

Pitching Your IoT Project

How to Get Executive Buy-In



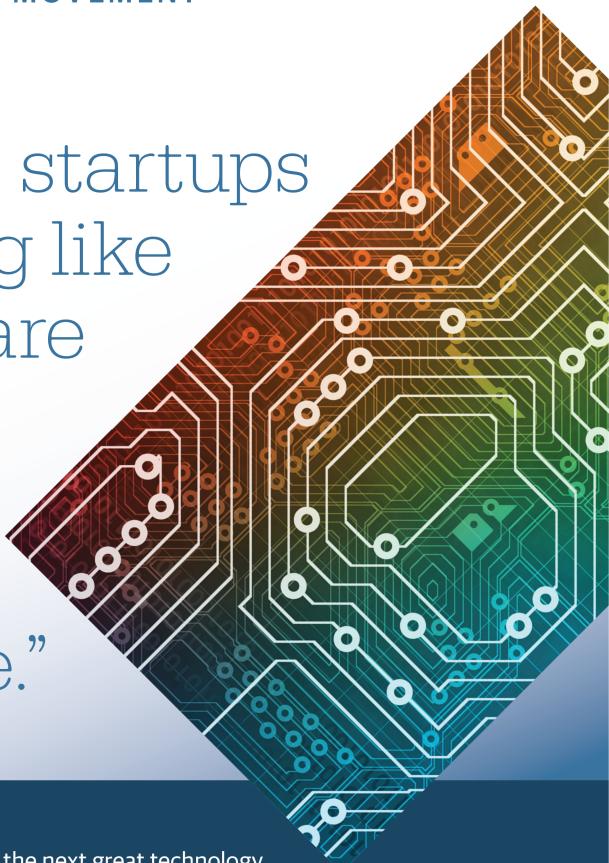
Andy Oram

Hardware

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“Hardware startups are looking like the software startups of the previous digital age.”

—Joi Ito



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Andy Oram

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by Andy Oram

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Pitching Your IoT Project

Many developers are chomping at the bit to become experts at current breakthrough technologies in sensors, embedded systems, mesh networking protocols, big data analytics—all the elements of what's popularly known as the Internet of Things (IoT). Many CxO-level executives are also interested in the IoT and how they can broaden their grasp of its potential.

But if you're a developer trying to get corporate buy-in for an IoT project, you need to understand that the pitch is somewhat different from one for a typical new product or technology buy. You will be implicitly (and perhaps explicitly) asking for new ways for departments within the company to communicate, new ways to make management decisions based on the data your project will generate, new forms of customer interaction, and possibly even major changes in staffing. Go in with your eyes open, and take the time to develop a compelling pitch that can lead to these outcomes.

Why is the IoT such a challenge to organizations that adopt its technologies? Consider a few example projects and their potential impact on a typical company.

One IoT project may connect sensors to machinery in your company's factory so that engineers can tell when heat, stress, or normal degradation will cause a machine to fail. This is not particularly disruptive to the company. Even so, your company will have to:

- Find engineers who understand the causes of machine malfunctions, and who can recommend or create sensors to accurately measure these warning signs.

- Redesign machines to incorporate these sensors, and not break the sensors during normal operations.
- Design software user interfaces and alert systems that allow maintenance personnel to receive warnings in a timely manner.
- Train maintenance personnel to check for warnings and adjust their schedules so they respond as needed (rather than following routine maintenance procedures).

Your company may also need to purchase new machines that will enable you to fully take advantage of the data that will be collected from the sensors, which might move the project into the “big data” realm.

The impact may be even greater in a situation where a company plans to have sensors incorporated into a customer-facing product, with the same goal of identifying failures before they happen. In this case, your company may need to:

- Consult with each department within the company (starting with the service group, which provides the original business case for adding sensors) to see what data they can use and how they can use it to improve the customer experience or streamline the organization.
- Evaluate all the likely circumstances under which customers deploy your products, so the sensors do not fall victim to **heat and cold**, jarring impacts, water damage, etc. They need a power source to keep operating over time, and must remain accurate even when subjected to electrical noise. Connecting previously unconnected systems also raises issues of security, a well-known risk in deploying networked products.
- Design protocols to collect massive amounts of data, databases in which to store it, and tools to analyze it.
- Hold discussions among marketing, PR, legal, and technical people about the ethics of collecting data and how to respect the different privacy preferences of customers.

The trend is clear: the IoT provides great promise, but challenges an organization from top to bottom. This fact should be an underpinning of the pitch you make to your executives.

Before Your Pitch

Some questions you may need to ask while developing your project pitch include:

- What business are we in, and where do we need to be?
- What kind of organization and management structure can succeed in this business?
- What kinds of staff do we need?
- What new kinds of technology may we need?

