

# Turn Data Into Action to Streamline Business Operations and More

The IoT holds great potential for enterprises needing to solve operational efficiencies, monitor assets, address regulatory compliance, and even create new revenue streams. Finding IoT partners that offer cost-effective, energy-efficient, and scalable solutions takes navigation.

## Introduction

A 2015 Business Intelligence report found that enterprises were estimated to invest \$9 trillion in the internet of things (IoT) from 2015 to 2020, while consumer IoT investment was estimated at \$3.5 trillion. Although consumer IoT receives the majority of press and attention, the real power of the IoT resides in the tens of billions of “things” that will be connected, and done so by businesses in the next five years.

Businesses face a variety of challenges today that can be addressed by the IoT. However, IoT solutions are not one-size-fits-all. What the industry has called IoT, is really a collection of thousands of data points. The common denominator is the power that comes from gaining access to new data, often from small things.

Finding IoT solutions partners takes some investigation, from the silicon, to the device, to the connectivity, to the cloud platform. But before businesses can look at any one of these layers in the IoT stack, they need to identify the problem they are trying to solve and determine where data fits in fixing it, and design a minimum viable IoT solution. Then they should begin an IoT project by selecting technologies based on the specific use case and business problem. Technology is the tail for IoT solutions, while the specific business problem is the dog!

This white paper serves to educate on the connectivity part of the IoT ecosystem and how a low-power wide-area network (LPWAN) is a viable option to cellular, Bluetooth, Wi-Fi, and other traditional connectivity solutions, especially for the business that needs to connect devices at scale, and cost-efficiently.

## INTERNET OF THINGS ECOSYSTEM



## Overview of a low-power wide-area network

A low-power wide-area network (LPWAN) is a wireless network dedicated to connecting things, and only things. By design it enables long-range communications between low-power sensors and devices. With LPWAN, all the network and computing complexity is managed in the cloud rather than on the devices. Because there is no need to establish and maintain a constant network connection, there's no overhead signaling. As a result, LPWAN drastically reduces device energy consumption, and because the transmission of data is

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only when the device has something to say, the cost of connectivity is drastically reduced—in some instances as low as \$1 a year per device.

LPWAN is greatly decreasing the barriers posed by traditional technology and connectivity options—namely, cost and energy consumption.

From a cost perspective, the required silicon for connected objects is expensive. It's not unusual for a cellular module to cost up to \$40. That soon adds up when enterprises are looking to deploy tens of thousands of devices—connecting devices to a traditional cellular network at mass scale quickly becomes cost-prohibitive.

Traditional connectivity methods—cellular, Wi-Fi, Bluetooth, LTE—are mainly built for people. LPWAN connectivity is built for things, eliminating the need for frequent battery charging and replacement. An LPWAN-enabled device's battery can live upwards of a decade, depending on the number of times a day the device transmits. Because LPWAN does not utilize a SIM card, it also does not depend upon user intervention or actions to be activated.

LPWAN's low cost and low battery consumption allow for a variety of industrial IoT use cases, and below are just a few commercial examples of uses cases enabled by connected objects sending small data—data that is impactful to business operations and bottom lines.

### Track assets

With LPWAN IoT sensors, organizations can track moving assets to monitor, recover, and create traceable records of assets throughout their journey. In addition, companies can monitor asset environments such as humidity, temperature, and shock; address regulatory compliance; and even create new revenue streams with the data LPWAN IoT sensors provide. Large, expensive objects can afford to use conventional technologies.

Take, for instance, the utilization rate of shipping containers. An average shipping container is only used about 20% of the time due to the large number of customers spread across many locations. Installing devices on each container to relay location data and other information over a LPWAN could improve container utilization by 10% to 25%, potentially reducing annual spending on containers by nearly \$13 billion per year in 2025, according to the McKinsey Global Institute.

### Regulatory compliance

Consider food safety regulations that require storage and shipment environments to meet specific requirements to ensure food doesn't spoil or become contaminated on its way from the farm to the factory, to the distributor, to the grocery store. Attaching low-cost sensors to crates, pallets, or even to the food itself enables

companies to create an auditable trail of conditions throughout the supply chain, addressing regulatory compliance requirements and ensuring public health.

### Predictive maintenance

Timing is crucial when performing routine maintenance on manufacturing equipment. By attaching sensors to equipment, manufacturers can monitor wear and tear and perform maintenance at the optimal time—when it's needed, but before parts break. This can reduce costs by 10% to 40%. What's more, improved predictive maintenance enabled by the IoT can reduce downtime by up to 50% and lower equipment capital investment by 3% to 5% by extending the life of machinery.

### Resource optimization

Utility providers have already begun to realize the benefits of using the IoT to monitor and manage their systems. By monitoring performance across their power and water systems, operators can detect issues such as leaks in water pipes or overheating transformers, enabling them to prevent costly failures and reduce losses. McKinsey Global Institute estimates that these applications could have an impact of \$33 billion to \$64 billion per year globally in 2025.

### Mobile crew monitoring

Companies can also use LPWAN-connected devices to monitor mobile crews, such as outdoor maintenance workers and meter readers. The increased productivity of workers via IoT-enabled processes could reach a savings of \$2.7 billion to \$6 billion per year globally in 2025.

### Conclusion

IoT is inevitably leading to business opportunity. Indeed, Gartner recently reported businesses will represent 57% of overall IoT spending in 2017—up from \$847 billion in 2016 to \$964 billion in 2017. Businesses that successfully deploy IoT solutions will experience incredible cost savings, additional revenue streams, and a much deeper level of customer intimacy. Knowing how to navigate the IoT ecosystem will help enterprises in their IoT deployment. One key part of the ecosystem is the connectivity.

Sigfox is the world's leading LPWAN IoT connectivity solution. Sigfox uses a unique device-to-cloud communications approach to connectivity, which drastically reduces connectivity cost and battery consumption required to connect simple devices to the cloud.

Sigfox is complementary with traditional connectivity methods (Bluetooth, GPS, 2G/3G/4G, and Wi-Fi), and when combined with these connectivity solutions, Sigfox improves message-sent reliability and ultimately the user experience.

With Sigfox, companies can now participate in the benefits of IoT at the scale required and at the price point aligned to a business model. They can enable operational efficiencies, monitor their assets, address regulatory compliance within their industry, and even create new revenue streams. [Visit sigfox.com](https://www.sigfox.com) to learn more about how Sigfox can help you implement an IoT solution that solves your business challenge.