

Research



Getting Connected Products Right

CHALLENGES AND SUCCESS FACTORS FOR LARGE
COMPANIES LAUNCHING IOT PRODUCTS AND SERVICES

IN COLLABORATION WITH **ALTITUDE**

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On the sidelines, or on the field?

Why do so many companies seem to be sitting on the sidelines when it comes to creating connected products and designing services that tie into them?

The cost of adding wireless connectivity to a device is plummeting toward \$1. Projections about how many Internet of Things (IoT) objects will be in our lives, at work or at home, range from 12 billion by 2020 (Cisco) to 50 billion (Ericsson and Intel).

We've seen early hit products, from the Fitbit activity monitor, the Nest learning thermostat, the Sonos digital music system, and Amazon's Echo speech-driven assistant, released in late 2014 and now estimated to have sold more than three million units.

Industrial deployment of connected products and services is ahead of consumer use, by all assessments. Earlier in 2016, General Electric CTO Harel Kodesh predicted that within the next decade, we'll see "self-healing, self-optimizing" factories, which will have humans monitoring them, instead of manning the machinery.

Let's imagine that a large percentage of consumer or B2B products costing more than \$25 will soon have some kind of connectivity built into them. That will enable them to provide all kinds of data that might be useful for maintaining them, insuring them, financing them, or designing their replacements — from how often they are being used, to where, to what breaks down first. It creates a feedback loop of information that can build a stronger bond of loyalty between producer and user, as well as potentially generating more revenue (and also better products and services) over time. Who wouldn't want to be part of that loop? But that's the decision that companies are making, in 2016, by producing products that have no connectivity, no supporting services, no data streams.

In our survey of companies active in, interested in, or developing connected products, conducted in Q3 2016 in collaboration with the design and innovation firm Altitude, we heard from 92 executives. While the majority told us they were still exploring opportunities and hammering out a strategy, 36 percent said they'd already launched a product. (The rate was even higher among the companies that described themselves as software or tech providers; there, about half of respondents had already launched a product.) Of the companies that have some experience in the market already, 67 percent described the product as either meeting or exceeding their expectations. Just 18 percent said it had underperformed.

But we also heard about challenges that were keeping more than half of our respondents on the bench, rather than on the field, such as:

- » Articulating the ROI or business case
- » Coordinating partners or other players in an ecosystem
- » Support or resources from senior leadership
- » The need for cultural changes, or the development of new capabilities

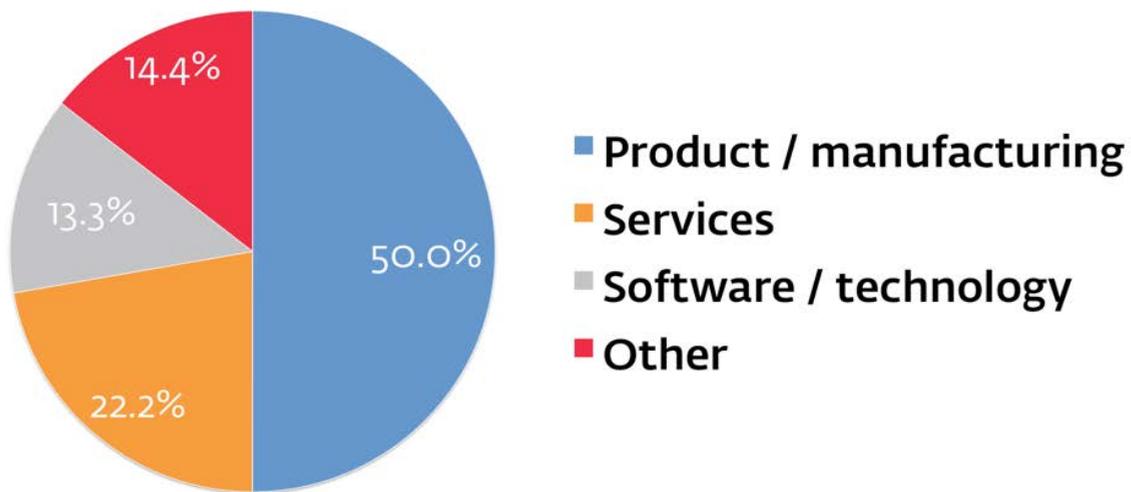
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- » Concerns about data security, usage, and privacy
- » Understanding the consumer and creating a simple user experience.

