



# How the Law of the Internet of Things Helps You Realize the ROI You Want

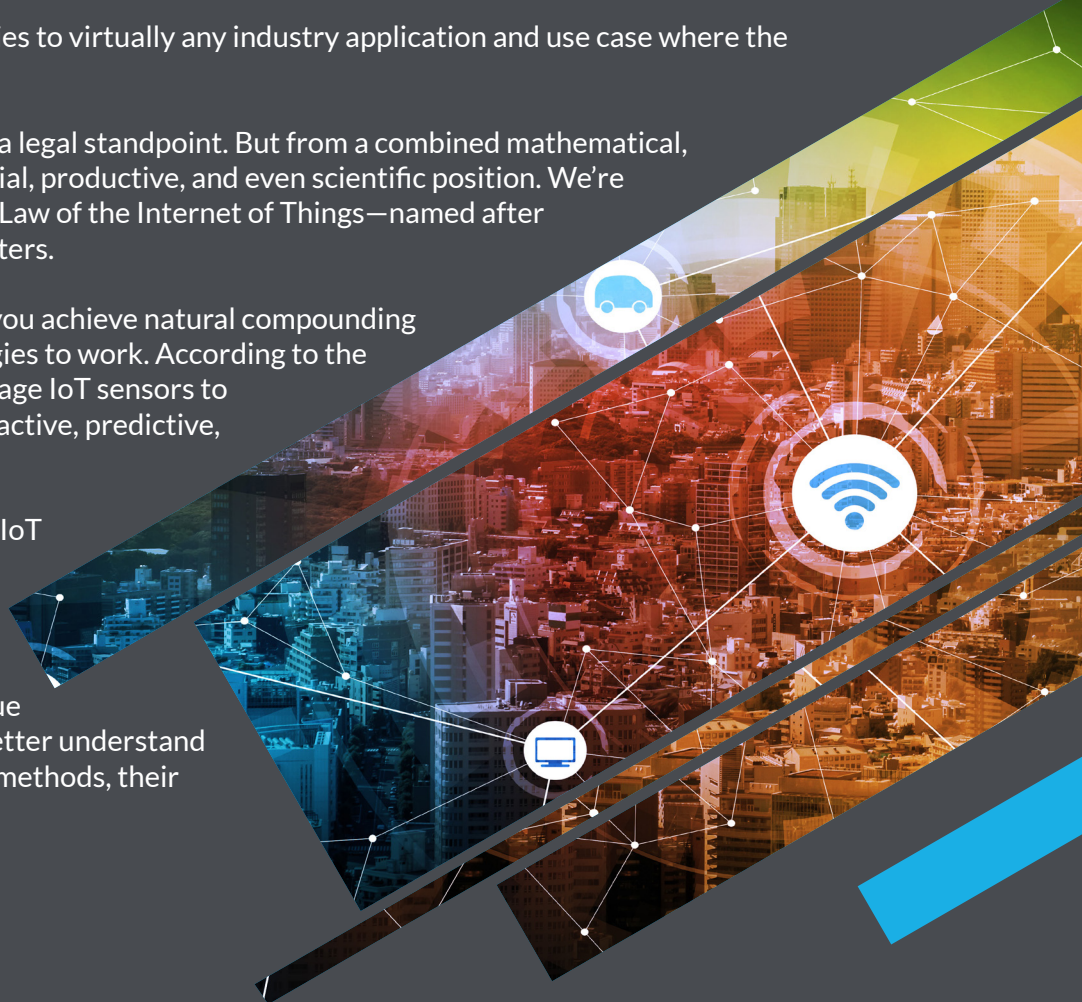
Whether you engineer or implement Internet of Things (IoT) technologies, you're under the powerful influence of IoT law. So what is the law of the IoT, and why is it so influential?

This law is industry-defining. It applies to virtually any industry application and use case where the IoT is employed.

We're not referring to IoT law from a legal standpoint. But from a combined mathematical, technological, consequential, financial, productive, and even scientific position. We're talking about the IoT law—Walters' Law of the Internet of Things—named after Monnit Founder and CEO Brad Walters.

Walters' Law of the IoT states that you achieve natural compounding value for how you put IoT technologies to work. According to the law, there are three methods to engage IoT sensors to benefit users and organizations—reactive, predictive, and transformative.

The methods in Walters' Law of the IoT have a corresponding value, and orders of magnitude are key to formulating compounding value. Each of the law's three methods creates an exponential effect of value or return on investment (ROI). To better understand the IoT law, let's examine the three methods, their benefits, and their value.



## Discover the Three Methods in the Law of the IoT

Critical and essential assets contribute to the overall value of your business. The value of inventory, equipment, and machinery assets can depend on how you manage them—how they're used and maintained. Sensor engineers and manufacturers typically create and sell IoT devices to produce a one-time revenue model. However, as their sensors perform in real-world IoT applications, engineers and manufacturers gain valuable insights to build the next generation of sensors. Data and the associated analytics is the most valuable result of the IoT.

To make informed, data-driven decisions, you can monitor assets using the IoT law's three engagement methods or approaches to employ the IoT and the resulting actionable data in your organization. Here's how the reactive, predictive, and transformative methods apply to asset management and maintenance.



