

What to look for in an IoT solution

Driving efficiencies while improving the bottom line



Connected Solutions

A PwC Product

The internet of things (IoT) presents a world of possibilities for today's businesses that depend on digital commerce and connectivity. Trends among consumers show readiness and adoption — think virtual assistants and smart appliances. IoT is poised as one of the “[Essential Eight](#)” technologies that will have the greatest impact across industries over the next five years. It can combine with other essential tech, like blockchain and artificial intelligence (AI), to authenticate products and verify supply chains. IoT-enabled devices can deliver augmented reality (AR) experiences that provide controlled spaces for people to practice complicated activities, like flying aircraft, performing surgery or constructing sophisticated systems.

The applications for upskilling and prototyping abound, but so do other use cases like predictive maintenance and simulation modeling. And IoT is now mature, and inexpensive enough, to drive significant business outcomes. IoT components, such as motion sensors are more inexpensive than in years past. Enlisting technology collaborators to implement an IoT ecosystem can make it easier to get started, gain a competitive advantage and get on your way to reducing operating and energy costs while increasing security.

Let's look at some common benefits across retail, manufacturing, healthcare and hospitality to help you determine what to look for in an IoT solution.



Rethinking retail spaces

From warehouses and supply chains to store designs and customer interactions, the right mix of sensors, devices, software and systems can introduce a level of intelligence to retail spaces.

There's a lot of opportunity to reduce friction and create value for both consumers and retailers.

IoT can enable product tracking across a supply chain to reinforce proper storage requirements. Retailers can use biometric technologies like image recognition to detect when customers are in their stores and then send them relevant promotions on their smart devices. IoT also opens up the possibilities for alternate payment systems. Large clunky registers and other point-of-sale terminals can be replaced by smaller handheld devices. Employees can ring up customers anywhere in the store.

Prime real estate that used to be occupied by sprawling checkout counters can be transformed into merchandise displays or other enticing, creative spaces. Looking for inspiration about what to put in those newly opened up areas? Pair your IoT solution with data aggregation and analytics to help you glean insights into business trends and consumer buying habits. These insights could include who buys what and when they buy it. Is the weather affecting consumer shopping? Are traffic patterns? What other environmental issues are coming into play?

IoT is making it possible for companies to interact with consumers and extend the reach of their existing products and services. Retailers should adopt these connected technologies, or risk being left behind by competitors.



Linking customers to product manufacturers

One of retail's competitors might be the manufacturers themselves. There's a growing trend for consumers and business customers to seek direct links to the source of the products and services they use. The scale of the industrial products sector — and its potential for device connectivity throughout the supply chain and with customers — might eventually dwarf the size of consumer IoT. The potential benefits for manufacturers and consumers are that promising.

Let's take the example of a company that makes refrigerators. They've invested in IoT sensors that allow them to monitor and maintain the smart, connected appliances they sell. These sensors can enable the company to track performance remotely, detect problems before they occur and alert customers so they can get the needed maintenance to keep their refrigerators running smoothly.

So how do you build this kind of connected operation that delivers high levels of customer service and satisfaction? It takes more than just connecting appliances and devices to the internet and your business's other systems. You should address the behavioral, operational and business model impacts of IoT. The shift to embracing IoT can be worth it — think expanding revenues and fostering customer loyalty — but it's a change that increasingly involves progressing from product-based to service-based offerings. Be prepared for a mindshift.

This is about getting closer to end users to create a degree of direct customer engagement and interaction that most manufacturing companies don't experience. It means running responsive customer management programs like service helplines. It means that it's not enough for the appliance company to be able to alert the customer about a problem with their refrigerator. The company also needs to have the ability to engage with the customer about next steps, like scheduling a service call and deploying a technician.



Enabling the internet of medical things

This rise of customer connectivity is also impacting the healthcare sector. During the pandemic, virtual doctor visits became more normalized, and the Centers for Medicare & Medicaid Services (CMS) expanded remote patient monitoring, a trend that continues to benefit certain patient segments.

As people become more comfortable with virtual experiences, the demand for remote patient monitoring increases — and so does the need for the right connectivity to make it work.

The rise of IoT is now enabling the internet of medical things (IoMT).

Remote patient monitoring can be a boon for people who suffer from chronic illness or who need consistent eldercare. It can help those patients live more independently for longer stretches of time. Rapid response buttons powered by IoT sensors can alert healthcare workers to a patient who needs assistance. And automated notifications about changes in patients' normal behaviors can help them make judgment calls about proactive interventions, like sending help to their home to check in with them.