Respondents told us that their companies need to be “open to new business models,” and “continue to develop a culture of experimentation with a purposeful disregard for existing processes.” They see a need to “substantially grow our development and prototyping capabilities,” bring in new talent, better understand customer needs and desires, and be “more willing to take risks and innovate.”

In short, there is an opportunity for internal innovation leaders — whether they work in R&D, strategy, design, marketing, or other groups — to play a major role in positioning their organizations for success in the world of connected products and the services that will surround them.

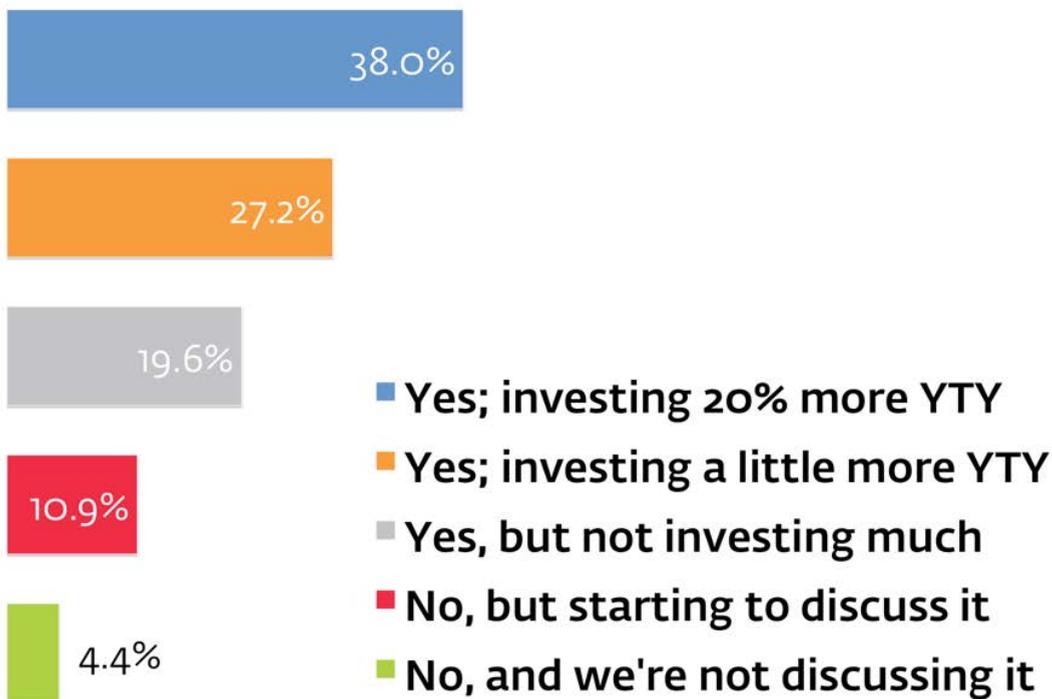
Which of these best describes your company?



Who took the survey?

Other answers: Media and publishing; retail; insurance and financial services; healthcare; education.

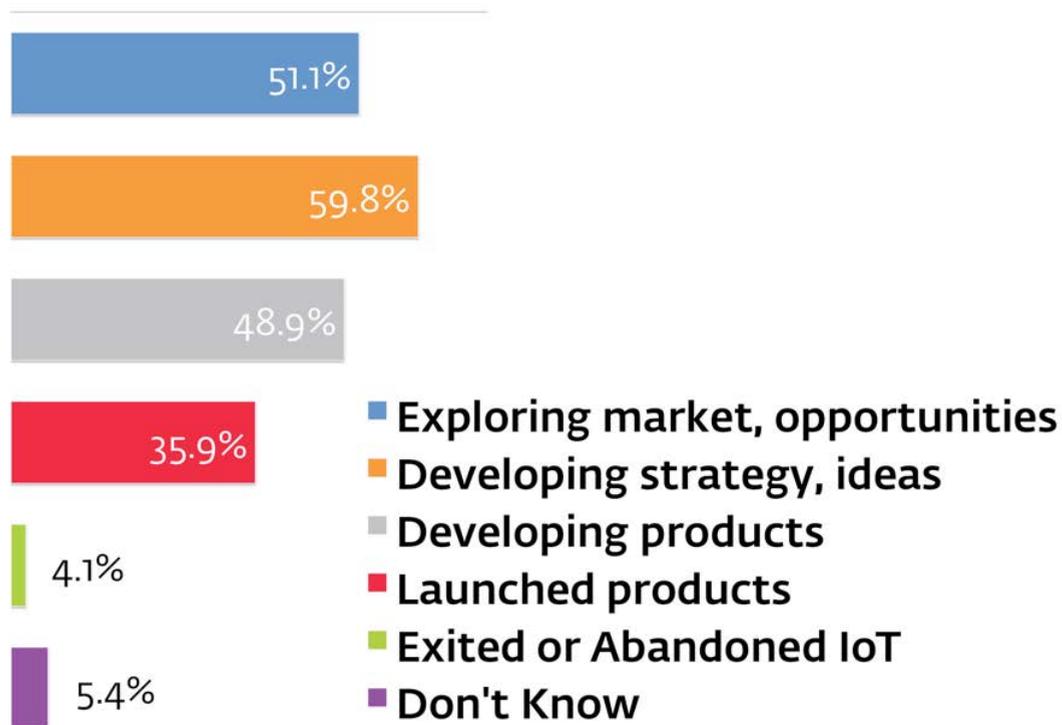
Are IoT/connected products a key focus for your organization?



