THE TOP 2018 TECHNOLOGY TRENDS THAT WILL TRANSFORM SENIOR LIVING

CDW HEALTHCARE

SENIOR HOUSING News

From fitness bands to floor sensors to individually tailored room-lighting systems, data-collecting technology is dramatically improving the care senior living providers deliver to residents.

Yet the providers who differentiate themselves know that simply placing a wristband on a resident or automated lights in a room is not the end of the journey. Technology in the senior living space can enhance business outcomes by improving resident care, and the only way to achieve that is through the data the technology generates.

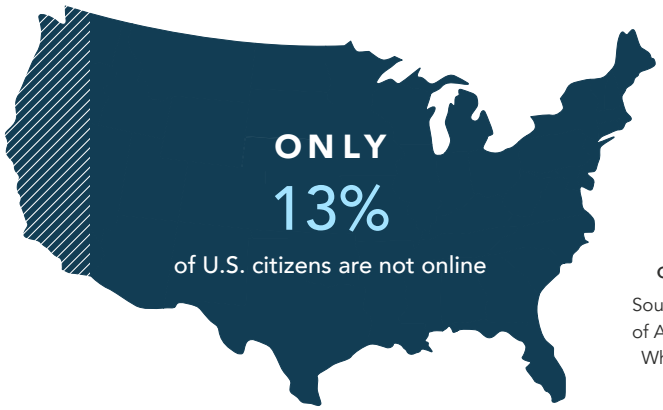
That means the data, not merely the physical item, is the true value-add of senior living technology: specifically how much data is collected, how it is analyzed and how conclusions drawn from different data sets are integrated with each other.

The goal with this technology is not just to show providers what residents are doing. It is to predict what residents will do, and to tailor care around those predicted behaviors. These technologies are not an add-on to care delivery — they are simply the next iteration of human-centered care that providers already aim to deliver.

KEY TAKEAWAYS OF THIS PAPER

1. The five technologies set to boom in senior housing in 2018
2. Why technology must be simple for residents yet integrated as a system — and what that means for staff training
3. How providers view ROI relative to technology
4. Why technology integration is critical to any individual tech rollout

This white paper examines five key areas where technology is changing the senior living landscape in 2018: wearables, the Internet of Things, telemedicine, voice activation and security.



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41%

of them are 65 or older

Source: Pew Research Center, "13% of Americans don't use the internet. Who are they?," September 2016

TREND #1

Wearables

The technology revolution in senior living starts in the same place it does for the general population: technologies that people can touch and feel in their everyday lives, known as "wearables."

At LifeWell Senior Living communities, that means technology defined by its primary user: the resident or the staff. Resident-facing technologies include tablets, interactive TVs, artificial intelligence-enabled personal assistants such as Google Home or Amazon Alexa, virtual reality systems or personal gaming systems.

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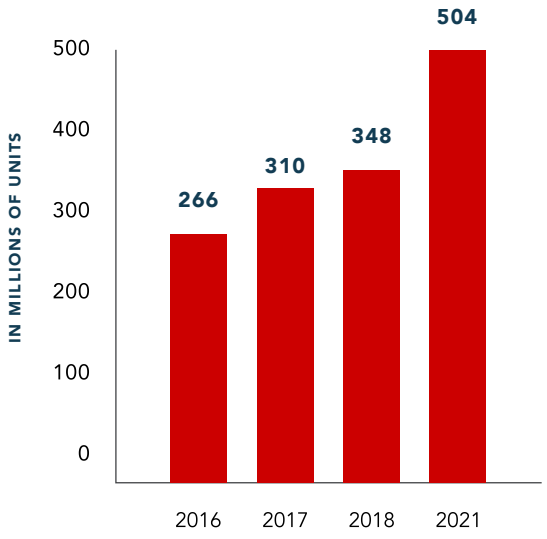
The staff technologies include resident-monitoring systems that use bracelets with radio frequency identification (RFID) chips and exercise equipment to give staff insights into resident health and even sleep patterns. Research shows that for a senior predisposed to falling, a night of bad sleep can increase falls by 40%, says Charles Turner, president of LifeWell, a Houston-based operator.

