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A CONNECTED-PRODUCT STRATEGY GUIDE

IoT Readiness in 11 Steps

Are you ready?

The world we live in is changing fast. Devices in our homes, automobiles, factories, and cities are coming online, and this Internet of Things (IoT) phenomenon has profound and exciting implications for businesses and consumers. Connected products can lead to increased revenue, reduced expenses, and a more engaged customer base. But the key to success tomorrow is directly proportional to your organization's ability to navigate IoT competency barriers today.

Before this "IoT" term was even coined, the Exosite team began accruing a wealth of experience and expertise in connected-product technology and business strategy. We've condensed and refined our combined knowledge into this extensive guide that includes eleven vital steps to help your company prepare for IoT and accelerate your path to success.

Understand your customer needs.

A successful connected-product strategy starts with the foundational element of understanding your customer needs. This will help direct your go-to-market strategy, inform important technology and trade-off decisions, prioritize your development efforts, and set internal expectations about the results.

But simply understanding your customer is not enough—successful IoT solutions focus on addressing their needs, rather than merely piecing together technology without a clear vision. The questions below should serve as a primer to help you clearly identify the value your IoT solution will provide to your customer:

- **Identify Key Challenges**
  What are the challenges or behaviors your customers face that could be improved through a connected-product experience? Will users adopt this solution?
- **Qualify the Problem**
  Is this a problem that is worth solving and would there be a financial impact if you did? If so, how will you attribute the success to your product? Will customers actually pay for this?
- **Understand the Business Impact**
  What is the business value of this product? Is it helping your organization sell more existing products and services? Are you saving money through new efficiencies? Or are you generating new sources of revenue (e.g., recurring software licensing or access to data)? Perhaps it's a mix of all three?
- **Complete Qualitative Research**
  Have you performed formal research with potential customers and users to hear them articulate their challenges free of any new product pitches?

Additional Resource
Article: IoT for Durable Goods Manufacturing

Align your organization around a clear vision.

Making the shift from a product company to a connected-product company requires a multitude of organizational components, including people, processes, market knowledge, new skills in new areas, and effective communication. In order to make this shift successfully, your entire organization must clearly understand the IoT vision and be empowered to execute it.

Provide Strategic Clarity and Executive Sponsorship

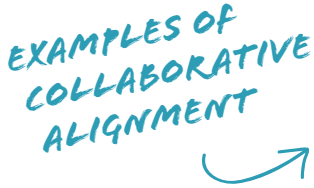
Piercing clarity from the top about how IoT affects the strategic triumph or failure of your company will lead to an increased probability of success. Executives should create a clear, compelling, and actionable vision for the future that explains core differentiators for your business.

Encourage Cross-Departmental Participation

Adding connectivity to your product will impact every area of your organization. Early on, develop and implement processes that require all relevant parties—from marketing and sales to manufacturing and support—to actively engage with each other to understand the functional impact of connectivity on their roles, responsibilities, interactions, and deliverables.

Create an Adaptive Culture

Although change is hard, your corporate culture must be able to adapt quickly to new market pressures, new technologies, and new ways of doing business in order to make the shift to a connected-product company. Foster a culture of innovation by focusing on early successes with IoT, identifying new processes, learning from market failures, and empowering IoT leaders within your organization.



- **Accounting handles recurring subscriptions**
- **Engineering manages cloud computing**
- **IT deploys software updates and triages security breaches**
- **Support teams diagnose connectivity issues**
- **Marketing understands true customer needs**
- **Sales sells the product**

Additional Resource
White Paper: An IoT Framework for Industrial OEMs

Establish your monetization strategy.

An unrefined business model poses a significant risk to the success of your connected-product deployment. It's important to carefully consider the applicable business models to identify one that best suits your product, organization, and target market. As you develop your model, make sure you examine the comprehensive impact to topline revenue, expenses on the bottom line, and competitive positioning in the marketplace.

