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On Time, On Budget
A Guide to New Strategies and Technologies
for Field Operations Leaders

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70% *of job sites miss deadlines because of inaccurate information about equipment location*

*Downtime can easily cost **$7 per second**, which means losing up to* **$25,000** *in an hour alone*

Just Another Day in Field Operations

In field operations, time is money. However, a myriad of challenges stand in the way of delivering projects on time and on budget—poor asset utilization, missing equipment, prolonged billing disputes, and dependence on manual and error-prone processes, just to name a few.

Success depends on orchestrating a logistics miracle: coordinating a large mobile workforce deployed across multiple sites, all while keeping track of hundreds or even thousands of field assets, vehicles, and equipment.

With greater pressure on budgets and timelines than ever before, managers and leaders in field operations must find ways to optimize operational efficiency and improve operating margins to stay competitive—or in some cases, afloat.

Some have turned to new tracking and tracing technologies to help gain control over the chaotic nature of field operations, and are enjoying the advantages of being an early adopter. The popularity of Internet of Things (IoT) is also rising, with more than 41 billion connected devices projected by 2027[1]. According to Forrester, the industrial IoT sector will experience spending growth of 24.2% between 2017 and 2023[2].

In the past, tracking and tracing devices were rudimentary and unreliable, with no data or analytics to speak of. But the next generation of IoT platforms has arrived, featuring purpose-built software and hardware for field ops. These tracking and tracing devices not only reveal exactly where and what is happening with field assets, but provide access to operational intelligence that enables better decision-making to drive real business value in an increasingly data-driven world.

In this white paper, we will cover:

✓	How new track and trace technology solves seven key challenges in field operations
✓	The must-have software and hardware features to look for in an IoT platform
✓	Three case studies of companies using track and trace platforms to eliminate 95% of billing disputes, increase equipment uptime by 99.9%, and save $70,000 per year on fuel and maintenance

1   "THE INTERNET OF THINGS 2020: Here's what over 400 IoT decision-makers say about the future of enterprise connectivity and how IoT companies can use it to grow revenue." Business Insider. https://www.businessinsider.com/internet-of-things-report

2   "Forrester Analytics: Internet-Of-Things Spending Forecast, 2017 To 2023 (Global)." Forrester. https://www.forrester.com/report/Forrester+Analytics+InternetOfThings+Spending+Forecast+2017+To+2023+Global/-/E-RES142092

Part 1:
How Track and Trace Technology Is Revolutionizing Field Ops

Most field operations and fleet managers are plagued by seven common challenges:

1	Inability to locate and retrieve assets
2	Lack of rental invoice and delivery verification
3	Spotty inspection compliance
4	Irregular equipment maintenance
5	Siloed data
6	Slow response times
7	Poor remote access

All of these issues can be addressed with track and trace technology that is purpose-built for field ops. Armed with the ability to view asset location and status, along with data and analytical insights that enable smarter operational decision-making, field operations leaders can begin improving the utilization of field assets and reduce operating costs from Day One.

4 Ways Track and Trace Improves the Bottom Line

Locate equipment

Know where critical assets are, and when they arrive where they're supposed to be.

By tagging equipment with a GPS tracking device, field operators and fleet managers can locate everything from generators to waste bins in real-time and manage mission-critical assets with more ease. When they need to know where a particular piece of equipment is, they can immediately locate it on a smartphone, tablet, or laptop for efficient retrieval and dispatch, improving overall response times and the effectiveness of project planning.

Increase profits

Lower costs and boost revenue by verifying delivery and billing.

Track and trace software can help eliminate rental and billing disputes by providing indisputable evidence of the exact days that equipment was on a customer's site, plus verified invoices for customer and supplier transparency. Being able to verify vehicle activity and rental invoices, as well as confirm service deliveries, can enable better planning, improve CRM management, and increase operating margins.

Reduce risk

Confirm equipment is certified and maintained properly with regular checks and status updates.