"If you take the research that we know and bake it into wearable devices, then we can start predicting when acute episodes might happen," Turner says.

Global Wearables Shipment Forecast

The number of wearable devices worldwide, in millions, from 260 million in 2016 to a projected 504 million in 2021.

Source: Gartner, "Gartner Says Worldwide Wearable Device Sales to Grow 17 Percent in 2017," August 2017



2018 Trend Forecast

LifeWell's Charles Turner sees an increased use of artificial intelligence-enabled technologies in senior living, along with technology and data systems fully integrated with each other — giving providers a comprehensive look at a resident's quality of life.

In December 2016, LifeWell used technology-provider CarePredict for a one-community pilot program of RFID bracelets. LifeWell then rolled it out commercially in five new buildings throughout Texas and New Mexico, and is working to integrate it into older communities.

But for 2018, Turner is most excited about the rollout of a new data platform through his company Veritage Solutions, which will integrate all data coming from senior care technology. The rollout went live in December of 2017.

TREND #2

Internet of Things

The wearables that LifeWell uses fall under the broader category of the Internet of Things, or IoT — web-connected physical items that can send and receive data. Examples of these items in senior living are smartphones and tablets, televisions, activity trackers and lighting systems.

The IoT improves a resident's quality of life by both giving her control over her physical environment and generating data that can help caregivers predict care needs.

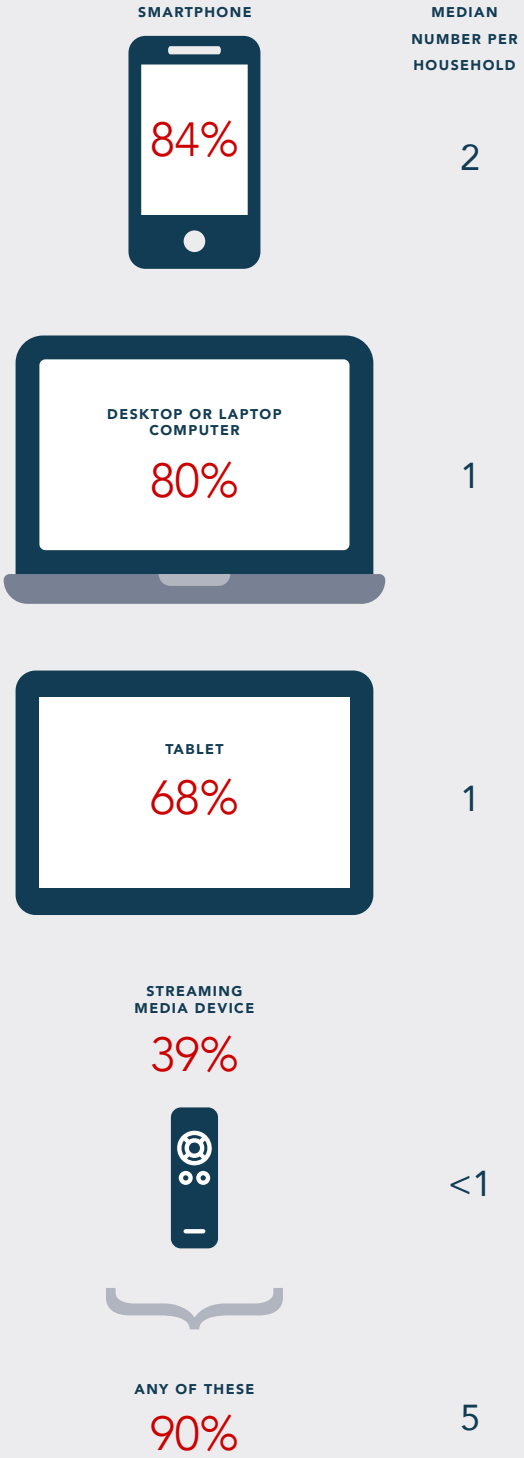
Because technology moves faster than senior living can functionally and legally adapt, and because IoT systems are not designed specifically for senior living communities, senior living providers must be proactive to ensure the maximum value of IoT, says Moulay Elalamy, vice president of information technology at Waltham, Massachusetts-based Benchmark Senior Living, an operator of 56 communities spanning independent living, assisted living, memory care and skilled nursing.

