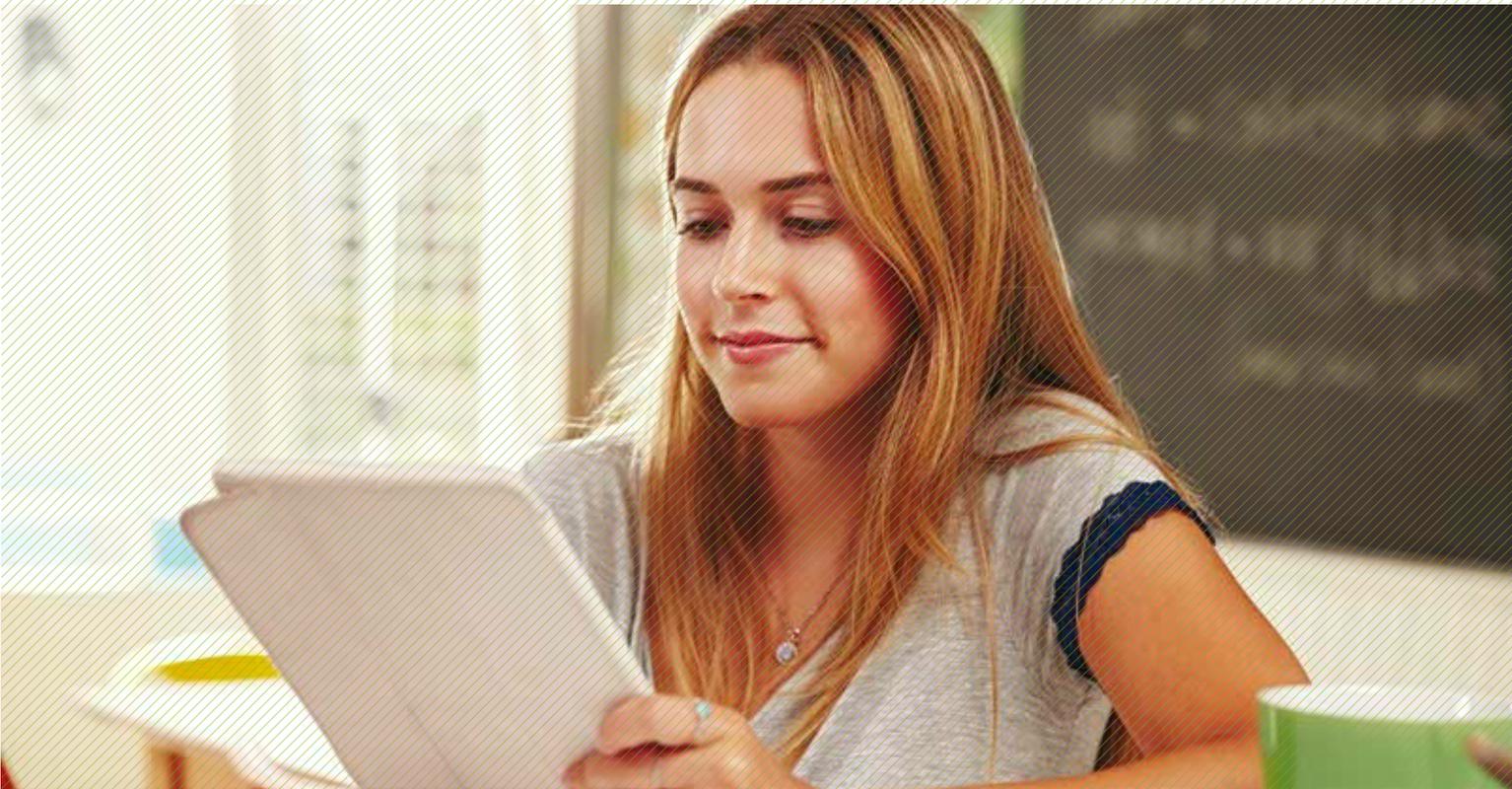


Risk Solutions

Connected Home Technologies

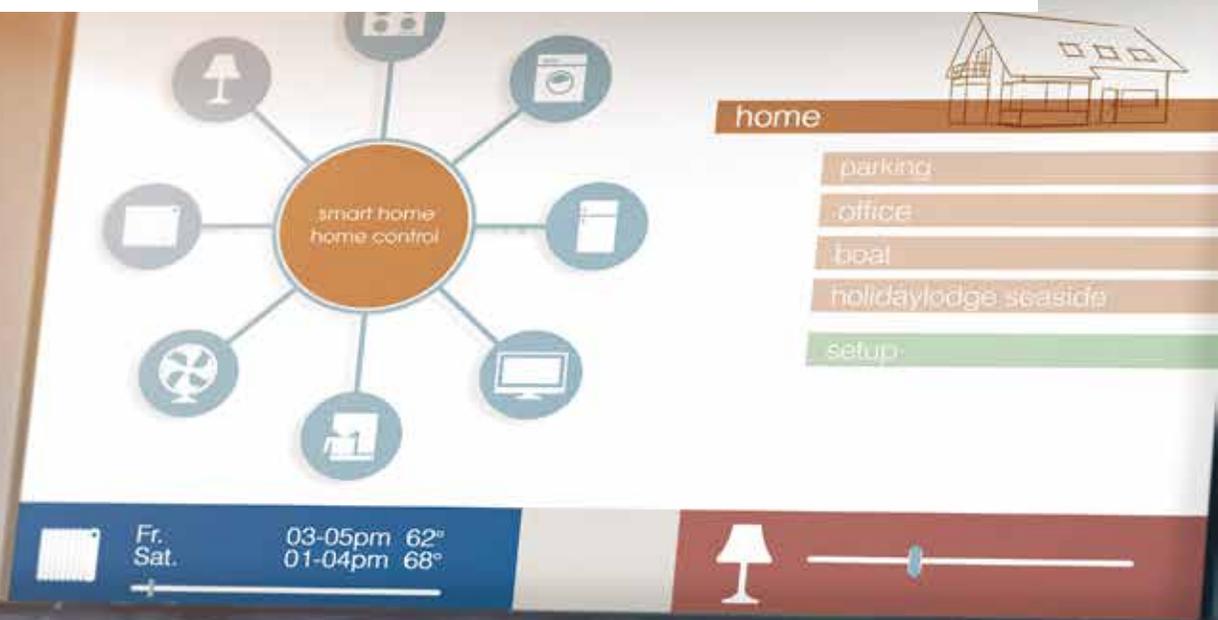
Part 3



Hartford Steam Boiler

Munich RE 

By anticipating and analyzing emerging risks, **Hartford Steam Boiler** has set the standard in equipment breakdown insurance for more than a century. Today, with the growth of, and interest in, home technology products, we've developed a series on **The Connected Home**, which examines what the connected home looks like today, how connectivity is being pursued, what to look for in the future, and the kinds of coverage and services that will be needed.



Outpacing Change – The Evolution of the Connected Home, Part III

Homeowners today have access to technology that can control, with a few clicks, all major appliances, electronic devices, heat, lights and security systems – an emerging trend we call the Connected Home. Because these new capabilities provide comfort, convenience, energy efficiency and cost savings, consumer demand is growing rapidly.

In the first part of this series, we focused on the market, the opportunity and some of the challenges of this evolving consumer technology. In Part Two, we looked at some of the available products and protocols, two key sectors driving the market, and home security. In this third part, we look more closely at the future, including security challenges, and we draw some conclusions that we hope will be helpful.

Future Prospects for the Connected Home

With the next phase of home automation, we will see devices that are designed to 'think' independently and make their own 'decisions' based on behavioral patterns and observations. Examples of this trend include products like the Nest thermostat and smart TVs, which are now available.

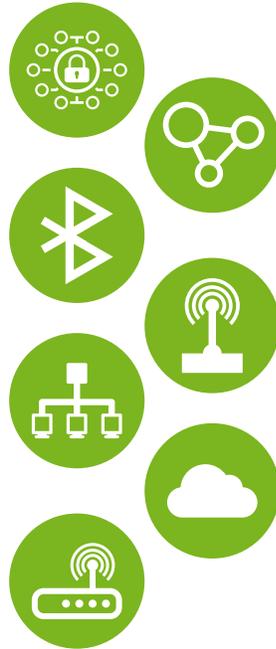
In this emerging environment, here are some thoughts on what may be on the horizon for the connected home space:

- A fractured market with new players frequently entering and exiting.
- The evolution of all-in-one devices that combine sensors such as motion and humidity with cameras and other functionality. These easy-to-use and install devices are great options for "non-techie" home owners.