How much time and resources are you investing in connected products?

The top two bars represent a category you might call “serious investors.” Fully 75 percent of the software and technology respondents fell into that category; 70 percent of services companies did; and 65 percent of product/manufacturing companies did. Only that last category had respondents — 9 percent — who said that connected products are not a key focus at their companies, and there is not any notable discussion about them.

In what stage of development are your connected products?

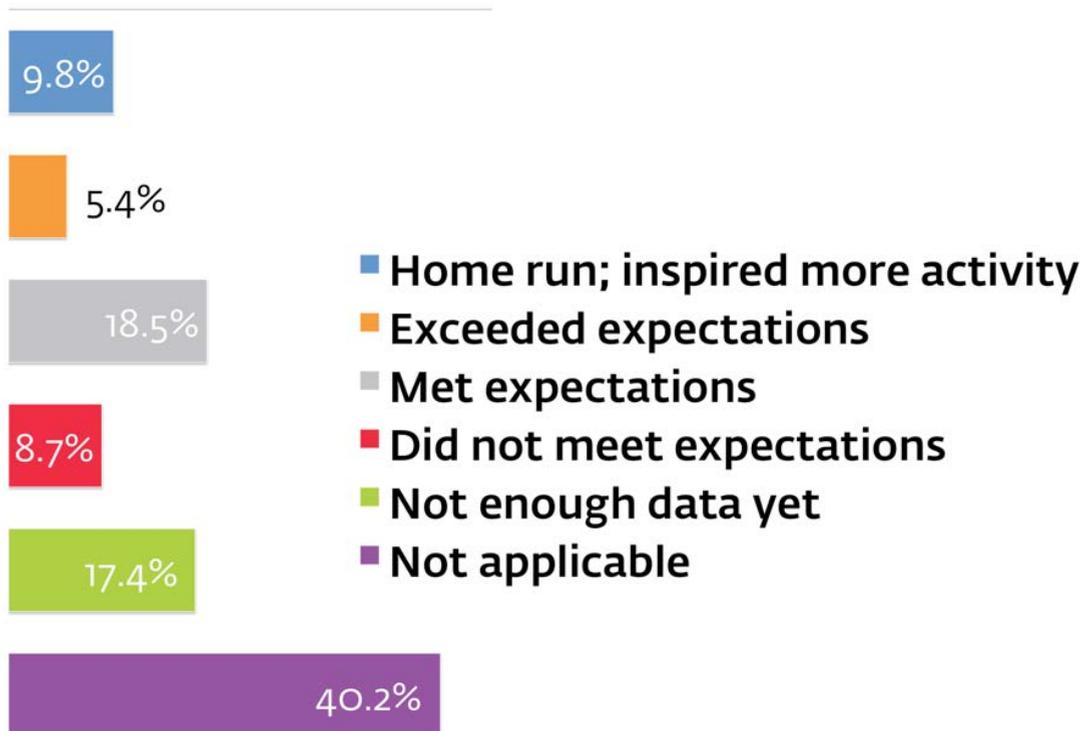


Progress report

When we looked at the companies that said they are either “developing products” or had already launched products, we found they were most likely to be in the software/technology space, followed by product/manufacturing, followed by services. Fully 50 percent of software/technology respondents had launched a product. That number was 35 percent and 36 percent product and services respondents, respectively.

The only companies that told us they had abandoned their exploration of the IoT space were two product/manufacturing firms. One, a provider of ingredients to food, beverage, and personal care companies, explained that “we are not seeing a need for our business.”

