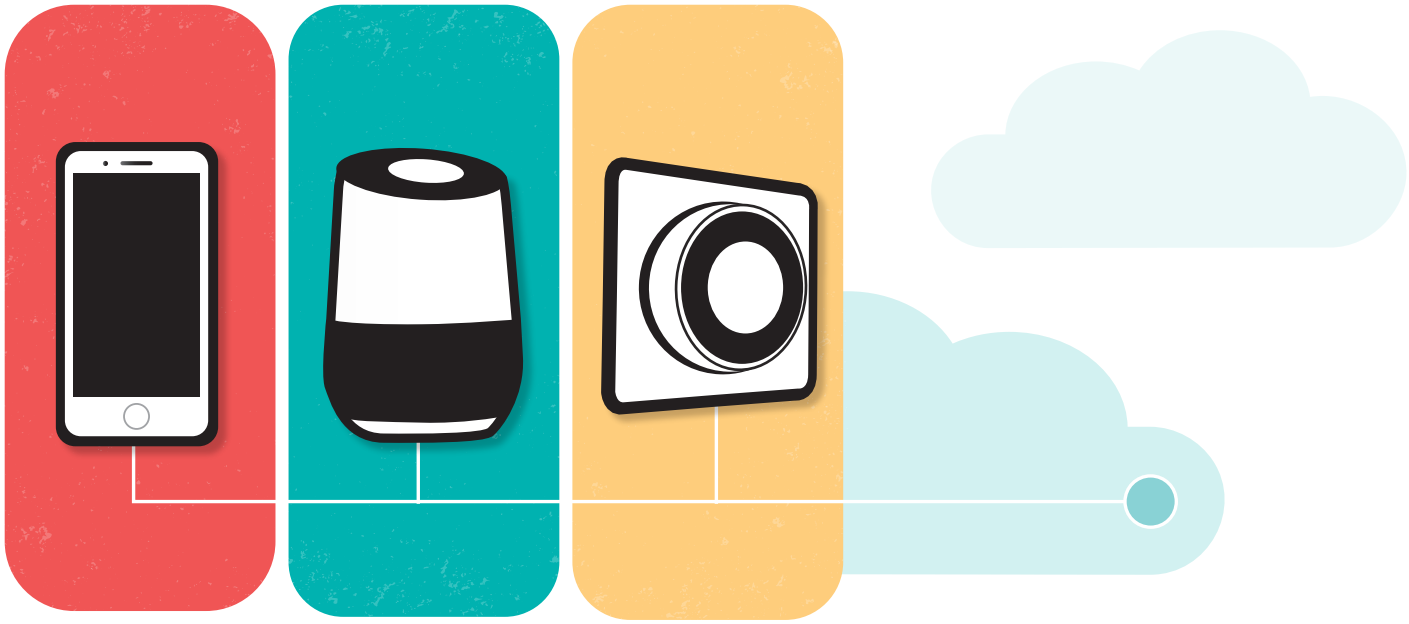
From WIDGETS to ECOSYSTEMS



As venture capital and private equity funds race to utilize a growing network of smart devices and high-resolution energy data, are we ready for the connected future these providers might enable?

The proliferation and rapid adoption of smart devices has been so transformative that, in 2018, researchers estimated a quarter of homes with broadband had at least one smart home device and that nearly half of all American homes will be considered "smart" by 2020.[1] While smart device vendors were working tirelessly in 2014 to gain share in this multibillion dollar market, Google surprised the industry by announcing their acquisition of machine-learning experts, Nest Labs. This marked an important shift in the pursuit of innovation away from smart device hardware and toward the connected infrastructure these devices create. Two years later, cloud-computing giant, Oracle followed suit by acquiring OPower, a residential efficiency company, and repositioning it as an enterprise software-as-a-service (SaaS) provider poised to leverage the rapid expansion of available residential energy data and device interactions.

Google and Oracle's expansions were harbingers of trends to come. Now, more and more companies are positioning themselves to take advantage of the upswell of high-resolution energy data, the Internet of Things (IoT), and cloud-computing to create a dynamic energy ecosystem in the home. Big data analytics in the energy sector has a compound annual growth rate of more than 10% and home data analytics alone is estimated to be an $11B market by 2026.[2,3] In the first half of 2019 alone, we've watched Tendril acquire EEme, EnergySavvy, and FirstFuel—then the merger of Tendril with Simple Energy to form Uplight. With so many companies pivoting into this space, it's time to ask ourselves: What will an energy ecosystem enable? Are we ready to take advantage?

