

Technology: Changing the future

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over every aspect of caregiving

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Tech takes the spotlight



A technology tsunami is washing over every aspect of caregiving

By John Hall

Imagine you came to work one day to find a resident had wandered off the night before and had yet to be found because no one was notified. Or claims were bouncing back left and right for lack of documentation. Or one of your best nurses didn't show up for work because she never received that urgent shift change notice on her cell phone the day before.

It's become so easy to take for granted the many ways technology has solved operational and clinical challenges in long-term care. Most facilities are swirling in beeps, sensors, surveillance, monitoring, alarms, devices and data that virtually require little or no human interaction. It's been said that technology works best when it's invisible. For now, however, it occupies a brightly lit center stage. Senior living today is literally awash in technology. So much so, it's difficult for anyone to understand how it all got there and when.

What fueled all of this? Has technology really made things better in senior living? Are residents happier, living longer, and having better outcomes as a result? Have clinical practices improved? Are facilities scoring better on state surveys? Are operators attracting

more residents because they have cooler gadgets than the competitor down the street? Are their employees better qualified, and are they happier and staying longer? Are reimbursements improving, and cash flow more fluid? There is a single positive answer.

What's driving this? A need for safety and security and operational efficiency, for sure.

- **Caregivers are wanting point-of-care tech that improves patient care and helps them do the work of three people better.** The list is long, but it includes a cornucopia of health and behavior monitors, many of which are wearable, dietary and drug management tools such as the electronic medication administration record, and sophisticated therapy devices that heal and help with activities of daily living.
- **Facility managers want to keep buildings and residents safe and secure.** Crude early versions of wandering systems may have been nothing more than a door alarm, but today's tech incorporates state-of-the-art GPS and radio frequency tags, and 24-hour high-resolution video monitoring. It also involves electronic drug dispensing and inventory systems keeping track of medications.



Photo: The Evangelical Lutheran Good Samaritan Society

In 2011, The Evangelical Lutheran Good Samaritan Society launched the Vivo: Innovation for Well-being center. This technological innovation has improved dementia care and fueled other benefits.

- **Human resources people crave tech that improves staff efficiency, as well as morale and retention.** They also need tech to compete in the recruitment arena. Millennials, who comprise the largest and fastest growing segment of the “5G,” or five-generation, senior living workforce, live and breathe mobile tech, and use it with a passion to do and learn.

“Frankly, if senior living wants to attract younger generations of caregivers and workforce, it needs to get on the technology train,” notes

communicate with residents, view schedules, request shifts, and view basic resident status on their smartphones, even locate medical equipment using RFID technology.

- **Residents are demanding tech that keeps them connected with the world they left while helping them better adapt to and enjoy the world they now occupy.** A host of companies (many of which were founded by entrepreneurs whose parents suffered from isolation) now provide an ever-evolving array of mobile video and touch-

differentiator,” observes Jody Holtzman, senior vice president of enterprise strategy and innovation for AARP.

- **A business manager is wanting tech that provides data analytics and simplifies and streamlines billing and reimbursement.** “It’s all about survival,” says John Derr, R.Ph., a former AHCA and Golden Living executive who co-founded the LTPAC Health IT Collaborative. “Because of all the new care, payment, and clinical regulations, senior living operators have to have up-to-date technology to play in the Medicare/Medicaid world. And if you cannot play, you will go bankrupt.”

From trickle to tsunami

Tech began dribbling into senior living years ago with solutions mostly borrowed from business-to-consumer and business-to-business marketing — everything from enterprise billing systems to wandering and door alarms.

demand for continued growth in adoption,” says Kari Olson, chief innovation and technology officer for Front Porch, about the evolution.

So much tech now is a must-have, adds Front Porch CEO John Woodward, who proudly points out that technology plays a significant role in the company’s business operations, “allowing us to operate more efficiently and make wise decisions about resource allocation.” But the one stakeholder most upper mind is the senior. Woodward and his team have grown to expect residents to continue to demand the latest technology that addresses their immediate needs, things like high speed internet and Wi-Fi and personal emergency monitoring. “It is our responsibility to always look ahead to new developments that will benefit our residents, either directly or indirectly, so that we are positioned to implement innovations as soon as practical benefit is demonstrated,” he says.

Boomers en route

Observers unanimously agree that senior living product marketers today find themselves in the proverbial “high-cotton” era,

“We believe it’s essential that Front Porch communities have both the latest technology and the flexibility to integrate future innovation.”