If launched, how did your connected product perform?

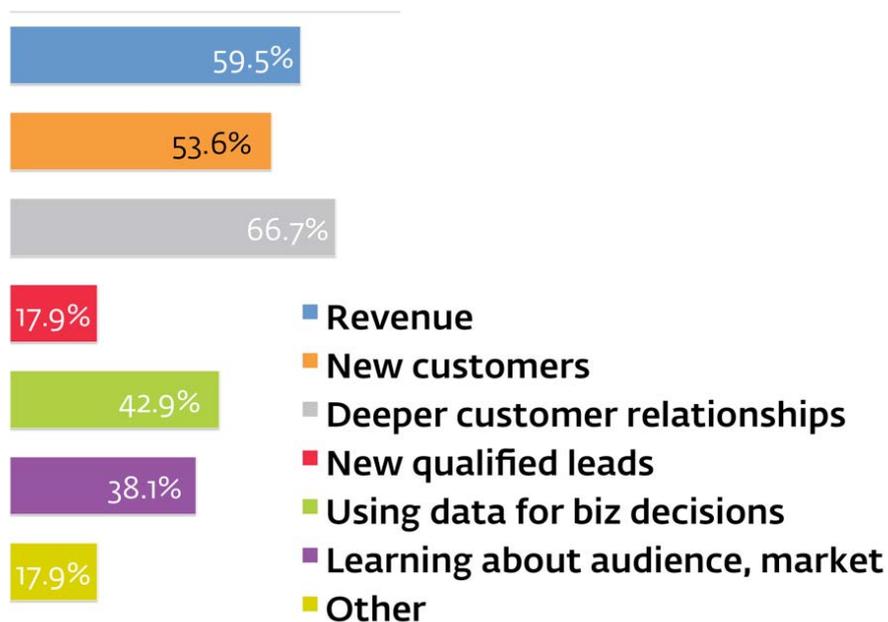


Results so far

Software and technology companies reported the best results, with 25 percent of them saying that the products they've launched either exceeded expectations or could be described as a "home run." Just 16 percent of product/manufacturing companies fell into those two categories, and 15 percent of services firms. None of our software/tech respondents said their product didn't meet expectations. But 10 and 11 percent of services and products firms, respectively, admitted that was the case.

Measuring performance

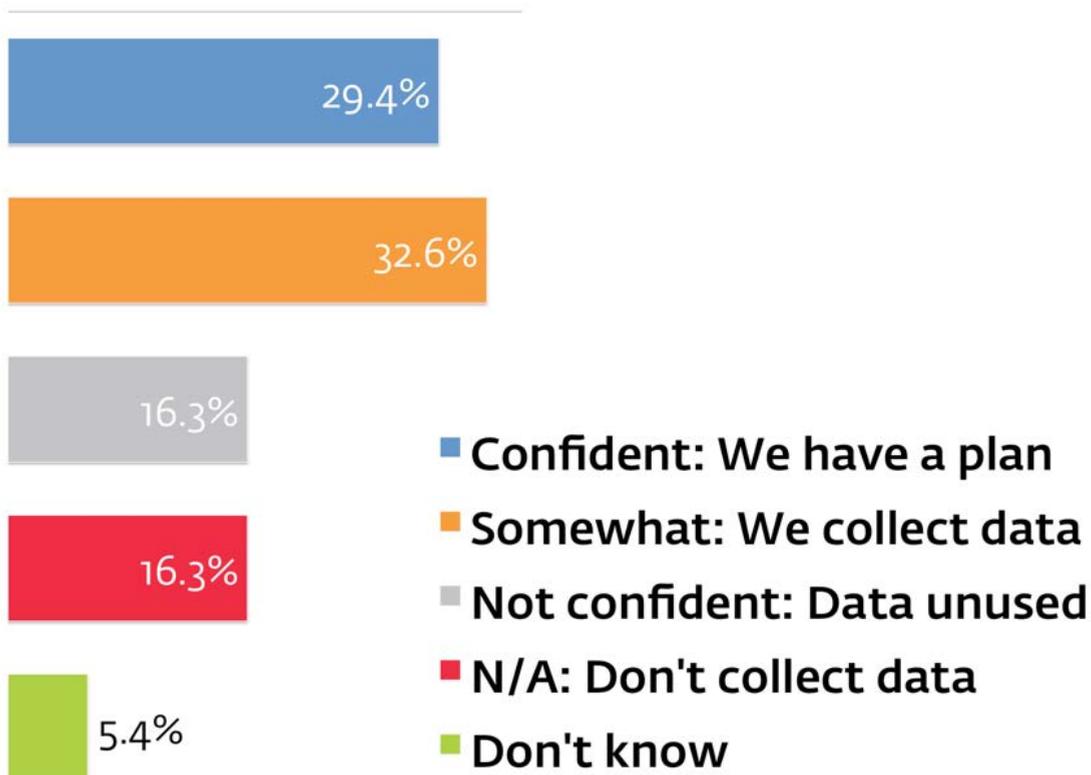
How are you measuring success or performance?



