

How to buy IoT

For many people in the planning stages of their IoT innovation, it can be difficult to know where to start. Depending on where your IoT journey begins, you may need to refer to the entirety of this IoT purchasing primer or simply familiarize yourself with the latter half.

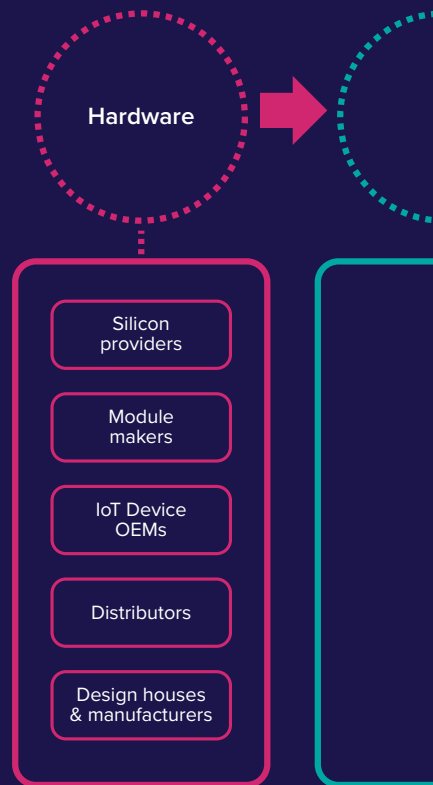
If you're an OEM with hardware expertise, looking to simply integrate IoT into currently existing products, then your focus may fall entirely around finding the right solution provider for your end users. For innovators looking to create a brand-new device for an IoT project, you may need to carefully vet your technology vendors to ensure they're able to meet your requirements. Have a look at the diagram above to get an idea of the current IoT ecosystem landscape.

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Hardware

Setting out to build a solution or product that uses IoT devices in the field requires you to source the right hardware fit for your requirements. Take a look at the list below to find out which of these IoT hardware ecosystem players is the best fit to help you make progress with your IoT project.



SiPs (silicon providers)

The very beginning of the IoT supply chain starts with the silicon providers, who create the computer chips/processors used in the hardware that goes into devices, the “things” in the Internet of Things. For many potential IoT adopters, you may not have to deal directly with the silicon providers, as you’ll most likely be purchasing devices off the shelf and adapting them to suit your needs or creating devices with the help of design houses and manufacturers further down the chain.

The entry point for most organizations looking to create a device or IoT solution is at the hardware level. Let’s dive into the various sectors of the hardware market: module makers, design houses and manufacturers, OEMs and distributors.

Module Makers

An IoT module is a small electronic device embedded in objects, machines, and things connected to wireless networks and sends and receives data. Sometimes referred to as a “wireless module”, “rf module” or “IoT chip,” the IoT module is a critical component of an IoT device, allowing it to connect to networks and transmit data.

If you’re not picking a fully-fledged IoT device off the shelf and instead want to cater to your exact requirements and design a device, then you’ll need to choose a module that is best suited to your needs.

Design houses & manufacturers

For organizations who don't have IoT device design capabilities in-house, outsourcing the build of your devices to a design house can be an ideal solution. As the name implies, the main focus for services offered from a design house is electronics design. Some design houses can offer a full range of electronics design services including both hardware design as it related to electrical and electronics, and software design, across a wide variety of product end markets.

A classic challenge in the IoT market is the "build vs buy" question, and there is no easy answer. For some, a bespoke solution might be necessary (though more expensive and time consuming), when an off-the-shelf device simply won't fit their needs. In these cases, partnering with a design house will enable you to better leverage your in-house resources while outsourcing the more difficult tasks like manufacturing.

OEMs

OEM stands for original equipment manufacturer and is a term used in a variety of ways, often quite ambiguously. OEM usually refers to an organization that manufactures products that are comprised of component parts created by other companies. Confusingly, it can also refer to a manufacturer that creates parts which are used by other businesses in their end products.

By obtaining hardware directly from the OEM, generally you'll benefit from better pricing structures and warranties, and, if you need slight alterations and a more bespoke hardware design, you'll be able take advantage of their device expertise. However, dealing directly with a manufacturer may require significantly bigger order quantities in order to qualify as a customer, so keep that in mind.

Distributors

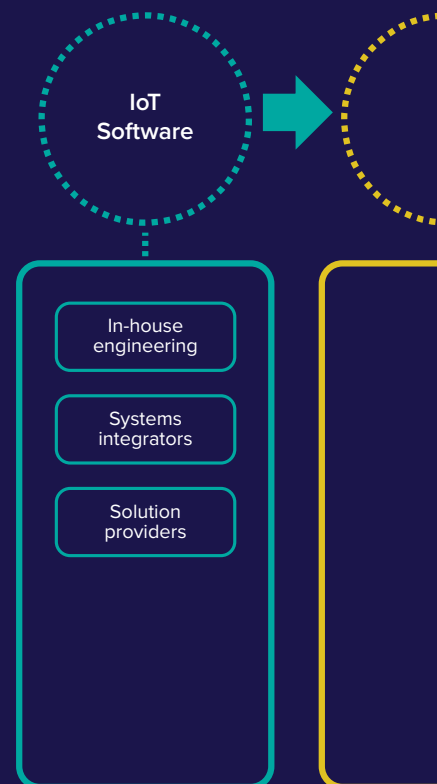
As the name implies, distributors take the products manufactured by the OEMs and handle their distribution via a range of channels. If you weren't able to order a large enough quantity of devices to work with an OEM, you'll usually purchase directly from a distributor instead. Smaller quantities can mean a lower overall cost for your project, so a distributor can be the best option if you know exactly what you need in terms of a hardware, for a small Proof of Concept deployment.