Track and trace software can support compliance efforts as well, allowing field operators to quickly access the certification and maintenance status of all equipment, which can significantly reduce operational costs in remote areas. By having evidence that all requirements are met, they are able to quickly retrieve properly certified equipment, or take immediate action on a noncompliant item, thus reducing downtime and lost jobs.
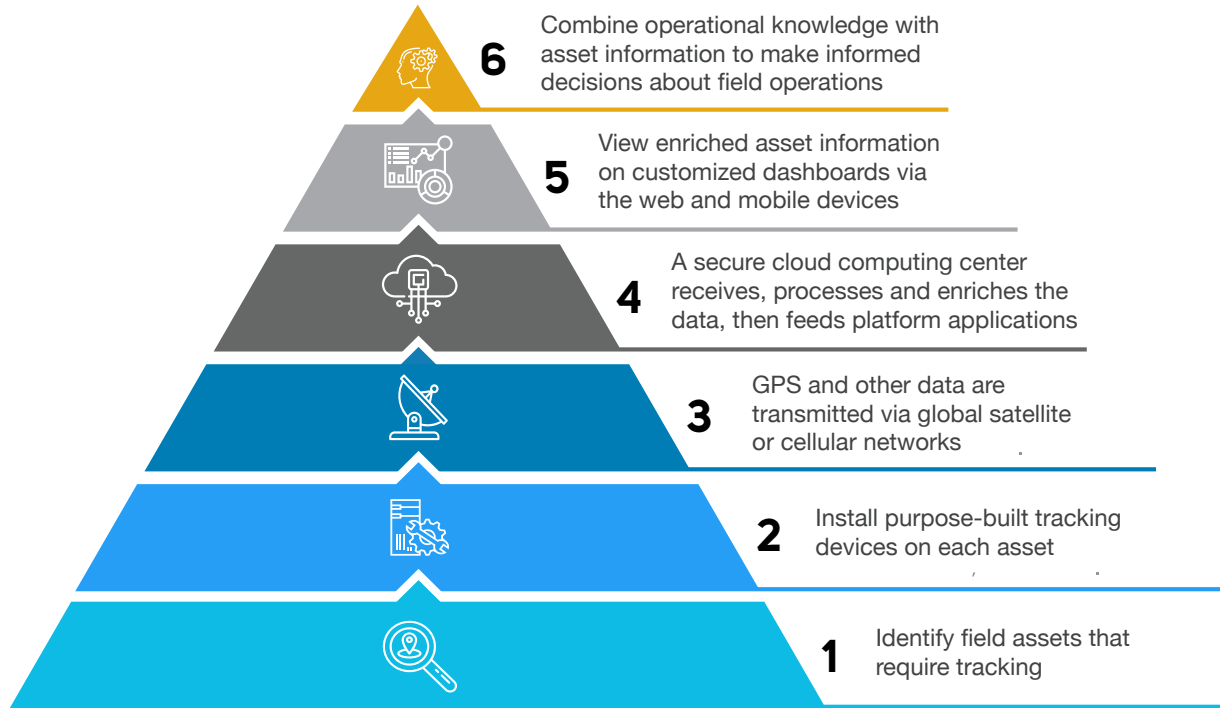
Uncover opportunities

Turn equipment faster to increase asset utilization and cut capital expenses.