Revenue Generation

The value-added features of connected products lend themselves well to a revenue-generating business model. As a part of this model, you'll need to consider whether the costs associated with connectivity will be regularly charged to your customer, built in to the cost of the hardware, or subsidized by network carriers or insurance companies. If you'll pass the costs of connectivity on to your customer, ensure the necessary infrastructure, integrations, and workflows are in place to bill customers and collect payment.

Expense Reduction

If your organization is most interested in the predictive and proactive nature of connected products, you may benefit from the expense-reducing business model. Under this model, you need a realistic and proven plan to ensure the expense reductions associated with the connected product will offset the costs associated with its development and deployment.

Free

A business model where connectivity is offered free of charge works well if you plan to use the collected data for internal purposes. This model allows you to offset the costs by leveraging your IoT solution to enhance differentiation from competitors, streamline customer service processes, or gain insight into customer usage and product performance.

In addition to the primary business model categories discussed above, there are many others to consider, including hybrid models, subsidy models, pre-paid models, advertising models, and more.

Additional Resource
White Paper: Monetization Strategies for Connected Products

Understand data collection.

As suggested earlier, the real value of your connected product is its ability to solve tangible problems for your customers or users. Data from connected products can be used to identify patterns, alert the right people about system-level performance, understand user behaviors, and help support teams diagnose and resolve issues in the field.

However, these types of solutions aren't possible if the right data isn't gathered in the first place. In order to collect the right data:

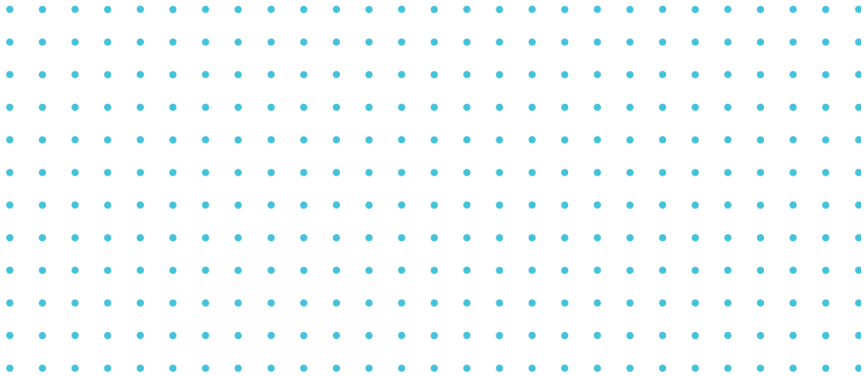
Pinpoint the questions you need to answer or problems you want to solve for both your internal teams and external customers.

Identify what data you need to collect in order to answer those questions or solve those problems.

Consider the necessary data and reporting frequency ideal for your solution, since the frequency and volume of data directly influences operational expenses.

Establish a reliable and consistent way to aggregate the data and take into consideration any regulatory or compliance considerations.

Assuming you can reliably get the right data at the right frequency, you'll also need to ensure the data is being leveraged in a way that's valuable to stakeholders. Carefully consider the immediate day-one value your data provides to interested parties, as well as the longer-term value of aggregating that data over time.



Additional Resources

White Paper: Data Analytics for IoT

Article: The Voice of Machine Learning Starts and Ends with Humans

Article: Best Practices in Predictive Maintenance for Connected Industrial Equipment

Identify your system architecture.

Designing and developing your system architecture is one of the most important aspects of your connected-product effort. Because you and your customers will depend on the accuracy of the data being collected to make data-driven decisions, it's important to make sure the ecosystem you create includes all of the integral components and is stable, dependable, and scalable.

Edge-Device Ecosystem

Consider each component that gives your device the "Internet of Things" label, from sensors, hardware connectivity, edge computing needs, and communication protocols.

Hosting Systems and Administration

Understand the environment that will run your applications and handle all of the behind-the-scenes operations, maintenance, and monitoring necessary for a successful IoT product.

Back-End Web Development

The back-end needs to support secure data storage, as well as analytics and integration with services like device provisioning, push notifications, user access and permissions, API services, and third-party services.

User Experience Design

Focus adequate attention on user experience, including research and validation of what users need and how they can intuitively use your product.