Deeper customer relationships, more so than revenue or new customers, was the top metric our respondents said they are using today, or planning to use. The only variation we saw was that software/tech companies put deeper customer relationships and new customers on equal footing as metrics, followed by revenue and "learning about target audience or market," which we also both tied.

What happens to the data generated

How confident are you in plans to use data from IoT program?



We asked respondents whether they had a plan for using the data generated by new connected products; whether they are collecting data and “are pretty sure we do something with it,” or whether the data is most likely not being used.

The most confident firms when it came to making use of data were software/tech companies, at 50 percent. Thirty percent of services companies described themselves as confident, and just 22 percent of product/manufacturing companies said they believe they have a solid plan for making the most of data.

The biggest challenges

Respondents told us the five biggest challenges they have faced, or are facing, in developing connected products are:

1. Making the business case

Representative comments:

“Selling right now must occur on vision and potential rather than quantifiable outcomes.”

“The financial benefits are uncertain and unproved, so getting enterprise support has been difficult.”

It is a challenge to justify “the investment needed to launch products for a fragmented market, with the main return being consumer data and not revenue.”

“Finding out how to make money from data streams.”

2. Developing the necessary technology capabilities

Representative comments:

“Doing stuff we’ve never done before with people that don’t have quite the right experience/expertise.”

Acquiring in-house software development capabilities.

Creating a consistent user experience across several product categories.

“Making it work in the first place, which is challenging enough.”

3. Getting sufficient resources or funding for projects

Representative comments:

“Finding bandwidth in the organization to research and develop the concepts. Other priorities overtake this all the time.”

“We have to fix our current systems and make an operational investment to be at parity before we can think about IoT and be a leader.”

“Buy-in from senior leadership (to invest \$ and resources).”

4. Identifying customers and persuading them to buy the solution

Representative comments:

“Technology is still expensive, so the cost-value equation doesn’t always work for customers that are not early adopters.”

“Informing customers about the advantages of a product that kind of creates a new category.”

“Finding a customer with the problem that IoT solves... (we’re doing it backwards).”

5. Ecosystem issues, standards, or working with business partners

Representative comments:

“Lack of communication standards. This is a challenge, since we make products that must be integrated in with many other products in a system.”

“Establishing the right partnerships to reach the target market.”

“Coordinating multiple suppliers.”

“Working within an ecosystem of products and technologies not fully under our control.”

Other commonly-cited challenges included setting the vision and strategy for connected products; getting the organization aligned around a specific opportunity; questions around data ownership and proper use; what some called an “immature” market that is slow to develop; determining whether one’s company should be created a connected product in the first place; and having sufficient patience to bring products to market and reap the rewards.

What are the success factors for connected products?

We asked survey respondents to rank the factors they feel will most contribute to the success of a connected product or service today, and in 2020. The **blue** text indicates a factor that respondents believe will increase in importance between 2016 and 2020; **red** a factor that decreases in importance. The only factor that respondents think will grow in significance enough to actually change how the factors are ranked is data privacy / security, which moves from fourth place to third.

TODAY	2020
Job to be done that product or service solves	Job to be done that product or service solves
User experience / design	User experience / design
Technology platform / ecosystem that it is tied to	Privacy / security
Privacy / security	Technology platform / ecosystem that it is tied to
Pricing model for the connected product or service	Pricing model for the connected product or service
Marketing/brand name	Marketing/brand name

Other success factors respondents cited:

- » “Seamless integration of the products into the context of our work or lives.”
- » “Ease of implementation.”
- » “Standardized protocols and data format (i.e. interoperability)”
- » Tying in to the right platforms, whether Google Android, Amazon Echo, Apple HomeKit, etc.
- » “Government regulations.”
- » “Real-time insight creation and automation of workflows.”
- » ”Retention of the consumer attention beyond the novelty of the experience.”
- » “Value proposition to the end user is the key success factor. Those solutions without adequate value will not succeed long-term.”
- » “In some cases, the value potential disrupts the current revenue model. Overcoming that takes time.”

