

# Homes Get Smarter

## New Technology a Boon for Stay-at-Home Seniors

**T**echnology will be at the forefront as service providers prepare for the baby boomer retirement wave. The 50+ population is the fastest-growing segment in the world, with a life expectancy of 78.2 years — a record high. According to The Massachusetts Institute of Technology's Age Lab, every seven seconds an American turns 50.

Today's seniors are more educated, more active and more determined to remain independent compared to previous generations. Avoiding assisted-living care is a top priority for older adults. According to the American Association of Retired

Persons, 87 percent of those 65 or older want to remain in their homes. This, of course, becomes harder to do as they become physically or mentally challenged with advancing age.

"There is no question seniors prefer to remain at home," said Majd Alwan, director of the Center for Aging Services Technologies in Washington, D.C. "Studies have shown seniors are willing to use technology if it allows them to maintain their own independence."

Fortunately, this specialized technology does exist. In fact, it is a rapidly developing market that provides a variety of "smart" computerized devices and sensors to monitor vital signs and physiological responses, detect falls and enable personal emergency response within the home.



A rendering of the American Association of Homes and Services for the Aging model "smart" home to be displayed during the organization's annual conference in Chicago in November.



Exterior rendering of Evangelical Homes of Michigan's \$12 million Memory Support Center, which includes "smart" residential units.

Other technologies enhance communication, such as easy-to-use cell phones and two-way video conferencing. The degree of "smartness" depends on the technology budget and the number and type of technologies selected.

Some of the newest smart home technology was to be showcased at the American Association of Homes and Services for the Aging's demonstration home. The model was to be displayed Nov. 8-11 at the group's annual conference in Chicago. Twenty-seven vendors had their technologies embedded and operational within the full-scale home. Not only were visitors able to see firsthand the remarkable functions the technologies provide, but also how unobtrusive they are within a range of interior settings.

Other organizations are also designing their own smart homes to test customer demand, real-life functionality and long-term cost-effectiveness, as well as to educate the public, legislators and other decision-makers about the value of universal design elements and smart technologies.

#### **JOHN KNOX VILLAGE**

One such group is John Knox Village, a comprehensive continuing care community in Lee's Summit, Mo.

"When we decided to expand into technology beyond our health continuum of care, we realized the best way to showcase these easy-to-use technology solutions was to create a demonstration home," said Katie Boyer, director of marketing and business development. "Seeing the user-friendly products in a home-like setting helps people understand their amazing capacity for improving quality of life." The demonstration center has been open for two years and staff

members have provided more than 1,800 tours to decision-makers from North America and Europe.

John Knox Village developed its own telecare system, which utilizes more than 50 products. These include safety devices, in-home health monitoring and medication management. Sensors throughout the home are linked 24/7 to a dedicated monitoring center that can detect environmental changes such as smoke, fire and flooding. Depending on the services selected, residents pay a \$50-\$200 monthly service fee.

"We continue to add new products to the system, such as a wireless keypad for safety and security and CookStop technology, which tracks a person's movements in the kitchen and shuts off an unattended stove automatically," said Boyer.

**"One of the strongest ideas that came out of our focus groups was providing technological support that would allow couples to stay together and not be segregated."**

#### **ESKATON**

A housing provider for about 15,000 older adults in northern California, Eskaton recently built a demonstration smart home on its Roseville campus. "We wanted to educate consumers, builders and other building professionals about the importance of creating home environments that are both functional and beautiful," said Erin Clay, Eskaton's director of research and planning.



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Since the home opened in October 2008 more than 1,600 people have toured the facility. Innovative technologies include the Dakim Brain Fitness program (cognitive exercises) and the GrandCare System, which allows family caregivers to stay socially connected with their loved ones and even remotely monitor their vital sign data and motion patterns (which could reveal a fall). Virtual home visits can also be conducted via a Web camera.

More than 100 core elements of livability were incorporated into the 1,600-square-foot floor plan at a cost of about \$5,000-\$8,000. “We

found that many features didn’t have any additional cost to incorporate,” said Clay. “It’s simply a matter of correct placement of electrical outlets and switches and smart design of space layout.” Residents pay an extra \$100-\$150 a month to utilize the technology.

