

The Battle for Control: Whose Box Will Run Your Building?



By Porter Wiley

A look at the rapidly evolving landscape following the growing demand for intelligent, interconnected commercial and residential buildings.

The stakes are high for what PriceWaterhouseCoopers estimates to be a \$150 billion global smart home industry by 2020. And ABI Research recently released a study predicting that annual worldwide services revenue from smart building global facility services will grow from \$625 million in 2015 to more than \$8 billion in 2021.

The winners get a lucrative new revenue stream, control over the information generated by the building occupants, and, perhaps even more importantly for product manufacturers, influence over which components are installed in the building. In the race to achieve these goals, manufacturers are enabling products to communicate in the wired world and vying to become the new influencers in the customer purchase decision—or even better, the controllers of this new dynamic.

The ABI study also highlights the many different types of companies pursuing these markets—original equipment manufacturers (OEMs), system integrators, security companies, telcos and platform vendors. The two areas with the most growth potential are HVAC control systems (49% of smart building revenue by 2021) and smart lighting (32%). As the largest consumers of building electricity, this prediction is not surprising.

Companies within this new ecosystem are spending a great deal of time and money in a modern-day gold rush of sorts, with startups elbowing for space with Fortune 100 companies. However, there is still a great deal of uncertainty over where exactly that “gold” lies or even how to mine it successfully. Despite these uncertainties, everybody is sure that—as Dr. Matthew Fleming Stephenson once said—there definitely is “gold in them thar hills.”

In this article, we’ll explore emerging trends in the burgeoning markets for connected residential (smart homes) and commercial buildings (smart buildings), and how recent merger and acquisition (M&A) activity around the market hints at the different strategies companies are pursuing to stake their claim. Which strategy or company will be successful? It is still too early to declare any winners, but some companies certainly have some built-in advantages and a head start.

The Changing Landscape of Smart Buildings

A web of interconnected systems and devices with lights, smoke alarms, HVAC systems, security, water, appliances and other systems managed through a central interface, the new smart building has officially arrived. In the past, these systems—while perhaps sophisticated in their own right—existed independently and did not communicate with one another. Today, manufacturers are rushing to find ways to connect and integrate their products with all components of the building and related monitoring services, and linking the information back to the building owner.

Exactly which companies will control the interface is still an open question, but the stakes are obviously high. Buildings represent the largest energy end use in the world, consuming roughly half of global electricity. This fact has been a driving force in the early development of the smart building, which saves money by optimizing the efficiency of electrical systems, matching occupancy patterns to energy consumption and improving equipment maintenance with real-time data collection.

The economic benefits for commercial building operators are clear and have been for some time. Better building information leads to lower energy costs, but it can also lead to better building performance and healthier environments for its occupants.

Who Are the Players in the Smart Building Space?

Companies at every stage of the energy life cycle are participating in this market: the utilities that produce and transmit the energy, the manufacturers whose products consume the energy, the software and controls that network and manage the building systems, to the ESCOs that design, implement and install the Building Management System (BMS) with LED lighting, distributed energy and high-efficiency HVAC systems.

More advanced BMS programs may manage a wide range of components such as those aimed at maximizing energy efficiency by regulating fan speeds, window shades, water chillers or electrical loads during peak periods. They may also control sprinkler or fire alarm systems, monitor air quality and adjust ventilation as needed and manage building security and telecommunications.

Recent M&A activity in the sector indicates that many of the players in this market are crossing over, entering adjacent markets via acquisition to gain an edge in this rapidly evolving landscape. Some examples of this activity:

Duke Energy is one example of the many utility companies that are buying their way into the ESCO business. The company recently purchased Phoenix Energy Technologies, which provides energy management software and services to help building operators reduce energy consumption. Utilities increasingly see the future of their business being in value-added services rather than the simple provision of commodity energy. New energy and distributed generation are viewed as a long-term threat to the current business model.

GE Current is a portfolio of products and services GE has put together to serve the smart building market. It offers hardware and software solutions for energy optimization, on-site power generation, networked lighting and more. Part of this portfolio is Daintree Networks, a provider of smart building control, sensing and Enterprise Internet of Things (E-IoT) applications, featuring a networked wireless and software solution. GE Current acquired Daintree in April 2016 for \$100 million.

Acuity Brands is a leading manufacturer of commercial lighting systems. The company has made several acquisitions related to building information and

management. In January 2016, Acuity acquired GeoMetri, a provider of software for mapping, navigation and analytics for pedestrian foot traffic and building occupation. In July 2016, Acuity acquired DGlogik, which offers a hub to manage, visualize and monitor facility data from various building systems into a singular interface.

Earlier in 2013, Acuity acquired Adura Technologies, which designs and manufactures commercial building lighting control and energy management solutions. Acuity is a prime example of how traditional building product manufacturers are embracing technology as a means to improve the performance of their products as well as their market position.