John Woodward, Front Porch CEO

Majd Alwan, Ph.D., a nationally recognized expert in senior living tech. He leads LeadingAge’s Center for Aging Services Technologies (CAST) as senior vice president for technology and executive director. Numerous tech solutions today allow employees to

screen computing technologies that connect residents with both staff members and family. And it can be a deal-maker for families shopping for senior living. “If you have the ability to keep residents connected with the outside world and the other doesn’t, that’s a positive

Much of the early adoption of clinical tech was first tested in acute and primary care.

“Multiple vectors are driving the adoption of technology in senior living, but combined in aggregate have created an exponential growth in senior technology literacy and adoption and the

a time when adoption is fueled as much by a need to attract a new generation of tech-savvy residents as it is by business and clinical requirements. And it’s happening at lightning speed.

Having the latest technology gives operators an edge. “If you’re thinking about what differenti-



ates one senior living community from another and all things being equal in terms of cost, location, convenience, food, et cetera, it's technology," says Holtzman.

"We believe it's essential that Front Porch communities have both the latest technology and the flexibility to integrate future innovation," adds Woodward. "Technology is a critical component for resident and staff communication, emergency response and many types of applications that meet healthcare needs."

While operators have an insatiable "quest for better quality, technology adoption among forward-thinking aging service providers is primarily driven by market forces, including the move away from pay-for-service to pay-for-performance," Alwan observes.

Competing with home care

Perhaps the most daunting challenge for senior living communities is the competition for customers, growing numbers of whom now have more choices for how they'll spend their remaining years.

To understand the frenetic pace of innovation, look no further than the Aging in Place movement, where engineers are designing and developing a plethora of technologies, from walk-in-bath tubs and monitoring to wearables and video connectivity. It all feeds into what many see is a basic human need above all else, including costs.

Marilyn Rantz, a senior tech expert who heads the University of Missouri's Aging In Place Project while serving as associate director of its Interdisciplinary Center on Aging, calls it "an issue of persistent problems" she's witnessed over her 45-year career as a nurse and researcher. "I have friends who are older than I and they all want the same thing — to

be able to live safely and die at home," she says. "The key is being able to take care of yourself and move, because if you stop moving and sit around, you're not going to be around."

Now with telemedicine taking off, it's easier than ever for caregivers to remotely monitor at-

home seniors from afar. According to the American Telemedicine Association, nearly 200 telemedicine networks and 3,500 service sites now dot the American landscape. The Veterans Health Administration alone currently delivers more than 300,000 remote consultations using tele-

medicine. "Video conferencing is key to bringing health care to people," says Gary Capistrant, chief policy officer for the association. "In addition to obvious ease and convenience, the benefits include timely access to specialists far way, often 24/7/365 access, and increasing patient choices." ■

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While innovation has had a positive impact,
many still see lots of room for improvement

Is tech under-performing?

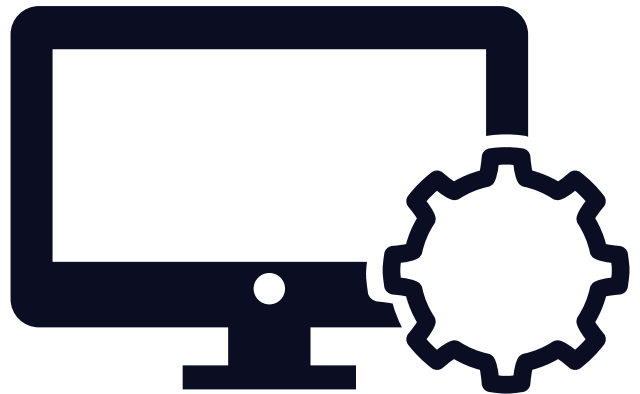
By John Hall

Jody Holtzman knew he had a tough crowd as he approached the podium at a recent LeadingAge industry conference. It was late in the afternoon, and many audience members were yawning and looking at their watches.

“I knew I had to get their blood flowing,” says the senior vice president of enterprise strategy and innovation with AARP. “I asked for a show of hands before I asked ‘Who in the room is involved in management of some type of senior living?’ Everyone, of course, raised their hand. Then I asked, ‘Keep your hands up. Now, who among you is looking forward to the day you live in the institutions you manage?’ Every hand except for about a dozen immediately dropped down. Then I said, ‘That’s the problem. Nobody wants to live in the places you work at.’”

For people like Holtzman studying this industry from a consumer level, the challenges for operators seem pressing. “The average time people spend in a long-term care setting is about two years. What are the business implications of that?” Holtzman says. “Their motivation is to keep you there longer. They know as soon as you leave, it’s highly unlikely you’re coming back. So they’re looking for technologies that can help the facility keep residents safe, healthy and happy. That, to me, is a very clear value proposition.”