Before developing your pitch, hopefully you can talk to some CxO-level executives about their impressions of IoT technology and their plans for the future of your business. Michael Glessner, Director of Kalypso, an innovation consulting firm warns, “Do not approach such an important proposal from an information vacuum. Don’t guess; rather engage in meaningful dialogue with the key executive decision makers to ensure your proposal is immediately relevant to the needs of the business. That’s the most direct path to a funded effort.”

Do some internal research in your own organization to find out who in upper management may already be sympathetic to an IoT strategy. Decision makers are not functioning in isolation. Like everyone, they have been reading about the IoT and will realize that their industry will move in that direction. A frank discussion with such executives will help you choose a project that gets approved and implemented.

To help you in preparing your pitch, keep in mind some of these general reasons that companies invest in the IoT:

- Improve the product or the customer experience
 - Add new functionality, such as automating manual activities or reporting when wear and tear requires maintenance
 - Release products more rapidly, or offer automatic updates through software and the Internet
 - Remove effort from the customer and automate activities that used to be manual
 - Give the customers feedback on their own use and consumption, helping them reduce resource use

- Integrate the product with others
- Offer a new service, such as letting customers know better ways to use the product
- Improve access control for security
- Institute leasing licenses instead of purchases
- Improve the manufacturing or delivery processes
 - Report how the product is used to help differentiate markets, develop new products, and respond to long-term market shifts
 - Monitor the machinery that does the manufacturing for wear and tear
 - Support just-in-time delivery and similar efficiencies in the supply chain
 - Predict upcoming shortages of your product
 - Target stock more effectively
 - Support rapid prototyping

Keeping these larger company goals in mind may help you identify opportunities that might otherwise be missed.

Focusing on Benefits

Like any presentation to top-level decision makers, an IoT project pitch should focus on benefits to the organization. Emphasize ideas that provide better products, provide products faster, or result in additional services that improve the customers' lives and productivity, and build customer relationships.

In some ways, the pitch you develop will be like a pitch for any product. But instead of incremental improvement over current company offerings, you are recommending new practices that challenge the organization. Sample pitches might start like this:

- Our service department can discover imminent machine failures and provide maintenance before they occur. Potential benefits include happy and grateful customers (if the machines are in the field), more efficient use of staff resources, cheaper maintenance from catching problems early, and data we can use to identify weak points in the products and strengthen them.

- Our sales and marketing team would like to learn how customers are using our motorcycles so we can recommend new product features. We'd like to answer questions such as: Do customers ride the motorcycles to work every day or save them for weekend excursions? Are they partial to riding in certain types of weather? Potential benefits include getting new features to market faster, saving money by not designing in features that customers don't care about, and refining sales pitches to focus on known customer needs. In the long term, we may provide customers with software tools to plan trips and increase the use of their motorcycles.
- Our engineers would like to install **bed sensors** so hospitals know when patients get out of bed, and when they are staying in bed for long periods of time without moving. This will help prevent falls and bedsores, improving their care and revenues. Data collected from the beds can help them recognize what infirmities or treatments are associated with the falls and bedsores.

You get the idea. Every pitch hits the executives with some immediate return on investment but leads into a more visionary plan. Alan Cohen, author of the book *Prototype to Product*, suggests that, in more conservative companies that have been historically focused on physical products rather than software, you should frame the pitch to minimize risk.

A bit of fear-mongering is not out of place in your pitch. “You had better disrupt your business before some outsider does it for you,” says Andy Timm, VP, Technology Platform Group for **ThingWorx**, a **PTC** business. You can quite rationally remind executives that if they don’t enhance their production process or products, others will leap ahead by doing so. It is possible that a healthy industry of 10 companies could be reduced to a single one, if that one achieves massive efficiencies or wins the hearts of consumers with amazing new technological features. The winner might not even come from existing competitors, but from some hitherto unknown high-tech firm that just happens to decide that your little machine tools niche would be nice to add to their roster.

Also, as in the motorcycle example above, consider whether your company may be in a position to develop service-oriented software products, which could help establish long-term relationships with customers. Advantages of this could include:

- You can generate revenue continuously over a period of years from a single sale.
- Your revenue comes from software, which scales more easily and costs less than shipping physical products. (Software's incremental costs are marginal.)
- You can help your customers achieve goals they value and embed your brand more firmly in your customer base.
- The data you collect can be marketed for yet another revenue source.

The Impact on Your Company's Business

Although this report focuses on obtaining approval for your project from upper executives, you will eventually need cooperation from many parts of your organization to carry out the project successfully. For instance, if you plan on adding a service in a company that currently has only stand-alone products, you'll have bring in your sales and finance teams.