Honeywell has a variety of products targeting the smart building, but it made a notable purchase in 2015 of Elster Group, a manufacturer of metering devices for gas, electricity and water for \$6.5 billion. By controlling the meter where the electricity enters the building, Honeywell ensures itself a seat at the table, as the energy must pass through its device. Elster meters can be fit with additional sensors and networked to provide valuable energy management data to the system.

Robert Bosch acquired Climatec in January 2015 to bolster its ESCO business. Climatec is a single-source integrator of critical building systems, including energy services, building automation and security system integration in the U.S. market. The company provides consulting, planning, implementation and 24/7 remote management of comprehensive comfort, security, safety and efficiency solutions.

Smart, connected products are reshaping the industry's competitive landscape while also expanding the industry's definition and purpose. As competitive boundaries widen, product capabilities expand exponentially to meet the broader needs of end users. By integrating smart, connected HVAC systems, for example, owners can enhance overall facility performance.

Several important implications for building product manufacturers include:

- Just as the smart building is a network, so must product manufacturers think of themselves as part of a network. Which companies should you align with? Which products and software must you be compatible with? These choices will be important.
- Purchase decisions become more complicated with more participants in the process. Product manufacturers must develop a strategy to touch and influence each player in the process.
- Technology will evolve rapidly and so must product capabilities.
- The mass collection and wise use of data will be required to sell product advantages.

Creating the Smart Home

The smart home market is still in its infancy, but it holds great promise for increased energy efficiency and lifestyle improvements. Eliminating complexity is the key to success in the smart home market, where consumers want products that are simple to use, easy to set up and secure. This need for simplicity and security is currently holding the market back from becoming the mass phenomenon it promises to be.

Communications protocols like Z-Wave, Insteon, ZigBee, Wi-Fi, BlueTooth, Thread and Apple HomeKit are all vying for market acceptance and supremacy right now. After all, devices can't talk to one another if they don't speak the same language. This situation increases complexity and cost as product manufacturers program their devices to speak all these languages (and many can't). It will also inevitably shake out over time to one (or several) winners since the current "free for all" is both confusing and inefficient.

A fully integrated smart home is an ecosystem in which participants at each step want to capture their share of this fast-growing market. This includes electric and telecom utilities, technology giants and the manufacturers of the many products that are wired for connectivity (lighting, HVAC, security, sensors, appliance, etc.) The interface must be managed by a central control and software. Whose control and software will it be? That is the big question, as the winner will have access to a significant service revenue stream, influence over the products installed and reams of data crying for a way to be monetized.

So which companies are competing to control this emerging market? Below are a few companies seeking to capture this market:

Google may not have fired the first shot with its \$3.2 billion purchase of Nest in 2014, but that move was surely the loudest. A smart thermostat manufacturer developed by former Apple engineers, Nest promised Google control of the building's brain (or so it was said to justify the eye-popping price). Subsequent developments (specifically the introduction of the Amazon Echo) have demoted Nest to merely another device on the network. Nest knock-offs by Honeywell, Ecobee, Schneider and others now make Google's acquisition look overpriced. Despite being beaten to market by Amazon, we would not rule Google out. Simplicity in the interface and software design will be a key determinant of success in this market—things that Google has already done with Android.

Amazon surprised the market with the introduction and success of Echo and its digital assistant Alexa. Echo made Amazon an early leader in the home hub sweepstakes.

Apple launched HomeKit, which connects various home appliances to iOS devices. With tens of millions of "controllers" already out in the market (iPhones, iPads), Apple is well-situated to assume a leading position in this market. To date, Apple is only marketing its software without Apple-branded devices yet in the market; just how and if Apple is able to monetize the HomeKit app remains to be seen. Apple has a proven history of simplifying the complex and seamless interoperability, but the bias of device manufacturers towards their own software may be a roadblock.

Samsung announced its entry into the connected home with its 2014 purchase of SmartThings for roughly \$200 million. SmartThings is a manufacturer of hubs, sensors, outlets and other smart devices for the home. The hub and app interface are the keys to the system and are compatible with all Z-Wave gadgets. It will be interesting to see how Samsung and Google compete in this market. Though Samsung has millions of cell phone handsets in the market capable of managing the smart home interface, Samsung phones run on Google Android software. Another natural transition will be the integration of Samsung TVs and appliances.

Verizon, AT&T and Comcast already have tens of millions of computerized boxes in homes and an existing monthly relationship with its customers. It would not take much to add additional smart home functionality to cable or satellite

receivers. Comcast is already doing this, but with its renowned customer service and support, it will be astonishing if it is successful. Comcast has also acquired security software provider iControl and now offers a monthly security service. AT&T hasn't made any significant moves into the space as of yet, but could enter or buy its way in as the market matures.

The Smart Building of the Future

With the smart buildings market poised for continued growth and transformation, building product manufacturers are particularly well-positioned to seize the opportunity by developing smart, connected and user friendly products. By establishing agile development platforms, for example, manufacturers can gain flexibility to innovate and disrupt traditional building products and ultimately lead the way in this space. And while the challenges of winning in this new business environment will be many, the rewards will be great for those companies that find ways to own and influence buildings owners...and their dollars.



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