University of Missouri seniors tech researcher Marilyn Rantz is even more blunt in her assessment, saying, “After being a nurse for several decades, a lot of the problems with caring for seniors haven’t gone away in terms of function and cognitive decline, nutrition, hydration, all of those basic things.” Rantz has devoted the past 16 years to researching and developing a plethora of remote monitoring technologies, one of which can predict an adverse fall event with 85% accuracy.



Healthcare IT: The 800-pound gorilla

While innovation has had an unprecedented positive impact in innumerable ways, it’s left providers unfulfilled in others.

Key observers believe health information technology has yet to hit its stride in senior living. The reasons are complex and controversial, and providers and vendors are equally culpable. In spite of its bells and whistles, health IT has revealed an industry woefully unprepared to fully adapt. It also has exposed an industry, like its hospital counterpart, highly vulnerable to hacking and ransomware attacks.

"All of these little operators don't really have the level of sophistication yet to ward off these kinds of hack attempts," says John Derr, R.Ph., a former AHCA and Golden Living executive who co-founded the LTPAC Health IT Collaborative. Dustin Scholz, senior director over

senior living and skilled nursing operations for The Evangelical

Lutheran Good Samaritan Society, agrees.

"Often when providers look at new tech, the math doesn't work."

Kari Olson, Front Porch

"I think the industry in general is extremely vulnerable," he says. "The security walls in a lot of smaller senior living communities aren't as thick and the threats seem to be increasing. These are the types of new 'Wild, Wild West' frontier challenges we as an industry now face."

Many facilities also are dogged by poor wireless and wired connectivity, a critical problem in an "Internet of Things" era that requires reliable services to make data-dependent devices work correctly. "There are glitches with this stuff in so many senior living facilities we test in," says Rantz.

Another problem is compatibility. Many communities lack the infrastructure and IT muscle to use much of the power-hungry technology that's now on the market, observers say. It's like trying to run race cars with lawnmower engines. "I don't think senior living is 'getting it' yet," observes Derr. "Their IT departments are still 'in the basement.' And all of that clinical information is a bit discordant. They're under a lot of pressure. What's going on at the national level doesn't really reach that level where it needs to be."

"The top LTPAC health IT vendors are investing millions of dollars in analytics and projecting outcomes," Derr adds. "Are senior living operators able to make strategic decisions with health IT? We're not there yet."

Another barrier is cost. Experts say health IT and all of the hardware and manpower it requires is butting up against an industry that chooses, or is forced, to use its available cash on other things.

At the center of a larger debate is the electronic health record, which promises to transform the senior living healthcare landscape. But its real promise is likely years away. EHR adoption has been slow in senior living (a little under 18% of all care sites

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currently use it, by one estimate), mostly because of interoperability issues and costs.

Inexplicably, federal funding aimed at speeding implementation recently has been earmarked only for hospitals and doctors. A few senior living communities, however, have successfully tapped into available federal funds after an affiliated physician legally consented to transfer his or her EHR grant.

In its 2014 “Future of the Internet” survey, Pew Research Center compiled comments from a host of industry stakeholders and observers. One of them, Doc Searls, a journalist and director of ProjectVRM at Harvard University’s Berkman Center for Internet & Society, describes part of the health IT frustration this way: “Many studies suggest that a large percentage of ... deaths [from medical errors] could be prevented with better patient information, which today is scattered among many healthcare providers with incompatible systems that barely communicate with each other, much less doctors and patients. Yet reform, both within the health care industry and within legislative and regulatory systems, has ranged from difficult to impossible.”



Many facilities lack the infrastructure and financial resolve to embrace the most recent tech developments and opportunities.

To market, to market

Acquiring new technology is an uncomfortable proposition for most cash-starved providers and operators.

“Often when providers look at new tech, the math doesn’t work,” says Kari Olson, chief innovation and technology officer for Front Porch. “Senior living providers have traditionally been cautious adopters but, candidly, there are some very real reasons for this that must be overcome to truly speed things up.” While the ongoing costs for maintenance and upgrades can be a “real deal killer,” Olson says, more and more providers now understand the higher costs of not taking the plunge.

Kelly Soyland, director of innovation and research and the Vivo: Innovation for Well-being Center for the Evangelical Lutheran Good Samaritan Society, has seen that play out many times.

“It’s wonderful to see all these innovative companies coming into our space now, but there are barriers to implementation,” he says.

balanced by each side’s views on the needs of the other’s,” says Harry Wang, director of mobile and health research for Parks Associates. “And there is usually a generation-wide difference in terms of perceived needs and what can be done.” The problem leads to challenges in product designs, user education, pricing and marketing communications in the senior independent living industry, he adds.