"What we see out there is not necessarily the right thing for our industry, and we don't want to be caught trying something that was not thought through for senior living," Elalamy says. "Sometimes a small tweak can make it work, or a discussion with the technology companies can make it work, if they listen to us. And they should listen to us."

Internet of Things is in American Households

Ninety percent of Americans polled in 2016 said their household contained multiple devices connected to the Internet.

Source: Pew Research Center, "A third of Americans live in a household with three or more smartphones," May 2017



2018 Trend Forecast

Benchmark is rolling out smart units in January 2018. This is a senior living unit where the technology on the resident's body — the wearables — works in concert with the technology in the resident's apartment, making the entire apartment a part of IoT.

That means, for example, a lighting system that adjusts brightness and color depending on when the resident triggers the system. If someone is disoriented easily by lights, Benchmark's Moulay Elalamy says, you don't want to shine a bright light in their face at 2 a.m. when they wake to use the bathroom.

Instead, lights reach 50% intensity and can turn to blue instead of white, while an alert goes to staff so that someone can physically assist the resident.

Along with light sensors, Benchmark smart homes are implementing air conditioning, heating and AI personal assistants. The key to this is employing the type of back-end data integration that LifeWell's Turner is working on—another crucial trend Elalamy sees for 2018.

TREND #3

Telemedicine

While the primary benefits of wearables and IoT are a resident's happiness and safety, the technological advances leading to telemedicine can keep a resident healthy.

At nonprofit senior living and senior housing organization Front Porch, based in Glendale, California, and serving more than 5,000 residents of senior living and affordable housing, telemedicine and telehealth initiatives started with four areas:

- **Videoconference health education,** allowing a single health care provider to speak simultaneously with many seniors
- **Remote-patient monitoring,** giving seniors greater access to data around their vitals, with information on weight, blood pressure and blood sugar
- **Computer and health literacy,** enabling seniors to more immediately educate themselves about their own health by becoming more comfortable with web research
- **Teleconsultations,** limiting the number of physical trips seniors must make for their health care