The Keys to Creating an IoT User Experience That is Valuable and Meaningful for Customers

By Tom Burchard, VP, User Experience Design, Altitude

The ability to create real value and meaning must start with a with a deepened appreciation for customers' motivations and values. You first have to frame any IoT "job" from your customers' perspective, by looking at your business from the outside in. Sure you need to deliver on their functional needs, but equally important are their emotional and social needs. By looking at the world through their eyes, fresh eyes, you'll connect these people with your products in entirely new ways—ways that are far more meaningful than perhaps they once were. You see, innovation is about understanding people and creating product experiences that matter.

To successfully connect customers to valued IoT experiences, you need to follow four key steps:

1. **TELL THE RIGHT STORY** - Create an experience that inspires them and they'll tell everyone they know. Take a hard look at your business, and find the one story you want your customers to share, the one that makes their life easier and more meaningful. Then build your IoT offering around it.
2. **BUILD A LIGHTHOUSE** - Build a vision for what your organization could be, if all the parts aligned. Make it bold enough to inspire people to think differently about the job you do for customers. Give your organization something to dream about, and move towards.
3. **MAP THE JOURNEY** - Bring your big idea back down to earth. Use that vision to transform your current offering. Imagine an ideal journey for how people experience your product. How do you bring them from where they are now to the the place where they have the best experience? Map the big steps and the small details. Turn the journey into a roadmap.
4. **BUILD, TEST, LEARN** - Bring ideas to life by any means necessary - experiment. Make them real, make them quick, and make mistakes. Let people experience your solution and hear your story. Put your ideas in people's hands and see what they think.

Holistic approaches to IoT help create experiences your customers will tell other people about and come back for again and again. And just like in all well designed experiences, there are key elements that provide both rationale and emotional benefits. However, it's the key elements that elicit strong emotional responses that make the experience valued and meaningful.

How organizations will need to change

Many of the things respondents told us their organizations need to get better at will not surprise anyone who has worked to cultivate a new business inside a large organization. They need better-quality customer insights, delivered in days not weeks. The ability to bring in new kinds of talent, and collaborate with new partners. The nascent business may need some insulation from the existing lines of business for some time.

But some things are unique to connected products, like an elevated concern for data security and privacy in organizations not used to handling data from customers, or the ability to integrate these new data streams into existing IT infrastructure.

Most of all, respondents told us that there needs to be a serious and sustained commitment, if their company wants to launch something meaningful. “We need to decide that this is a priority for our products, and make the investment necessary to achieve it,” one respondent wrote.

The most significant changes our respondents see their companies needing to make were:

1. Developing new capabilities

Representative comments:

“We will need to substantially grow our development & prototyping capabilities.”

“Stronger muscle related to analytics...”

“Move from traditional hardware development to more software development.”

“We must bring in the right people who can choose a platform, test and learn, adapt and change, and try again. That is a mindset change in a manufacturing company such as ours.”

“Our sales organization will have to be trained on selling IoT solutions, or we will have to create a different sales channel.”

2. Laying out a new vision and strategy for connected products

Representative comments:

“Move from a quarterly focus on the future to a strategic plan (3 to 5 years) for how IOT will be used in the business.”

“Evolve to a data centric organization (invest in capturing data, robust processing of data, and decision-making based on data.)”

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“Create a vision/story that communicates the value of connected services .”

“A complete mindshift.”

3. Making changes to the organizational structure

Representative comments:

Need to set up IoT as a separate business before being fully incorporated into the mainline business.

“We are working on IoT development projects as part of a hardware training program. This needs to evolve [into something] more than individualized efforts.”

“The organization will need to continue on its current path of growing to meet the emerging and growing market for our community.”

4. Commitment to investing appropriate resources

Representative comments:

“We need to commit to investing in these platforms and developing services (apps, solutions, experiences) that leverage what we are best at, and taking that IP where customers are going and perhaps already are...”

“Need to invest in experience, cloud technologies, and partners.”

“We need to decide that this is a priority for our products, and make the investment necessary to achieve it.”

Need more funding for infrastructure and IT facilities.