- The emergence of new devices for home health care. Not only will they help reduce the cost of medical care, these devices will enable a rapidly aging population to stay comfortably in their homes for an extended period.
- The continued proliferation of variable utility electrical rates throughout the U.S. Home energy management systems will be used to automatically shift electric usage from periods when rates are highest to when they're lowest.
- The increasing purchase of connected home devices by high-net worth homeowners and for new home construction.



A Common Protocol?

Communication protocols will continue to be diverse, and a common standard may not emerge for years. At this time we don't foresee dominance by any current protocol, but the possibility exists that a "must have" application or a specific protocol will catch on and become the market standard. Here are some possible trends:



- Protocols, such as ZigBee and Z-Wave, may continue to specialize in specific areas of the smart home.
- Thread may go head-to-head with the Bluetooth Smart standard, which enjoys a strong position because of its application in most smart phones.
- Individuals may continue to utilize smart home devices supported by private VPN providers because of concerns about storing personal information in the cloud.
- Manufacturers of individual devices may move toward integration by introducing hubs that build a more connected and friendlier user experience.
- Service providers, like ADT, will continue to include additional smart devices in their traditional service packages to provide added value for homeowners while generating additional revenue.
- The proliferation of wearables may have a future impact and application to connected home devices.
- Apple may be a major player with its HomeKit products.
- Google-Nest-Dropcam-type partnerships will likely continue to emerge (e.g., Belkin, Insteon), bringing together various devices like intelligent home thermostats, smoke detectors, Wi-Fi webcams and trackers, along with cloud-based storage.
- Devices will likely work together to predict or prevent potential loss or damage to the home.