Challenges

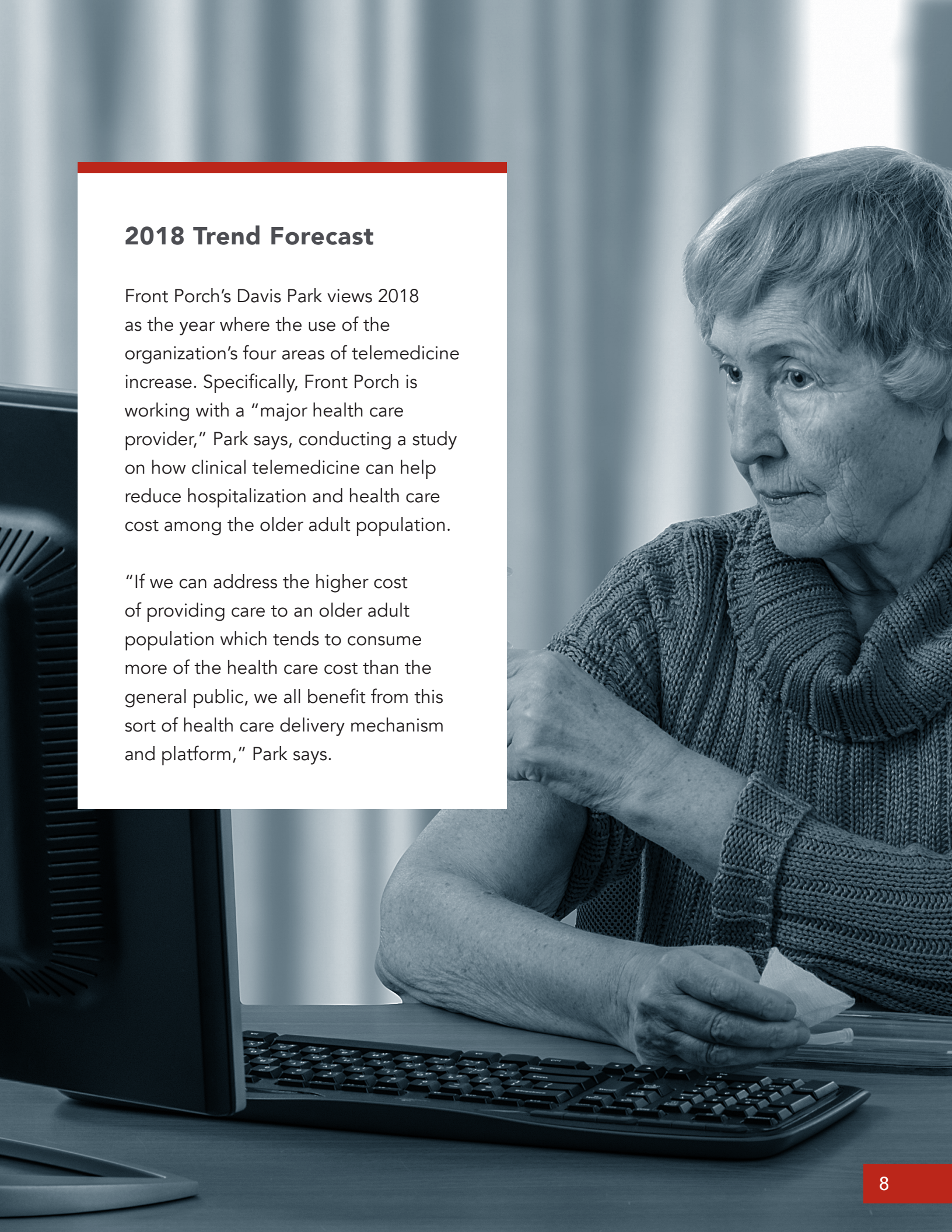
With all of the technology in senior living, the challenges are nearly always the same: adoption and engagement. Residents have to want to use the tech, meaning it must be simple. And staff must be trained to use it.

For example, what happens when a lightbulb goes out? A normal lightbulb can be changed manually. But for a lightbulb attached to a sensor system, "the plant operations person now has to have the technical skills to change it," Elalamy says.

Another major challenge with wearables: batteries. When batteries die, the residents may not be able to change them themselves. This adds to the workload of staff.

"How you implement and train is as important if not more important than the technology itself," Turner says. **"The data is only good when it is baked into someone's workflow."**

"This is the next frontier in the delivery of care," says Davis Park, director of the Front Porch Center for Innovation & Wellbeing. Telehealth, Park says, is an umbrella term that includes telemedicine, and encompasses any delivery of health care services through electronic means.



2018 Trend Forecast

Front Porch's Davis Park views 2018 as the year where the use of the organization's four areas of telemedicine increase. Specifically, Front Porch is working with a "major health care provider," Park says, conducting a study on how clinical telemedicine can help reduce hospitalization and health care cost among the older adult population.

"If we can address the higher cost of providing care to an older adult population which tends to consume more of the health care cost than the general public, we all benefit from this sort of health care delivery mechanism and platform," Park says.