“You have to be able to sort out when you need to link up

market will grow 13% over the next four years, creating a \$279 billion disruptive opportunity.

“Technology offers a key opportunity to deliver solutions to address current unmet needs,” AARP notes in the study. “In fact, 67 percent of family caregivers want to use technology to monitor their loved one’s health and safety — but only one-tenth are currently doing so.” The issue is further challenged by “extremely fragmented solutions, poorly adapted to caregiver needs, and,

“A lot of the problems with caring for seniors haven’t gone away in terms of function and cognitive decline, nutrition, hydration, all of those basic things.”

Marilyn Rantz, seniors tech researcher at the University of Missouri

‘Disruptive’ opportunities

Another neglected area begging for a technological solution is the connection between residents and extended caregivers — an issue no longer reserved for independent living. “Market solutions today have to address both sides of senior living needs — the residents and the caregiver, delicately

the medical professional with the older adult, or the family member,” observes Rantz. “This is a moment when people need to pay attention.”

AARP is one organization that’s noticed. Its January 2016 “Caregiving Innovation Frontiers” study with Parks Associates declares that the caregiving

in some cases, undefined and underdeveloped (options),” the study adds.

The study identifies six key areas that are ripe for innovation, including: daily essential activities; health and safety awareness; care coordination; transition support; social well-being; and caregiver quality of life.

For example, Soyland and his team recently tested a new, promising technology at one of his company’s memory care properties in Florida. “The families, the staff and residents loved it,” he says. “But when it came down to the end of the day, having the funds to invest in something new like that became the barrier.” ■



A Q&A with Majd Alwan

A renowned senior tech researcher and thought leader talks about the trends shaping the industry, plus what the future may hold for innovation

Mcknight's recently caught up with Majd Alwan, Ph.D., a nationally recognized expert in senior living tech, to get his views on some vital technology-related topics.

Majd [pronounced "Modged"], as he prefers to be called, is Senior Vice President for Technology and Executive Director for LeadingAge's Center for Aging Services Technologies (CAST).

Before joining CAST in 2007, he served as Director of Robotics and Eldercare Technologies for the Medical Automation Research Center at the University of Virginia. He summarizes his passion this way on his LinkedIn page: "I work tirelessly to accelerate the development, validation, evaluation and adoption of appropriate technology solutions that can positively impact older adults, individuals with disabilities, their caregivers and the people that serve them."

In 2012, he collaborated with fellow researchers on the groundbreaking "Aging Services Technology Study," a report to Congress commissioned by the U.S. Department of Health and Human Services, Office of Disability, Aging and Long-Term Care Policy and the National Opinion Research Center. He holds under- and post-graduate degrees in engineering and a doctorate from Imperial College, London.

In his new book, "Third Wave," AOL founder Steve Case asserts that the internet will become engrained in everything we do, and entrepreneurs will vastly transform major "real world" sectors like health, education, transportation, energy, and food — but success in the Third Wave will require a different skill set. In what ways do you agree or disagree with those assumptions as they apply to senior living tech?



Photo: Karen Sysley



I agree with most these predictions. However, I believe that in the senior living sector, we will still need high-touch care delivery skills, and believe that we would need technical competencies to enhance these fundamental skills. I also believe that such skills are becoming first nature, or instinctive, with the younger generation joining the senior living workforce. We also will need people with skills in using dashboards, examining data from different sources, and contextualizing the data to generate information and knowledge that drive care delivery processes and quality.

Nearly every company providing goods and services to the senior living industry can, either obliquely or overtly, call themselves a "technology company." Is this a fair assessment? What's behind it?

Indeed, again they need to use technology not only to drive efficiencies internally, but also to monitor their services and optimize their processes and operations in senior living communities they work with. Hence, every business is finding itself having to rely on, refine, customize, or develop technology whether technology is a core business or not.

Is there a point right now where most tech innovation is coming from? Is it software?

Most innovations are on the software side, but innovation is driven by the need for connectivity, having information at your fingertips at the point of care, mobility, and being able to coordinate with others.

Is tech innovation being driven more by vendors or providers

and patients? Or both?

Ideally, it is both. A technology solution could be innovative. But if it does not take users' needs and wants, and equally innovative and appropriate operational, care delivery, and business models, it would not enjoy broad adoption. Successful innovation is ideally

a collaborative effort between technology developers, including vendors, academics and entrepreneurs, and potential users, including older adults/ patients, caregivers, and providers. The first brings the expertise in technology development; the second brings needs, wants, real-life testing environments, user experience,

and knowledge of the regulatory, operational, and business realities. I have seen many innovations that did not engage providers that have either failed or not enjoyed the anticipated success.