5. Handling new data streams; be more open to partnering; willingness to accept risks (tie)

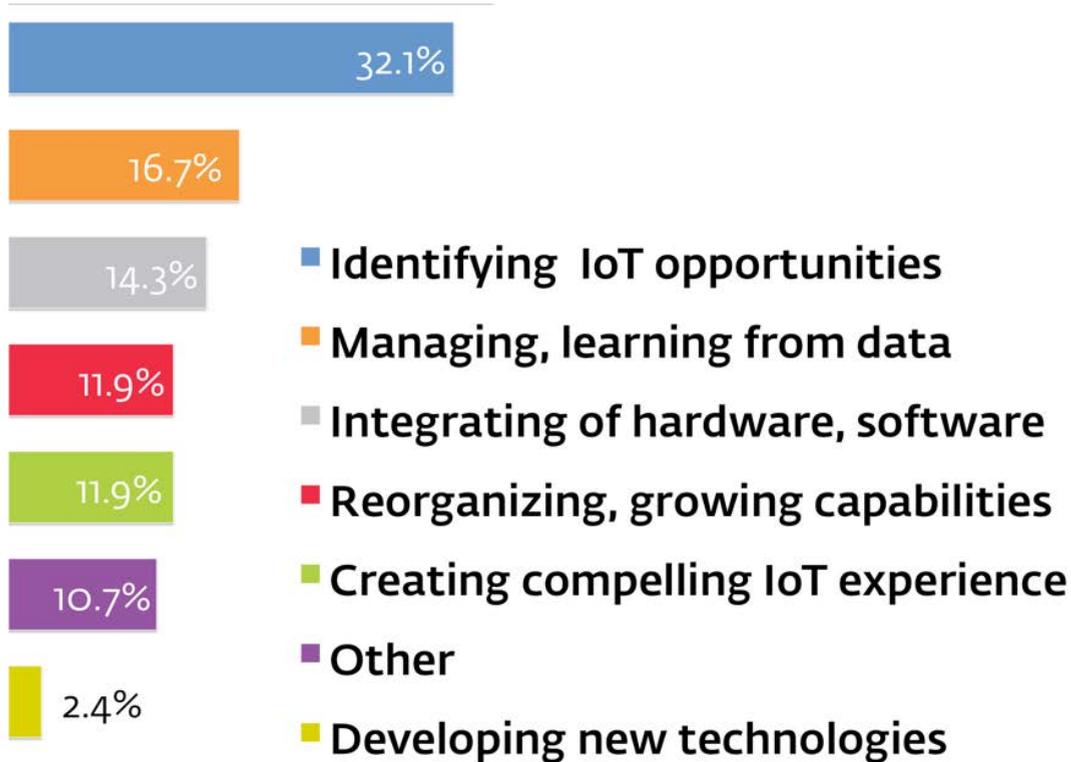
Representative comments:

“Very strict privacy and security controls will need to be in place.”

“Partnerships are key. IoT is a team sport: even the largest and most resource-rich organizations are going to find it hard to deploy IoT solutions unilaterally.”

“We need to continue developing a culture of experimentation with a purposeful disregard for existing processes.”

What does your organization need information on, help with?



Where are you looking for help or information?

Other answers: The cultural shift, “all of the above,” getting more investment and resources, customer systems we use are not up-to-date.

How To Identify High-Potential IoT Opportunities

By Dan Ostrower, CEO, Altitude

It makes sense that respondents would far-and-away cite “Identifying IoT Opportunities” as the area they need most help with, because doing it well means thinking differently than you do today. Too often, companies frame IoT opportunities from their own perspective. This leads to IoT experiences that don’t connect and don’t sell.

How NOT To Frame IoT Opportunities

Perspective	How the IoT Opportunity is Framed	Why it Leads to Bad Outcomes
Business: Increase revenue or profitability through IoT	Use IoT to drive more frequent recurring revenue with customers	IoT offerings and experiences end up being pushy and sales-driven
Technology: Leverage IoT’s unique technical capability	Use IoT to build “big data” about customers	IoT offerings and experiences end up being intrusive and self-serving
Category: Add connectivity to what I make today	Use IoT as a way to expand functionality of existing products	IoT offerings and experiences are frivolous, unnecessary or don’t serve real needs

Of course, any IoT offering must be viable for your business, feasible to create, and credible coming from your company. But to identify such opportunities, you have to first frame IoT from your customers’ perspective, not your own.

The way to find high-potential IoT opportunities is to discover and clearly articulate the functional, emotional and social “jobs” for which your customers use your products. Only then do you bring IoT into the equation by asking, “How can I use IoT to help them do these jobs even better, faster or more easily?”