TREND #4

Voice Activation

One common thread through wearables, IoT and telemedicine is voice activation technology — tech that is activated through human voice commands. From lights that a resident can switch on or off from bed just by speaking, to a resident being able to talk to personal voice assistant devices to adjust the television, a resident's ability to use her voice is critical for positive user experience.

And that empowers residents.

"When someone moves to a senior living community, there is a sense that they are losing control over their environment," Elalamy says. "If we can hand control back to them, that's powerful."

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Moulay Elalamy
Vice President of Information Technology
Benchmark Senior Living

2018 Trend Forecast

As technology giants continue to explore this space, the number of voice-activated technologies will increase, leading to greater comfort among users.

"Amazon, Google and Microsoft in particular ... are investing enormous resources building these solutions," says Michael Skaff, Chief Information Officer of San Francisco-based Jewish Senior Living Group.

More than that, these companies understand the value of data integration within these solutions, Skaff says, which will only continue to grow.

"These giants are going to gobble up more of these small startups to weave them into their ecosystem of solutions so that they can provide a more comprehensive approach to both consumers and enterprise companies," Skaff says.

TREND #5

Security

With all of this technology at work, new security issues around data privacy and identity are at play. Yet providers are also using technology to increase physical security of residents and facilities.

For IoT technology security, Sunrise Senior Living communities — 325 in total across the U.S., Canada and U.K., with 30,000 residents — uses a mix of email spam filters, sophisticated firewalls, endpoint solution systems and mobile device management systems, says Chief Information Officer Mike Summers.

For physical security, Sunrise uses solutions such as automated and pass-key-activated locking exterior doors, while also evaluating the use of RFID-embedded chips into wearables to ensure resident safety.

"We are looking out for the dignity and respect that our residents deserve," Summers says. That means finding creative places for the chips, including even soles of shoes.

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Chief Information Officer
Sunrise Senior Living

2018 Trend Forecast

In 2018, Summers sees providers paying even more attention to data security systems. For physical safety, Skaff sees a continued decline in nurse call system neck pendants with an increase in watches.

To prevent falls, use of personal emergency response systems, or PERS, will increase as the technology gets smarter and can determine when people have fallen. Even more advanced: systems that anticipate falls by analyzing a person's gait, or those that use computer vision to analyze a person's movements around obstacles.

Tied to all this will be greater network infrastructure and connectivity, which is vital for all of this to work — Skaff's term: "ubiquitous Wi-Fi."

Technology Integration

The biggest technology trend in senior living for 2018, though, is not any particular item. It's how they work together — a concept known as "interoperability."

"From a clinical standpoint, this is where the data goes from interesting to exciting and interesting to useful," Skaff says.

The new challenges in integration, then, will be creating a system that is simple on the front end but sufficiently complex on the back end to both process and create actionable insight from the myriad data sources. That means technology companies building a system designed specifically for senior living, and senior living providers training staff to understand and use these systems.

"Each of these solutions, whether IoT or wearables or security, these are just slices of a resident's life," Skaff says. "And if you only evaluate the slices individually, you're missing the point. The ultimate value here will only be achieved when we stop thinking of these technologies in isolation and start bringing them together in a simple, straightforward approach."

