rate and similar biological processes. If a person has diabetes or high blood pressure, the shirts will monitor that condition. If the individual has a heart attack, the shirt is envisioned to dial 911 and send an ambulance using the GPS for directions.

Visionary engineers are developing these technologies, and continuing to test and refine them. Delegates at the ICAA Forum hope that, in the future, developers will understand their business, their

staff members and their residents so that the technologies are a fit for senior living, and providers of services for older adults.

Realizing the potential

The number of technology companies seeking to aid or appeal to older adults with their products has increased alongside the growth in the size of the older population.[7]

The Consumer Technology Association estimates that the active-aging market of older adults and their family members could reach 85 million Americans, a USD$24.4 billion market opportunity in 2015 that may grow to USD$42.7 billion in 2020. This estimate included technologies for safety and smart living, health care, and wellness and fitness.[8] This view was echoed by AARP in a report that projected products and services may be adopted by over 100 million people by the year 2020. The technologies that could create USD$34 billion in market revenues 2015–2020 are those for physical fitness, medication management, behavioral health, new care delivery, smart aging, social engagement, diet and nutrition, safe living and care guidance.[9]

Given that technology developers are seeking new markets, and that active-aging technology is considered an investment opportunity,[10] it is certain that providers and older adults themselves will be besieged by options.

Resources

ICAA Forum 2016 videos
International Council on Active Aging
http://www.icaa.cc/conferenceandevents/forums/forumvideo.htm

2016 Technology Survey Older Adults, Age 59-85+
Aging in Place Technology Watch
https://www.ageinplacetech.com/page/linkage-technology-survey-age-59-85-growing-expectations

CIO: Why You Need a Strategic IT Roadmap
Chief Information Officer
http://www.cio.com/article/2889361/it-strategy/why-you-need-a-strategic-it-roadmap.html

GeriTech blog
http://www.geritech.org/

Independence, Technology, and Connection for Older Adults, Report to the President
President's Council of Advisors on Science and Technology
https://www.whitehouse.gov/sites/default/files/microsites/ostp/PCAST/pcast_independence_tech__aging_report_final_0.pdf

Promoting Active Ageing in the Digital Economy: Inclusion, Adaptation and Innovation
Organisation for Economic Co-operation and Development and Global Coalition on Aging
http://www.oecd.org/sti/ieconomy/OECD_GCOA%20Report%202015.pdf

Report to Congress: Aging Services Technology Study
Office of Disability, Aging, and Long-Term Care Policy
https://aspe.hhs.gov/basic-report/report-congress-aging-services-technology-study#HIT

Decision makers in retirement communities and community services are not adverse to technology if there is a well-defined case for investment. The challenge is more likely to be choosing from all the software that is being marketed to them. A technology roadmap and evaluation process help clarify the picture of how technologies can meet the purpose: quality of life for older adults, and support of business strategies for organizations.

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Participation

Organizations at the ICAA Forum

ABHOW Foundation
Aegis Therapies
Asbury – Inverness Village
Atria Senior Living
Calamar
Calamar Construction
Christian Homes
Consulate Health Care
Corporate Fitness Works
Edelman Orlando
Federal Communications Commission
Genesis Rehab Services
George Mason University/CNHS
Global Coalition on Aging
Health Fitness Corporation
Health Promotion, US Department of Health & Human Services
Healthways
Heritage Healthcare
Highgate Senior Living
Kleger Associates
LifeSpace Communities
Living Care Lifestyles
Loretto
National Senior Campuses, New England
Presbyterian Senior Living
Prestige Care Inc.
RehabCare
S.T.E.P.S.
Senior Care Centers
Senior Lifestyle Corporation
Sharon Towers
Springpoint Senior Living
Sunrise Senior Living
The Wellness Edge
Trilogy Health Services
University of Maryland School of Nursing
US Department of Health and Human Services
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WTS International

The ICAA Forum

The ICAA Forum brings together thought leaders from many organizations—both private and public—to form a think tank that develops strategies to turn the challenges facing senior living providers into opportunities. Launched in 2005, the meetings forge connections among industry leaders while promoting understanding and cohesive action around the ultimate goal: health and quality of life as people age.

Active aging

Active aging promotes the vision of all individuals—regardless of age, socioeconomic status or health—fully engaging in life within all seven dimensions of wellness: emotional, environmental, intellectual/cognitive, physical, professional/vocational, social and spiritual.

International Council on Active Aging®

Changing the Way We Age®

International Council on Active Aging has been leading, connecting and defining the active-aging industry since 2001. Founded in the belief that unifying the efforts of organizations focused on older adults benefits both the people they reach and the organizations themselves, ICAA has a

Mind map

vision is shared by over 10,000 organizations. ICAA's support of the active-aging industry includes the ICAA/ProMatura Wellness Benchmarks and Industry Research Reports, environment and program development, market development, education and research on healthy aging and wellness, networking, best practice sharing, marketing and strategy development, public relations campaigns and recognition programs.

Colin Milner, Founder and CEO
colinmilner@icaa.cc

Patricia Ryan, VP Education
patryan@icaa.cc

International Council on Active Aging®
Changing the way we age®
www.icaa.cc
866-335-9777 or 604-734-4466

International Council on Active Aging®
3307 Trutch Street
Vancouver BC V6L 2T3 Canada
Toll-free: 866-335-9777
Tel: 604-734-4466
Fax: 604-708-4464
www.icaa.cc