**EVANGELICAL HOMES OF MICHIGAN**

This continuing care and assisted-living provider in southeastern Michigan recently opened its \$12-million Memory Support Center in Brecon Village. Designed for people with Alzheimer’s or other types of dementia, the campus includes 30 smart apartments and four smart 1,500-square-foot “cottages.”

“One of the strongest ideas that came out of our focus groups was providing technological support that would allow couples to stay together and not be segregated,” stressed President Denise Rabidou. “We designed the units so an individual can live with his or her spouse who has dementia and still be safe in a home-like environment.”

Dianna Huckestein, vice president of marketing and communications, added, “We learn many things about people from their daily movement and activity, including when they may need assistance. Wandering is among the most dangerous elements of dementia or memory loss that can place a loved one at risk for injury. The Memory Support Center has established procedures to ensure memory-loss residents are monitored at all times. Motion sensors in each residence alert our staff to unusual movement. A silent pager notifies the other spouse when his or her partner is moving about, especially in the middle of the night. Each unit is silent-alarmed so if the front door opens another notification is sent.”

Automatic stove shut-off and self-medication devices can also be installed. Rabidou indicated that interest in the smart units by potential residents is very strong — two of the four cottages have been sold and 10 of the 30 apartments have been rented. Plans are under way to build another 10 cottages on the campus.

**DIAKON LUTHERAN SOCIAL MINISTRIES**

Based in Pennsylvania, Diakon Lutheran Social Ministries is putting the finishing touches on a model smart home that will open in late 2009 on its Topton campus. “This home model will enable us to educate residents, family members and our staff to the possibilities of these new



A telehealth monitor collects vital health indicators at the user’s home and transmits the data to the assigned health care professional (John Knox Village).

technologies,” said vice president David Baker. “The model will showcase design features and technologies that are included in, or are options for, homes older adults can actually purchase at Diakon. Through this smart home model we will be better able to educate providers and decision-makers, transform policy and empower older adults and their families to live longer, independent lives.”

Technologies include private-channel resident information systems; brain fitness programs; home automation systems for fire, security and door access; video surveillance; lighting and shade controls and dimmable lighting; occupancy sensors; scene controls, personal emergency response and monitoring and communication systems for activities of daily living and telehealth.

Diakon Lutheran Social Ministries is so committed to the benefits of “aging in place” technology that it plans to build an additional 70 homes in the Topton community, “all of which will have the standards that the model smart home has and offer technology option packages that can be activated as a resident’s needs change,” said Baker.

### PLANNING FOR THE FUTURE

With the shortage of senior-care facilities and skilled senior-care staff, using smart technology to keep aging seniors safely in their homes for another 5, 10 or 15 years is a perfect solution to overloading the current system with aging baby boomers, who have high expectations for their quality of life.

“The next generation of active adults will not want to live in an institutionalized setting,” said Rabidoux. “Service providers need to incorporate smart technologies to create living environments that will help them maintain active, satisfying, independent lifestyles.”

Not only will seniors have a higher quality of life by living at home, the overall cost impact to health care and assistive care will be less — both for the individual resident and the larger health care system.

Another huge plus: Smart technology is easily affordable to build into new construction or retrofit into existing homes. Depending on the level of technology, the design and technology elements typically range from about 10-20 percent of the total new construction cost — “a small price to pay to remain independent for a number



The built-in motion detector in CookStop “knows” if the resident leaves the kitchen and automatically shuts off the stove or cook-top (John Knox Village).

of years, as opposed to the cost of having to move to a higher level of care,” said Baker.

For retrofits, many “off-the-shelf” smart technologies are easy to install, requiring only a telephone line or Internet access. More sophisticated home-monitoring technologies, such as security cameras and sensors, may require wiring upgrades and cost several thousand dollars to purchase and install.

Baker advises service providers who are thinking about offering smart homes to “first hold discussions about how these technologies will impact your business models and continuum of care. If you make emerging technology a component of your strategic plan, partner with other providers, vendors and universities,” he said. Most of all, engage the customer and listen.” ■

*This article was written and reported by Mark Crawford, a writer in Madison, Wis.*



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