Front-End Application Development

Choose a front-end framework that supports the common libraries and integrations that will make your application easy to implement and maintain.

Billing and Payment Management

Connectivity can create an opportunity for recurring, monthly revenue, so you'll need the relevant processes and business systems in place to handle these types of recurring transactions.

Integrations and Services

An IoT platform must support ways to integrate with other business systems to extend its functionality and enable better business decisions at the enterprise level based on machine data and user behaviors.

Additional Resource

Blog: IoT Strategies- Selecting Your Technology Framework

Decide where to build, buy, or partner.

Once you understand the architecture components to consider when creating your connected product, it's time to figure out how you actually put that ecosystem together. Determining where to build, buy, or partner is key to ensure you bring a full IoT experience to your users. You can do it all on your own, but it often makes business sense not to.

Build

Pros:

- Gives complete control over your IoT solution
- Utilizes in-house expertise
- Enables customization of your application

Risks:

- Knowing enough to get started, but not enough to succeed

Buy

Pros:

- Doesn't require in-house expertise
- Reduces time-to-market and risk
- Allows you to focus on your subject-matter expertise

Risks:

- Constrained by purchased products and integration complexities

Partner

Pros:

- Extends your product's capabilities without monetary investment
- Adds revenue share or value trade
- Boosts marketing efforts with partner networks

Risks:

- Overuse of resources on uncommitted partnerships that don't return value

Additional Resource
White Paper: Solving the IoT Puzzle - Build or Buy

Understand your costs.

Bringing a product into the digital age requires a willingness to disrupt outdated business models, and budgeting for an IoT-enabled product implementation is likely to introduce some unforeseen considerations. Remember, when it comes to investing in IoT hardware, software, and human resources, what you pay for is what you get.

Hardware

Smart sensors, connected gateways, and other cloud-connection electronics are crucial building blocks in any IoT solution and will account for a large portion of the operating cost. It's important to invest in the right hardware and ensure it's reliable and efficient. Be sure to also consider the feasibility of hardware costs as your project scales.

Software

Manufacturers investing in IoT infrastructure often find themselves becoming a software company for the first time. Whether you intend to build your own software in-house or work with an IoT platform provider, your budget should include room for new ventures such as software hosting, app development, and ongoing support.

Humans

With all the talk these days of intelligent machines, it's important to remember that talented people remain an irreplaceable commodity in any successful IoT endeavor. Skilled developers, engineers, and IT personnel with real experience in cloud technology may come with a high asking price, but the right human resources can make or break your IoT project.

Additional Resource

Article: 6 Early Symptoms Your IoT Initiative Will Fail

Develop a security strategy.

The insight, conveniences, and power of the Internet has drawn in thousands of mission-critical assets and systems. With this increased power comes the increased risk associated with Internet-connecting multi-million dollar equipment capable of causing harm to personnel and other systems. In order to create a modern, pragmatic approach to IoT security, it's important to pull from both technology and culture equally to be effective.

Put Security First

Security should be central to the delivery of your IoT product. All decisions made in regard to your IoT platform should prioritize security over the delivery of feature requests. When necessary, security should take priority over usability based on the level of risk associated with a data or control breach of your IoT application.

Understand the Core Technology Concepts

Develop an understanding of the core technology concepts in the realm of IoT security—data, control, and hardware. These concepts can help organizations learn how to better prevent attacks, mitigate impacts, and recover from attacks on IoT systems.

Incorporate Defense in Depth

Layering proven security technologies to create depth yields better results and deters breaches. Hackers typically gain access through incremental steps in which they throw the widest net possible to find the most vulnerable systems. Learn about the strategies that can be used to respond to attackers at each step of their process to minimize the impact of hacking events.

Additional Resources

White Paper: Best Practices to Build a Pragmatic Security Strategy

Webinar: IoT Serious-Humans, Machines, and Building a Culture of Security

Article: 5 Best Practices for Winning the IoT Security Arms Race

Ensure Everyone Feels Responsible

Your employees, users, and coders should feel personally responsible for the safety and security of the devices connected to your network. Every stakeholder should take time to evaluate their impact on the security of the system and, those who can, should design in safeguards when possible to protect against and minimize the potential impact of attackers.