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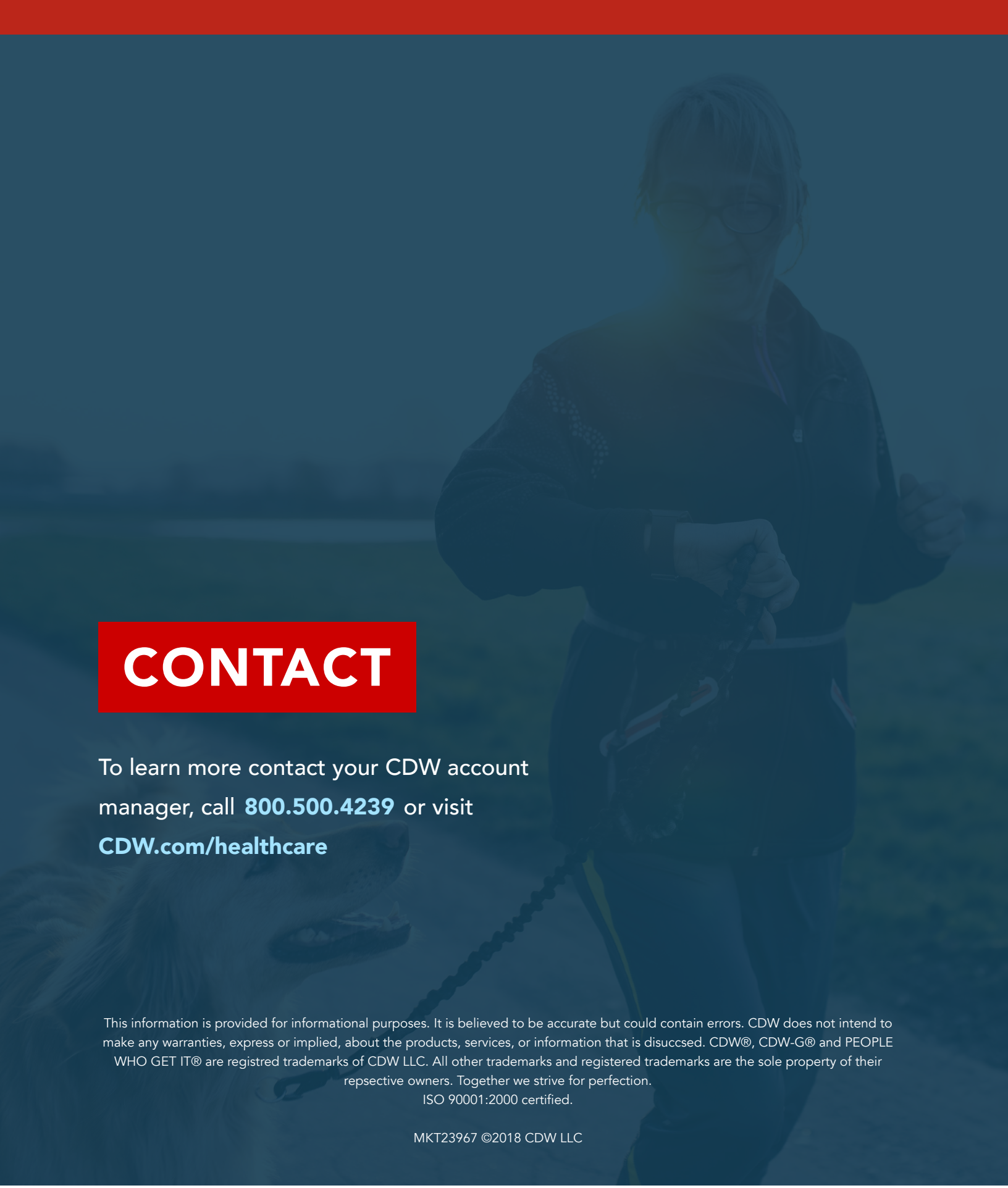
Return On Investment

In some cases, ROI can be measured by estimating the cost associated with a potential risk. To dictate the need for data security, for instance, Summers uses a 2017 study by Ponemon Institute which measured the average cost of a data breach at $3.62 million.

"It's not just an information technology-objective," Sunrise's Summers says of data security. "It's an enterprise objective. We treat it as such and invest in it as such."

In other areas of senior living technology, direct ROI metrics don't yet exist. But the anecdotal ROI is powerful. Turner's view, as it pertains to wearables: **"Does this technology help us win the next resident, or does it lose a resident?"**

He hears a lot of feedback from people who say, **"We are moving here because of your technology and how you will care for our family member."**



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