In order to launch your IoT project, your company may need to consider budgeting for and purchasing new technology. Depending upon the type of IoT solution you need to implement, **investing in technology such as an IoT platform** may be critical in supporting your project. A platform handles IoT "plumbing" tasks (connectivity, data collection, security, cloud-based functions), enabling a company to concentrate resources on product innovation and the rapid creation of applications.

Make certain that all parties are aware that many aspects of your business will be affected by the IoT, including development, architecture, platforms, and partnerships. You might also need to inspire suppliers and customers to join you in this journey.

Staffing could become a major block to achieving your goals. Don't underestimate the impact an IoT project will have or the resistance you will encounter. The goal of many information technology projects is efficiency, and efficiency often means fewer staff. At the same time, the data analysis required for such projects requires sophisticated statisticians (or data scientists, as they are now popularly called) who are in short supply. In this respect, your company will be competing with prestigious high-tech firms, deep-pocketed

financial powerhouses, and other organizations across all industry sectors for a limited pool of highly educated people.

Here is a sample continuum of alterations that various IoT projects might create in your organization. The evolution somewhat matches the well-known evolution in sophistication of data use (descriptive, diagnostic, predictive, prescriptive):

- As data offers new insights into product use and degradation, existing teams such as service and sales can incorporate it into their existing operations.
- Software can enhance operations. Augmented reality can help a technician fix a product. Monitoring can lead to predictive maintenance.
- Data can start to take over where it used to be a management prerogative to make decisions. Managers must be willing to follow the data, but preserve skepticism.
- New services can be built on data, supplementing or replacing things done by the customer or other parts of your organization.

Your company's relationships with suppliers, customers, and even competitors will change. Can you predict the effects of your company's evolution on the competition and what they're doing in turn? A strategic shift may turn former competitors into strategic partners or merger-and-acquisition possibilities. On the other hand, you may turn your suppliers and customers into rivals as you take over some of their functions.

Liat Ben-Zur, Head of Digital Technology for Phillips, says, “Companies that really *get it* with IoT are dealing with impacts on business models, new engagements, new ways of understanding customers, new ways to track what you used to track, new APIs. The IoT project affects development, architecture, platforms, and partnerships. To provide new value and better outcomes, you should collect data, analyze it across many devices, and become part of an ecosystem.”

Making Your Pitch

After considering all these factors and doing the prep work, you are now ready to pitch your executives. Here's some practical advice on the nuts and bolts aspects of this final step.

When to pitch

Cohen says that the decision about when to approach executives depends on the organization and its own readiness to discuss technological change, but that sooner is usually better than later. This means you should probably get executives' buy-in before doing market research or tapping the company's customers for opinions.

How to pitch

PTC's Andy Timm recommends that you start your pitch by showing, not telling. For instance, if your proposal involves collecting data about stress points in your machinery, create a little augmented reality demo that shows a video of a machine with superimposed numbers that indicate stresses. Timm has found that such visually-engaging demos achieve instant buy-in. Demos also help an executive grasp how a technology project can help the company's staff improve their productivity or their product—which, you'll remember, is our key goal.

"Save yourself 50 pages of PowerPoint about the business case," Timm says. "Let managers draw the dots themselves." Several companies offer IoT platforms that facilitate demo development, along with data ingestion, analysis, and many other elements of an IoT strategy.

Low-cost and flexible components such as Raspberry Pi or Arduino boards make it quick and cheap to build demos or prototypes. During a pitch, your prototype can establish that your technical requirements are reasonable. For example, it can show that you'll be able to collect the data you want, that you can produce actionable information that leads to a display or a change in a device's activity.

Pitch targets

Eventually, you'll have to win over all of your executives. But to start with, you'd like to pitch to someone who says, "Sure, I've been wondering how we can exploit his trend," not someone who says, "What's the Internet of Things?" or "Yeah, I've been

reading the hype and it's not for us." The right champion will come on board eventually, but you can move faster by starting with the already converted.

Developers have a lot of homework to do in advance of making a pitch. Setting up pre-pitch consultative discussions within your organization will give you insight on the factors that will influence your executives. Understanding the project's wider business implications—and including them in your pitch—will enable executives to more quickly evaluate the idea. Keeping your pitch focused on an IoT project's overall strategic value, rather than its technical features, will go a long way towards successfully achieving buy-in.

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Andy Oram is an editor at O'Reilly Media. An employee of the company since 1992, Andy currently specializes in programming and health IT. His work for O'Reilly includes the first books ever published commercially in the United States on Linux, and the 2001 title *Peer-to-Peer*.