Cyber Security Concerns

Meanwhile, a study released by Hewlett Packard in 2014 cites some of the most commonly anticipated cyber security issues¹, including:



Privacy concerns: Eight of ten devices tested, along with their corresponding cloud and mobile application components, raised privacy concerns about consumer data, like name, email and home address, date of birth, credit card credentials, and health information.

Insufficient authorization: Eighty percent of the devices tested, including their cloud and mobile components, failed to require passwords of sufficient complexity.

Lack of transport encryption: Seventy percent of the devices and half of the mobile applications analyzed did not encrypt communications to the cloud, Internet and local network – a crucial point since many tested devices collected and transmitted sensitive data across channels.

Insecure web interface: Six of the ten devices evaluated raised security concerns with their user interfaces. In 70% of devices with cloud and mobile components, a potential attacker could determine valid user accounts through account enumeration or the password reset feature.

Inadequate software protection: Sixty percent of devices did not use encryption when downloading software updates, an alarming number since software powers the functionality of the tested devices.

In short, cyber-risks, such as malware, viruses, and hacking, will continue to create anxiety for homeowners.

1. Hewlett Packard Study- News Advisory: July 29, 2014

Smart Homes Are the Future



As the industry addresses these cyber-security concerns, homeowners will be increasingly interested in making their homes more comfortable, efficient and secure through technology. Home systems with remote monitoring will rapidly evolve to “learn” about the homeowner’s lifestyle and preferences and take actions in anticipation of these needs. As new products are introduced, almost every home device will have a “smart” option.

For the foreseeable future, the “connected home” marketplace will remain fragmented, as many companies try to establish themselves and gain a foothold. Since a critical challenge is the lack of a common communication protocol, we anticipate a shakeout and consolidation period before a market standard emerges. This challenge, along with the relative high cost of connected home components, will likely moderate consumer adoption for now.

Nevertheless, we believe acceptance of the connected home will continue and strengthen over time. Over the next decade and beyond, homeowners are expected to purchase tens if not hundreds of billions of dollars’ worth of new sensors, monitors and devices for their increasingly connected homes. And this new equipment will generate hundreds if not thousands of exabytes of new information each year. If used properly, this data will provide unprecedented insights about the home and the homeowner, as it improves the comfort, convenience, efficiency and safety of daily life.

According to Mike Watson of Cree, Inc., “Everyone knows data is going to be the most valuable part of any smart home” (“The Race to Build Command Centers for Smart Homes,” Wall Street Journal, January 4, 2015). With technology so fragmented, there isn’t a universal aggregator of smart-home data. Whoever emerges as the de facto smart-home technology supplier will most likely become the data steward.

The issue of insurance and loss

As newer and better home technologies hit the market, the risk of insurable perils will follow, creating new demand for property/casualty products and services. Some insurers have already entered this arena, decreasing premiums for “smart homes” and offering discounted installations and lower monthly service fees.

From a loss perspective, new equipment coming into the home will be subject to damage from traditional perils, notably power issues like lightning and surges. And since many connected home devices will be quite small and portable, drops and misplacement will be all-too common.

These risks, however, do nothing to diminish the formidable benefits of connected home technology, which has the potential to reduce the frequency and severity of fires, water leaks, break-ins and many other causes of loss that homeowners worry about.

Besides the convenience and flexibility of remotely monitoring and controlling appliances to manage energy use, homeowners have long desired the peace of mind of improved personal security and reduced exposure to both natural and man-made disasters.

For perspective, many readers will recall a time when reasonable people asked, “Why would anyone need a computer in the home?” While we’re only at the very beginning of the connected home, it’s inevitable that we will soon be amazed at how pervasive this technology becomes and how much it impacts our daily lives.

Clearly, the need for smart insurance to cover smart homes will gather momentum, as technology, connectivity and energy help define the homeowners market in the years to come. Property/casualty carriers and their agents will be a trusted source to help homeowners keep up with evolving technologies and new coverage choices.

The Connected Home is here to stay – it’s no longer a question of “if” homeowners will transition, but “when.” Connected Home technologies will continue to evolve.

Hartford Steam Boiler is committed to continuing to study emerging Connected Home technology; through our research we can help keep you informed and stay ahead of the technological curve.

For more information visit <http://www.munichre.com/HSB/connected-home.html>



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NOT IF, BUT HOW