Smart Home Ecosystem: Made up of apps, smart devices, and cloud service, it allows users to control devices in the home from anywhere.

Opportunities. In the near term, these providers are working to create customized and actionable data-driven energy advice and a modern platform for customer engagement. Many of these companies promise to provide an open application programming interface (API) that enables integration with other systems and smart devices, removing the critical challenge of interoperability and expanding utilities' potential reach into customers' homes.

In the long-term, these vendors may also provide utilities the ability to:

- Expand and enhance demand management through deeper penetration of demand response (DR)-enabled devices.
- Support different rate designs in connected homes that can be optimized and automated to respond to different price signals.
- Balance renewable energy through optimizing the home energy load shape to better align with generation.
- Deepen customer engagement through an expansion of communication channels in the home, e.g., through smart assistants.

Challenges. Seamless integration and automation of home connected devices on the front end and rigorous analytics with customized insights on the back end are only the first steps to success. Forcing this new wave of technologies into existing program designs and evaluation frameworks could prevent utilities from realizing the full potential of new offerings. Instead, we will need innovative program design to make this work as we explore a flood of questions. Is this an evolution of your Bring Your Own Thermostat (BYOT) or Home Energy Report program? Or part of a new non-regulated opportunity? What is the baseline against which we can quantify savings for such an offering? What is the measure-life? How can we define the incremental cost? Is this best suited for energy efficiency or demand response?

How can we create a new paradigm? The shift from widgets to ecosystems is happening. Here are steps you can take to prepare for and navigate the transition.

SCAN

Your portfolio. Do you already have a BYOT or BYO-device offering? What about a disaggregated home energy report-style program? Identify what offering(s) might make sense for your portfolio.

Your customers. Conduct or leverage existing research to understand what smart products your customers may already have adopted, which ones they would consider buying from their utility, and what natural opportunity may exist.

CREATE

A strategic goal. What type of offering do you hope to create? What does success look like and what are measurable metrics?

A map. Create short- (0 – 6 months), medium- (6 months – 1 year) and long-term tasks (1+ years) that will allow you to meet your goal.

SOCIALIZE

Learnings within your team. Identify or create a communication channel to share this strategy. Seek to grow understanding and knowledge here; begin to speak the same language.

Findings inside your organization. Establish a peer group to strategize how new findings can support alignment with broader goals within the company.

DEVELOP

Internal teams. Reach out to internal teams (Demand Response, Distributed Energy Resources) to form partnerships or peer groups that enable ongoing sharing of research findings.

External partnerships. Attempt to establish relationships with other utilities when directly competing is not a conflict in order to share findings from research, pilots, and evaluations; share experiences with vendors.

Through collaboration. Create field trials or pilots that can meet the objectives of multiple groups and/or multiple funding streams.

Your value stack. Establish success metrics that would allow you to capture energy efficiency, DR, DER, revenue, and other impacts.

A usability study. If the offering you're looking to incorporate involves a new and never-tested user interface, consider testing with a small sample of customers first.

Field trials. Before scaling up, trial your new offering with small groups of staff or friends and family. This is a great way to test implementation without the risk of creating customer dissatisfaction.

Ongoing research efforts. Monitor and digest the results of related research and watch key market actors. Use existing memberships to stay current with emerging and expected trends. Follow standards development, such as the Environmental Protection Agency (EPA) ENERGY STAR® Smart Home Energy Management Systems.

Early findings from field tests and pilots. Capture early findings from your tests/ pilots to gain insight into your customers' journey, understanding of, experience with, and expectations around connected technologies and offerings.

Your findings. Review and synthesize additional research to determine next steps and research needs. Pilot implementation findings can be a good place to start.

Next steps for your organization. Is additional research needed ? Are there opportunities for pilots, field tests, or manufacturer partnerships?

1. Austin, Patrick Lucas. "What Will Smart Homes Look Like 10 Years From Now?" *TIME* online. July 25, 2019. https://time.com/5634791/smart-homes-future/.
2. Mordor Intelligence. Big Data Analytics in Energy Sector Market - Growth, Trends, and Forecast (2019 - 2024). 2019.
3. Navigant Research. Smart Home Data Analytics. 2017.