



# **5 Key Criteria to Evaluate High-Value Asset Tracking Technology for the Field**

## **Ensure Data Integrity with the Right Hardware**



## The Status Quo in Field Operations

The digitization wave and Internet of Things (IoT) have enabled a new way of working: one where information fuels faster and smarter business decisions. Field operations have much to gain from these technological advances especially considering that industries with field services are some of the least digitized, with labor-intensive manual processes still very much the norm.

Many industries have already taken advantage of the power of IoT starting with fleet tracking, which has been widely adopted and delivers a number of operational benefits from improved security and maintenance to more efficient utilization and billing.



Forward-thinking companies are now taking the same approach with equipment tracking and have turned to asset tracking technology to achieve the same benefits, with the overarching goal to meet high-priority business objectives such as improving efficiency and saving costs. And, they're already reaping the fruits of their investments.

Field organizations that transform themselves to capitalize on new technologies can generate significant gains in labor cost savings, productivity, and other performance metrics.<sup>1</sup>



Selecting an asset tracking solution can be daunting and time-consuming. There are a staggering amount of technical specifications to consider, and every organization has different operating conditions and requirements for their field operations, which makes it crucial to determine the best fit from the start to avoid compatibility issues later on.

This buyer's guide series aims to help field operators and leaders understand the unique needs of their field operations and select an asset tracking solution that will deliver the operational and business wins they plan to achieve. This chapter covers hardware considerations including:

-  The five key criteria to consider when evaluating if a field asset tracking device is the right fit
-  A checklist of questions to ask yourself and potential vendors to help in the selection process

<sup>1</sup> "The coming evolution of field operations." McKinsey.  
<https://www.mckinsey.com/business-functions/operations/our-insights/the-coming-evolution-of-field-operations>



## 5 Key Criteria When Evaluating Field Asset Tracking Devices

To make informed decisions, you have to first have good data, and that comes from using a device that works reliably in the environment you operate in and at the level you need.

Without a best-fit device and without accurate data, your software won't be able to deliver business value—which is why device reliability is the first step in any asset tracking initiative that must be addressed correctly.



### Network type and location

#### Key takeaway

Satellite network is the go-to for reliable location data in the most remote locations.

#### What you need to know

Network outages cause gaps in your data that leads to inefficiencies in downstream processes. While cellular works well in urban environments, satellite is far superior for tracking assets in remote or cellular-poor locations.

If your equipment is spending some amount of time indoors, use a combination of satellite and a gateway to ensure a steady data stream even when the equipment is stored in a warehouse.



## Battery life and maintenance

### Key takeaway

Embedded batteries are cheaper in the long run and eliminate the hassle of field replacements, creating a “set-and-forget,” maintenance-free experience.

### What you need to know

Data transmission consumes power and naturally, more pings means more energy is required. The device’s power source, whether replaceable batteries, built-in batteries, or solar, must be able to support your data frequency needs.

In remote or high-contaminant environments, battery replacements are simply not practical so as a countermeasure, embedded batteries are designed to last longer to avoid field replacements. For even higher energy use cases, solar-powered devices combined with a backup built-in battery can harvest more energy before requiring replacements.



## Setup and configuration

### Key takeaway

Plug-and-play devices that can be easily installed and configured via mobile app reduces repeated field visits and delays in transmitting data.

### What you need to know

Typically, tracking devices can be configured to transmit data based on the frequency you need, whether it’s once a day, twice a day, six times a day, or more. But you can also configure the reporting modes to transmit data based on a set schedule or time interval, or even when motion or vibration is detected.

And in cases where accessibility is an issue because of the remoteness of the location, opting for a device that supports two-way satellite communication allows you to configure the device (adjusting the data transmission frequency) from a remote location with just a few taps.



## Toughness and environment

### Key takeaway

Highly accelerated life testing (HALT) and ATEX certification ensure safe and reliable operation of tracking devices designed to work in rugged environments.

### What you need to know

Some equipment operates in extreme conditions like potentially explosive atmospheres or subarctic climates, thus the tracking devices installed on these assets must be able to withstand the hazardous environment it is in. One way to check is by making sure that the device has the necessary safety certifications that your industry or project requires.

Intrinsically safe devices that are ruggedized for use in harsh environments are durable and require less maintenance, repairs, or replacements, which could be costly and disruptive to field operations in the long run.



## Expandability

### Key takeaway

BLE-enabled tracking devices can pair with other Bluetooth devices to enable data collection from third party sensors, so that your investment grows alongside your business.

### What you need to know

You may only need location data today but in the future, you may want to monitor other information like sensor data (temperature, fluid level, air pressure, etc.) or operational status (on/off). Devices enabled by Bluetooth connectivity presents a solution to expand your hardware's capability without the burden of deploying specialized equipment.

With a simple and inexpensive Bluetooth Low Energy (BLE) module add-on, you can connect sensors to the asset tracker and develop mobile apps around the Bluetooth pairing function to transmit data beyond just GPS coordinates. This maximizes your hardware investment and prepares you to scale for growth.

## Checklist: 8 Questions to Help You Decide on the Right Hardware

In this checklist, ask yourself these key questions to help you understand your tracking needs and narrow down your search for a field asset tracking solution.

### 1. What are your assets?

Powered equipment  Non-powered equipment  Others

### 2. Where are your assets?

Locally  Globally  
 Urban  Remote  
 Indoors  Outdoors  Combination

### 3. Do you need ruggedized devices for harsh operating environments?

Low/high temperature  High vibration  Submerged  Salt fog exposure  
 Acidic atmosphere exposure  Others

### 4. What safety certifications are required to operate in your field environment?

ATEX/IECEx for use in Zone 0  IP68/IP69k protection  Others

### 5. Do you need to be able to configure your device remotely?

Yes, location is difficult to access  No, location is easy to access

### 6. How often do you need asset location to be reported?

Hourly  Daily  Weekly  Less frequent than weekly

### 7. Do you need tracking to be triggered in certain conditions?

Set interval  Motion detected  Vibration detected  Entry/exit geofenced area

### 8. What battery option do you need?

Embedded  Solar-powered  Replaceable

## We're Here to Help

Geoforce is the industry-standard for field asset tracking solutions in remote and rugged environments, and is used by some of the largest names in oil and gas, construction, transportation, and more. Our solutions are purpose-built to drive control and operational intelligence in field operations.

If you'd like insights into how field asset tracking technology can transform your field operations, contact [www.geoforce.com/contact](http://www.geoforce.com/contact).





## About Geoforce

Founded in 2007, Geoforce's award-winning industrial IoT platform brings order to chaotic field operations in industries as diverse as oil and gas, agriculture, construction, mining, transportation, logistics, government and defense, and rail. The company is an end-to-end solutions provider with over 1,300 customers tracking approximately 160,000 assets across 90 countries, with more than 2.3 million readings daily.





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