In the traditional brick-and-mortar setting, IoT can provide hospital systems (and other healthcare settings) with a flexible (real-time location system) RTLS solution to improve operational efficiencies and reduce costs.

Hospitals can deploy asset tracking that allows staff to locate the right equipment at the right time, freeing them up to spend more time with patients. This capability can also help hospitals be more proactive about maintenance. Regular equipment and upkeep and status check-ins can reduce needless repurchasing of misplaced equipment, delivering savings that can increase the bottom line. And reducing time spent looking for equipment can free up more time for patient care.



Delivering better guest experiences

Few sectors took as big of a staffing hit during the pandemic as the hospitality industry. And less staff on duty can make it harder to deliver guest services. Additionally, circumstances like having only one staff member on a floor when there used to be several, can cause increasing concerns about employee safety.

Signaling for help can be more difficult for employees working alone. This is why some unions and jurisdictions have mandated that hotels provide staff with rapid-response buttons to help mitigate the risks of working in isolation. IoT geolocation platforms can power these buttons, allowing staff to send out alerts for assistance and notify their employer and emergency responders of their location. These kinds of measures don't just help your organization comply with regulations, they can help increase your employees' sense of well-being, which in turn can improve retention rates and reduce the cost of turnover.



In addition to being able to locate your employees, hotels can also track their assets and improve customer service and drive efficiencies. Locating luggage carts and housekeeping equipment in real time can help reduce frustration for your employees while also delivering better guest experiences. And the same technology that can locate staff and track down assets can help reduce costs through efficient energy monitoring.

You can equip your spaces and energy meters with IoT sensors to meet sustainability initiatives and comply with environmental, social and governance (ESG) standards. You can even leverage IoT tech to adjust lighting, room temperatures, HVAC runtime and overall energy consumption. As in manufacturing and healthcare settings, these same sensors can let you know if appliances malfunction. This can come in handy when it comes to maintaining proper food storage and safety or detecting water leaks before they cause inconvenience or damage.

It all adds up to reduced operating costs while building an environmentally-conscious brand.



Are you ready for IoT?

Let's examine the essential features you should look for in an IoT solution and some operational considerations you should keep in mind.

Any solution you choose should support your staff's unique needs, and be easy to use and scalable.



Do you need the ability to locate staff members who work alone and may require emergency assistance? Then you might want to consider geolocation-enabled rapid response buttons as part of your IoT ecosystem. Also look for a solution that can protect the copious data and content your connected system will generate so you can confirm compliance, maintain governance and mitigate privacy issues.



Avoid geolocation products that use WiFi hotspots, cellular networks or beacon deployments. Their applications are limited. They can also be hard to set up, and once they are, they're prone to human error and single points of failure. Instead, look for IoT solutions that don't need extensive infrastructure or beacon deployments, such as those that use a low-power wide-area network (LPWAN). To get up and running quickly with these easy-to-use options, look for IoT ecosystems that can be set up in as little as a day. They're out there, and their implementation causes only minimal disruption to your current operations.



One way to make this possible is to use a LPWAN. This type of wireless telecommunication network is designed to allow long-range communications at a low bit rate among connected things such as sensors. Using an IoT LPWAN means you don't need to have devices connected to WiFi or cellular networks. Once it's connected, you should be able to find assets, collect data and get configurable alerts sent via SMS, email and to a web dashboard.



Additionally, you should look for a solution with the capability to grow with your business with options to add new IoT functionality and tracking to drive operational efficiencies, decrease costs and improve customer experiences.

Before you commit to the solution, consider the following action items to help you get the most from your investment and ease implementation:

- Review your business models and discuss and understand the degree of operational changes required to make IoT work for you — examine opportunities and challenges.
- Put customer-centricity first when evaluating your IoT options and strategy.
- Conduct ongoing reviews of your solution after implementation to keep driving further business benefit from your investment.



Connected Solutions — PwC's IoT offerings

Not all IoT solutions are equal. PwC can customize an IoT solution for your organization to help you leverage geolocation without beacons, collect data from your remote devices, use biometric data technology while complying with privacy regulations, and more.

PwC's patented solutions can be deployed in just days to help meet industry-wide safety requirements as an unobtrusive rapid-response button and be applied across other applications to drive financial savings and operational efficiencies — up to 40 use cases so far.





With our Connected Solutions we can help you decrease costs, improve revenue streams and provide a better customer experience.

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