Constantly Reevaluate

Improving your security technology, regularly testing systems, patching often, and spreading secure cultural ideals throughout your company should be a constant effort. Encourage your employees to provide feedback for improvement and to take proactive security measures to keep ahead of hackers at every opportunity.

Develop a go-to-market strategy.

Speed to market is important, but a fully-functional connected product isn't the only measure of market viability. It's never too early to plan your go-to-market strategy to ensure you're ready to take your market (and your competition) by storm.

Map Your Product's Journey

Consider the major operational channels needed to take your product from factory floor to customer door: manufacturing, sales, distribution, and support. Although you likely have these processes in place, connectivity can add an element of complexity to each.

Know Your Product's Purpose

Start asking "Why?" from the beginning because connectivity for connectivity's sake means little if it's not useful to your customers and product users. See our first checklist item about understanding your customer needs for a good place to start.

Differentiate Your Product

Ask "What does my IoT-enabled product have that no one else's does?" The unique attributes of your offering are likely to be your primary selling points, and you'll need to be able to articulate them clearly to your target audience to be successful.

Study Your Competition

Research competitors that have already introduced connected products. What's their target audience? How are they selling it? What were their big wins and losses? What seemed to work well and what didn't? How will your product offering differ?

Determine Your Pricing

Your IoT product could solve all your customer's problems, but if it's too expensive, they won't pay for it. Limit the scope of your vision to what's affordable, and use the data to show how your product provides tangible value to your users that makes the price worth it.

Train Your Sales Force

Provide your sales and marketing team with a little IoT 101 so they can properly show your customers how it all works, convey the value of data aggregation, and build trust in the steadfast security measures you've put in place.

Additional Resource
White Paper: IoT Strategies for Diversified Businesses

Establish an early-feedback strategy.

Before deploying your first connected product, you should ask yourself: will my customers actually use this? By developing and testing a project over a series of stages, you'll be able to find the failure spots fast and change course accordingly.

Proof of Feasibility and Rapid-Prototyping

Before you get too far ahead, you should prove the viability of the concept, product value, and technical feasibility. Connecting the basic components quickly allows you to test the idea, and your team's knowledge, before you invest larger amounts of time and resources. Through experimentation with the technical aspects, you can eliminate some of the unknowns of development.

Early Prototype to Initial Proof of Concept

Prototypes are quick, focused, and limited versions of a functioning concept that help to confirm design assumptions and enable initial user testing without worrying about factors like long-term costs, regulatory compliance, etc. Letting people interact with (or potentially break) the product helps to point out the exact points of failure. Users can also give qualitative and quantitative feedback, which you can use to improve the experience for your customers.

Pilot Release

Pilots are often a limited release of the complete product that enable a test audience to validate the business case and catch any design errors before the full production release. Exposing the product to some tough love and real-world factors helps you ensure it's ready for prime time and gives you a chance to establish sales and usability metrics to gauge successful customer interaction with your product.