# 1. Reactive

Take a familiar, fundamental approach to managing assets using actionable data. You can do it by designing and employing an IoT sensor in a reactive maintenance program. Any sensor can help you be reactive to virtually any operation or activity in your business.

Reactive maintenance means waiting until an asset like a machine fails—partially or entirely. Then, you get an alert on your mobile device from a sensor so you can make the repair or replacement.

For example, a use case could be:

- A telecommunications company has small remote buildings holding critical equipment next to its towers.
- An air conditioner cools the equipment inside to keep the towers up and running.
- An asset manager needs to know when the air conditioner fails to send a worker to repair or replace it.
- The manager sets up a temperature sensor in the remote building to know when the air conditioner isn't functioning correctly. Or the manager installs air conditioners with embedded temp sensors that remotely monitor their performance.
- This saves the company time and money by only sending trucks and technicians when the air conditioner isn't working.

Initially, being reactionary can be the least expensive solution, and there's typically no planning, but it can be inefficient and costly in the long run. However, reactive maintenance using sensors has some value even with its disadvantages. So, according to the IoT law and the aforementioned orders of magnitude, we'll give reactive maintenance its return in value of  $10^1$  or 10 times.

Or, even more mathematically speaking, the value equation for the reactive method of the IoT law is: Reactive monitoring equals ROI (1) x 10 or  $R=10$ .





## 2. Predictive

When putting IoT technologies to work in unique applications, being predictive in decision-making demonstrates a higher, more proactive management level. Considering how the IoT law applies to asset management and monitoring, let's look at the predictive method and how it works with sensor asset condition-based monitoring.

In real time, sensors send data consistently about the state, health, and performance of machines or equipment based on preset parameters. This helps you predict when an asset will require maintenance to prevent costly equipment failure and unplanned downtime.

As a result, predictive maintenance is becoming the industry standard. Applying predictive monitoring to our current use case for remote air conditioners, we see:

- A manager monitoring the air conditioner's life cycle via a mobile device or computer
- The original temp sensor or smart thermostat is set up in the remote telecommunications tower equipment facility
- Plus, a vibration sensor is connected to the air motor to sense excessive fan, housing, and motor motion
- A button press sensor is placed behind filters for technicians to confirm service
- A current meter is attached to the unit's power supply wire to monitor if the power draw rises, indicating upcoming malfunction or failure
- The manager can efficiently and cost-effectively predict when the air conditioner needs maintenance or replacement rather than routinely sending a technician whether it needs it or not

Predictive is proactive. You stay ahead of the uptime threat curve. You're highly aware of what's happening, so you can extend your equipment's life, better plan operations, and predictably fix it before failure. You can stop downtime from disrupting business.

Let's add to the formula of the IoT law by giving the predictive method a return in value of  $10^2$  or 100 times: Predictive monitoring equals ROI (1) x 100 or P=100.

### 3. Transformative

By building upon being reactive and predictive using actionable data, you can be transformative in your business. Being transformative with the IoT also means you can have sensors explicitly engineered for your use case. Plus, with more and more devices, machines, and equipment designed and manufactured with multiple sensors built-in, you can be transformative in your operations from the start.

You can transform processes and entire business operations using data streams and alerts from IoT sensors in three ways.

#### **Get a Complete View of Your Asset Life Cycle**

First, you can join asset manufacturer, historical, and real-time condition data to create an accurate view or analysis of asset performance. This is how you catch potential issues earlier to predict and schedule service more efficiently. You can eliminate sending workers to remote locations unnecessarily and without the proper tools and resources.

In addition to the benefit of decreasing downtime, when you master reactive and predictive monitoring and maintenance, you achieve greater worker productivity, reduced field service costs, optimized product design and service delivery, and improved worker safety.

#### **Combine Different Datasets into One Analytics Solution**

Second, power up data management with a transformative approach. By integrating sensors and systems across your business, you can quickly access and analyze data in one management solution. For example, you can push your security, energy, occupancy, IT, preemptive maintenance, sales, staffing, and more operational datasets into a comprehensive management dashboard.

There's a wealth of transformative potential when adding machine learning and artificial intelligence capabilities into data analytics. Then, you'll be better able to find critical correlational patterns and trends from disparate datasets to streamline and optimize business operations even further and faster.

#### **Create Additional Cost Savings and Better Ways of Doing Business**

Third, revisiting our use case example, the company pivoted from reactive and predictive to transformative profitably. Ultimately, the telecommunications leader decided to focus more on their business and outsourced the maintenance of their remote buildings' air conditioners to HVAC field service specialists at a significantly discounted rate. Part of the deal included the HVAC company using the original sensors already installed and providing valuable data. In this way, the agreement produced additional benefits for both companies.

Let's round out the IoT law's value formula by giving the transformative method a value of  $10^3$  or 1,000 times. Transformative asset management equals ROI  $(1) \times 1,000$  or  $T=1,000$ .





## Experience the Exponential Effect of IoT Law

You might have already done the math for the compounding value you can achieve if you put one or all of the methods in Walters' Law of the IoT to work in your organization. If not, here's a refresher: Reactive ( $10^1$ ) + Predictive ( $10^2$ ) + Transformative ( $10^3$ ) = 1,110 times a ROI. It's easy to see that being transformative with the IoT and its actionable data can deliver the highest value. Take a look at your operational assets and critical business things, and see where you can apply IoT's law today.

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