Is tech under-delivering or over-promising in senior living?

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Majd Alwan sharing thoughts and a few laughs with CAST colleagues.

It can be either, a combination of both, or neither. In many cases this perception stems from either not understanding the technology, unrealistic expectations, or what it takes for it to yield the expected results on the provider's end, or over-promises from the vendor. Technology implementation is a partnership, just like a marriage, and it takes the vendor and the provider working together like a hand in glove. The success of technology hinges on a number of things, the majority of which start with, and rely on, the provider, frankly. These include:

- Clarity on strategic direction, specific strategic goals and the enabling technologies.
- Proper planning and selection of the technology solution that engages all operations affected directly or indirectly by the technology, starting with understanding users' needs, requirements and desires, a clear understanding what the technology can or can't do, and operational goals. The selection should not be based only



Photo: Karen Sysley

- should take place before a vendor is even identified.
- Designing or redesigning workflows and operations to take advantage of technology.
- Having a well-thought out implementation plan with sufficient resources, including human resources for project management, implementation, training, system migration, and support. The last two steps can be done collaboratively. You can have the exact same

Is there any hesitancy among senior living operators to adopt specific technology, or tech in general?

Senior living has been generally behind other sectors when it comes to technology adoption and technology spending, although I have seen signs of improvement in the past few years, particularly in certain technology categories. For example, electronic health records

have recently raised awareness, increased interest, and accelerated EHR development and standardization in the LTPAC sector, even though LTPAC providers were not eligible for the incentives. This sector has been slower to adopt innovative technology solutions like telehealth, telemedicine, biometric remote patient monitoring, and activity monitoring.

I believe there are a number of reasons for the slow adoption: actual or perceived cost, lack of

“We also will need people with skills in using dashboards, examining data from different sources, and contextualizing the data to generate information and knowledge.”

on the technical specifications or functionalities, but also the service, operational, staffing, training and support needs. It is a multi-stakeholder team effort, and it is not the responsibility of the IT team.

- Ensuring that the planning process includes understanding the IT infrastructure update needs. These steps

technology implemented differently in two very similar communities yielding drastically different results.

CAST collected many success stories where the technology delivered results that exceeded expectations, but only because the provider had the right planning and implementation team, process and resources in place.

and point-of-care are starting to get adopted. I believe this adoption was driven primarily by the regulatory requirement to submit assessments (MDS, OASIS, IRF-PAI) and billing information electronically to Medicare. Of course, the national Health IT initiatives, CMS' EHR adoption incentive program, and emphasis on health information exchange

reimbursement, business models, and revenue streams for certain technologies, lack of resources including technical competencies, sometimes lack of awareness, lack of regulatory framework, and lack of sense of urgency.

So many devices and software programs are veritable data



mining operations and that information is not only powerful but profitable because of the financial clout and leverage it provides. Do you see a day when the information these tech companies accumulate could end up hurting or unduly shaping the senior living industry?

We are living in the Information Age, where information and knowledge, not just data, are extremely powerful. Like any kind of power, they can be used to benefit society or harm. I certainly believe that data, the information and knowledge we can synthesize from them will drive and shape the senior care industry. They can help us better understand what is happening and anticipate change and prepare for it. Think of the weather prediction models. I believe we should be better prepared to harness the power of data and put it to good use to improve quality of care. We should, of course, ensure that we have protections and guards against the misuse, abuse or malicious exploitation of the data.

Looking to the future, what in your view are the most promising or “outside the box” pipeline innovations?

I believe the most promising innovations are in software applications that exploit connectivity and mobility; application program interfaces (APIs) that access data from various resources and leverage artificial intelligence, including natural voice interfaces; and data analytics to help providers harness data that currently live in silos to deliver not only needed but desired services efficiently and in a timely and cost-effective manner. Robots could be just the physical embodiment, but I believe the software data, arti-

cial intelligence and analytics that help contextualize the data are going to be the secret innovation ingredients.

What overarching trends will shape future innovation and adoption?

I believe aging in place, the corresponding growth in home- and community-based services, regulation, health and payment reform, will continue to affect and drive future innovations. Connectivity, reliance on data, information, and knowledge at the point of need will be the

hallmark of innovation. But ultimately, adoption is going to be directly related to entrepreneurial spirit and foresight of providers, especially among leaders of aging services, and the usability and stickiness of the technology innovations brought to bear. ■

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