To discover the “jobs,” you need to put preconceived notions aside, get out of your office and get into your customer’s world. Go to their homes or their places of business. Watch their whole journey with your product. Talk to them about their motivations and their values. Why are they really using your product? What functional, emotional and social outcomes are they striving for? Come back and put all the information on the walls and look for the patterns. Boil everything down into clear statements, in your customers’ words, of what they are trying to accomplish. This isn’t easy, and it’s going to take a few months to do well. But once you’ve done it you will have mapped your IoT opportunity space. You will have a bedrock understanding that can inspire a whole roadmap of IoT high-potential offerings and experiences.

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Innovation Leader convened a series of events and webcasts in 2016 focused on creating connected products. You can view the replay of a webcast we held with Ben Einstein of Bolt, which focused on emerging business models for connected products and IoT, at innovationleader.com/connected-products-webcast.



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Executive perspectives

“Connected devices are expected to transform nearly every aspect of how we select, purchase, and interact with products going forward. Investing in IoT is becoming a vital part of any company’s strategy to keep on the pulse of consumer interest and expectation.”

— Rachael Schwartz, General Manager, Keurig Connect at Keurig Green Mountain



“We’ve seen product companies increasingly embracing new services-oriented business models to mitigate the risk of major disruption. Embedded sensors in these company’s products are generating reams of relevant data that enable new business models and information services. To this end, IoT has become a strategic imperative for companies to maintain market leadership...”

— Mark Pacelle, Senior Director of Open Innovation/North America, Philips Lighting



“It’s going to take a massive mindshift for most companies, in terms of how they think about product development cycles, their teams, and hiring.”

“[They need] to first think small, prototype, and test, and then figure out how to commercialize and scale. It almost requires a mini-lab activity to just get something figured out and tested, and then if it resonates with customers, the company should start to seriously allocate resources. IoT is super-complex, and it’s not worth it for companies to totally realign around it unless they know for sure there is a hungry market (and, in turn, the tech functionality to actually make it a reality).”

— Dulcie Madden, CEO & Co-Founder, Mimo Baby



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“Obviously, from the survey data here, companies are struggling with the right use-case to apply the technology, and that makes sense. But more striking for me is the need to, first, get the experience right, and second, leverage the opportunity for turning data into powerful decisions.”

— Howard Kogan, President, Communispace



“20th century companies are crossing the chasm at the moment, as they move their core business model away from the transcendent technology of the 20th century (the industrial revolution) to a business centralized around the transcendent technology of the 21st century (information technology).”

— Ajay Kapoor, Corporate Innovator, Procter & Gamble



In conclusion...

Too many companies remain mired in the “exploratory” stage, not yet convinced that a world where billions of products have connectivity will mint a whole new set of winners among equipment-makers, software companies, and service providers. We’ve all seen where that path can lead: sometimes to irrelevance, and in other cases, to pricey acquisitions and an attempt to play catch-up.

As our survey revealed, there are plenty of challenges facing large companies: building new competencies, establishing new partnerships, investing patiently, and learning how to properly manage new data streams and privacy concerns.

And from the customer’s perspective, not everyone will be a bright-eyed early adopter. Last year, we spoke with Ashley Simmons, the Director of Innovation Development at Florida Hospital, a not-for-profit healthcare network with seven campuses in Central Florida that has rolled out some IoT technologies. “We’re wary of stuff that just adds cost and complexity,” she says.

That points to the need for simple and streamlined user experiences — and products in the B2B realm that provide demonstrable value.

But there are big opportunities here. Patrick Bass, the CEO of the North American business for manufacturing giant ThyssenKrupp, told us recently about an IoT system, dubbed MAX, that allows the company’s service technicians to do preventative and predictive maintenance on elevators. In the U.S., Bass said, the company is connecting more than 100 elevators a day to the technology. More than being “some nice-to-have differentiator,” Bass said, “we’re providing customer value through better uptime, less disruption. It’s a big customer win, and it’s a huge efficiency win.”

Looking for those kinds of jobs-to-be-done, problems to solve, ways to tap into new information flows, or opportunities to improve operational efficiency, is what ought to be guiding the development of connected products. Not a “science fair” mentality, or a rush to get something on the shelves for Q4.

We’re eager to see what you create, or to answer any questions. Drop us a note: editor@innovationleader.com. Thanks to our friends at Altitude (www.altitudeinc.com) for their guidance and input into this report; to Bolt (www.bolt.io); to C Space (www.cspace.com) and to everyone who participated in our 2016 events on connected products.

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