Commercial Release

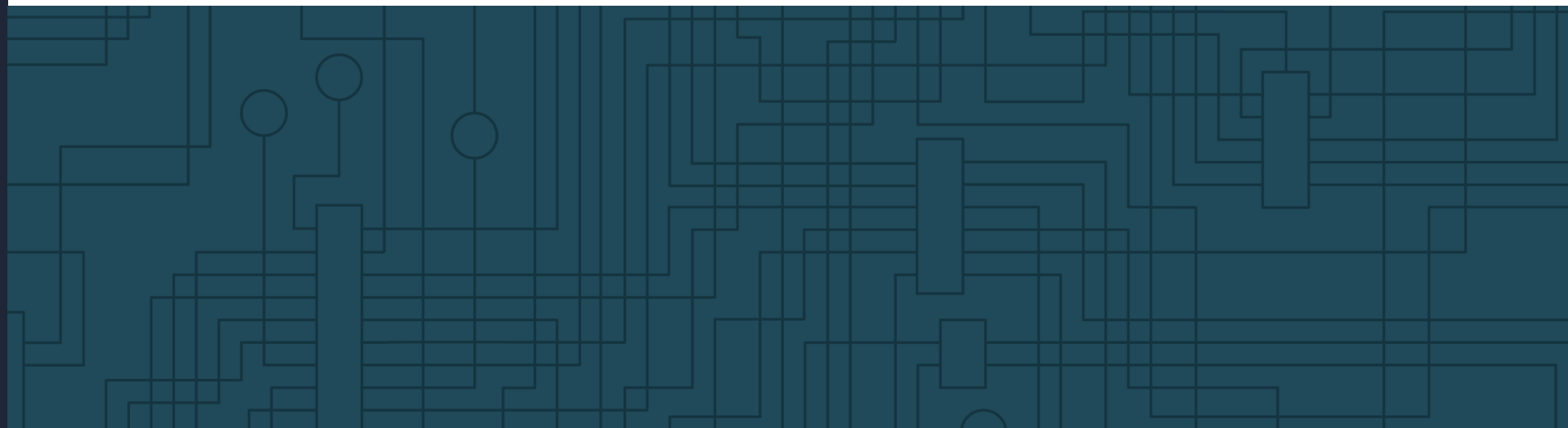
Unleashing the full product to the market for general availability is the goal of all organizations, but it shouldn't be the end by a long shot. Capitalizing on the connectivity of your product allows you to see how customers use it and acquire insights for the next iteration and continuous improvements.

Additional Resource
Article: How the Internet of Things Is Changing Corporate Innovation

Prepare to support your product in the field.

Although product development often consumes most of an organization's time, focus, and investment, the effort to support that product once it's launched plays an equally important role in its success. This is especially true with connected-product fleets, as they require you to provide support in a way you likely never have before.

- **Product Installation**
  Consider whether your connected product can be installed by the end user or if technicians need to be trained, hired, or contracted to support that process. In either case, you'll need to identify how individuals can get help if installation issues occur.
- **In-Field Support and Troubleshooting**
  Develop a strategy to provide first-tier support to end customers, including a support website, support hotline, and end-user documentation. You should also develop product training programs, communications, and tools that enable your support teams to remotely diagnose, troubleshoot, and fix issues.
- **Support Cost Structure**
  Consider whether you'll provide product support for free, charge on a recurring or one-time basis, or offer some combination of both. If you plan to charge for support, you'll need to ensure your organization has the necessary processes and business systems in place.



Now’s the time.

Transitioning your product company into a thriving, connected-product enterprise is an endeavor that requires a deep understanding of your users, strategic alignment throughout your organization, smart technology decisions, frequent market feedback, and perseverance in operational excellence. In our experience, companies that focus on the eleven key steps in this guide have the most success in turning IoT innovation into a competitive advantage.

As you work through these decisions, strategies, and tools now, you’ll build a body of knowledge and experience that will make planning future connected-product innovations much easier. Throughout the process, focus on identifying reusable processes and components that will enable you to save time and money on future product lines.

Let's get together on this.

Now that you know what it takes to be IoT ready, it's time to move your connected-product strategy forward—but remember, you don't have to go it alone. We're ready to help make it happen.

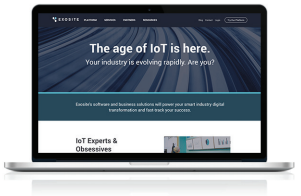
Exosite is an IoT software company with locations across the globe. Our unparalleled enterprise software and business solutions ease the hardships of IoT implementation. Our elite team of IoT experts and obsessives has a wealth of experience in smart technology. We engage with leading manufacturers to drive their connected-product strategies and steer them to quick market wins. With our secure, single-source platform and rich ecosystem of tools, partnerships, and professional services, our clients gain valuable insight into their products and the people using them.

In a connected world, the possibilities are endless. Connect with us.

Get in touch with our team to talk about accelerating your IoT initiative.

murano™
IoT PLATFORM BY EXOSITE

Check out our enterprise IoT software platform, Murano™.



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