Software

Once your hardware is chosen, you'll most likely be working with a solutions provider or systems integrator to complete your project.

Whether you're assembling an IoT device from the group up, running an IoT application on off-the-shelf hardware, or somewhere in between, your IoT system is going to require software running on the devices to capture data, give you the physical control that you need, and critically, encrypt and securely transmit data back and forth from your end application.

This list of IoT vendors can help you implement the firmware that you need. They'll have one eye on your hardware platform, and another on the larger IoT solution application development.



System integrators

A systems integrator would likely take care of providing an off-the-shelf device and integrating it into a wider solution. If your company is planning on designing your own device, most likely you would be handling deployment internally (if you have the capabilities in house), otherwise you would look to get support from a systems integrator. These organizations are also called service providers, you can usually use service provider and systems integrator interchangeably.

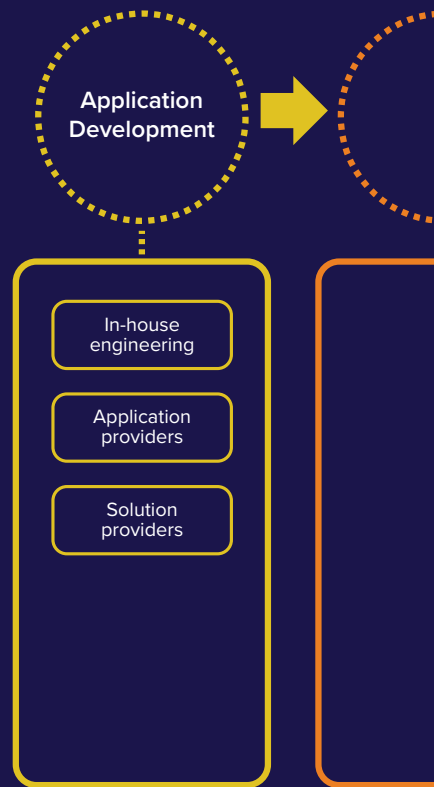
Solution providers

In the IoT market, a solution provider generally sells their own device plus any associated software as part of a fully developed, wider solution. They aim to make their devices easy to pick up and deploy, and with the massive range of solutions offered by these businesses, you may find exactly the features and functions you've been looking for, without the overhead of developing a bespoke solution.

Solution providers offer a wide variety of tried and tested IoT solutions, from asset tracking devices to smart city infrastructure to predictive maintenance solutions. This might be the simplest option for anyone looking to integrate IoT into their business in an easy and effective way, with modular solutions that can be flexible enough to fit any requirement.

Application development

With devices built, connected, and communicating securely over the network, you'll need an IoT application to translate your new data sources and device controls into actionable, valuable insights and options. It's at this stage of your IoT solutions development that industry know-how and your key factors for success get integrated into the finished product.



Application provider

For your end users to access your IoT solution, you'll also need an application-based service available for them. The application service provider (ASP) offers design templates, coding, and network access services for your IoT application, either over mobile or computer. By leveraging the expertise of an application provider, you'll avoid the usual high costs of designing specialized software as well as the typical complexities of distributing software to your end-users. In addition, the ASP also takes responsibility for maintaining up-to-date services as well as 24/7 technical support.

Management

With the main system development completed, it's tempting to tick the job of building your IoT solution as done. Before you close down your efforts, you'll need to have the services in place that keep your solution or service up and running, so that you have reliable data and can offer a service that your customers can trust. Look for vendors that specialize in providing enterprise grade system admin and management services that will give your operations teams the tools they need to check device and system health, optimize efficiency and cost, and generate alerts if business critical events occur.



Connectivity management

So, your IoT device or solution is ready for use. Instead of shopping around for specific operators or getting locked into one specialized form of IoT connectivity, look for a connectivity provider which can help guide your path depending on your specific needs. Your provider should offer a comprehensive, fully-managed, and end-to-end service incorporating connectivity provisioning, network access, secure data delivery, and compliance – all delivered on a single contract.

Device management

Many organizations often overlook the potentially huge challenge of managing their custom-made, newly deployed IoT devices. Once deployed in the field, devices must be onboarded seamlessly, activated for the right services, managed with the proper credentials, and updated remotely as needed. Managing all these requirements manually can be a logistical nightmare for many businesses, which is where a device management provider steps in. By using device management software to automate many of these tasks, you'll save time, money and resources.

Data management

Too often, the flow of data in an IoT system can be likened to the blast of a firehose, with massive amounts of insightful, business-critical information being created, sent and processed 24/7. By turning to a reliable provider for your data management needs, you can be assured that your data will be handled securely, thoroughly analyzed and key insights returned for your consideration and implementation.

Work with us

The most important decision in gearing up for a Proof of Concept isn't necessarily which hardware to use or which application designer to employ. Your main goal from the start should be to work with experts who know the IoT ecosystem inside and out, who can guide you on your path and ensure you make the right choices at the right time and arrive at the best possible outcome for your business.

Want to know more? Get in touch with us, we'll help you get started.

Contact us

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