When a service or rental company needs to pick up equipment, a track and trace platform will allow a driver to access its exact location and receive turn-by-turn directions via mobile applications. By eliminating wild goose chases and more efficiently allocating resources, companies exceed customer expectations, avoid wasted trips, and save time traveling. Access to operations intelligence will enable field operations to catch hold of opportunities as they arise.
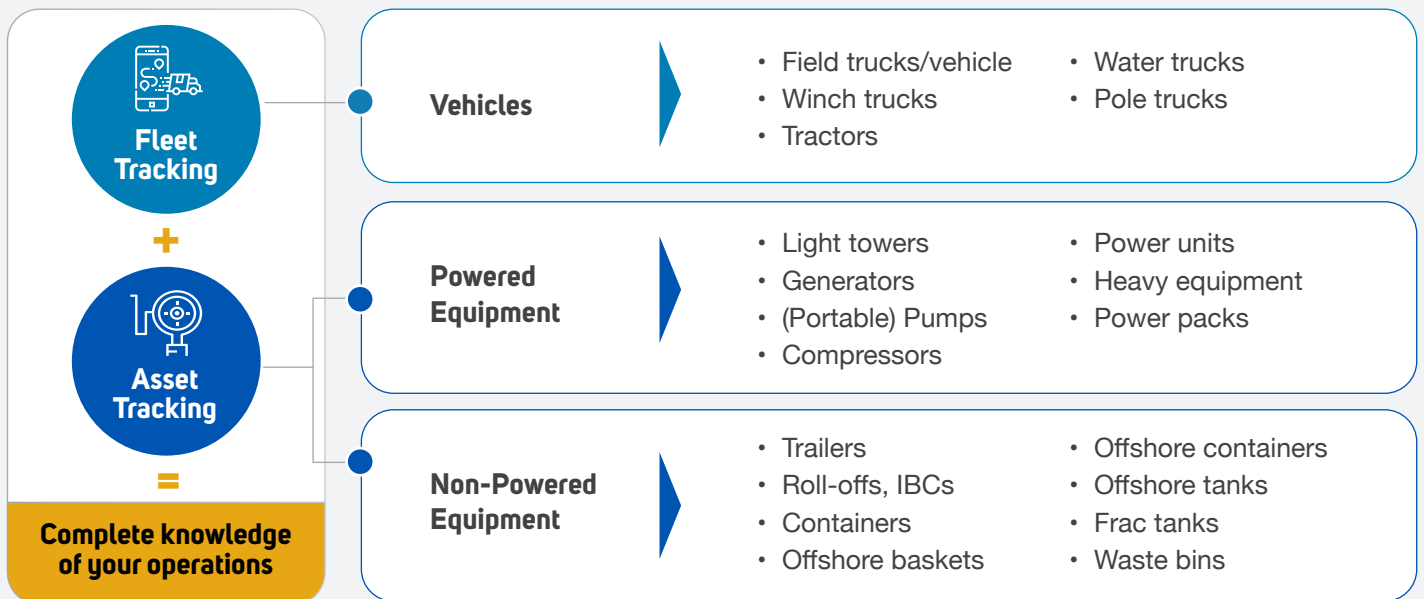
6 Steps to Gain Control of Your Field Operations

Although track and trace platforms manage assets through a technologically advanced network of connected devices and software solutions, it's a fairly simple process for end users, with just six steps from raw data to operations intelligence.

6 Combine operational knowledge with asset information to make informed decisions about field operations

5 View enriched asset information on customized dashboards via the web and mobile devices

4 A secure cloud computing center receives, processes and enriches the data, then feeds platform applications

3 GPS and other data are transmitted via global satellite or cellular networks

2 Install purpose-built tracking devices on each asset

1 Identify field assets that require tracking

What Assets Can You Track?

The three main asset classes that can be tracked, traced, and mined for insights are non-powered equipment, powered equipment, and vehicles.

Fleet Tracking

+

Asset Tracking

=

Complete knowledge of your operations

Vehicles
- Field trucks/vehicle
- Winch trucks
- Tractors
- Water trucks
- Pole trucks

Powered Equipment
- Light towers
- Generators
- (Portable) Pumps
- Compressors
- Power units
- Heavy equipment
- Power packs

Non-Powered Equipment
- Trailers
- Roll-offs, IBCs
- Containers
- Offshore baskets
- Offshore containers
- Offshore tanks
- Frac tanks
- Waste bins

Part 2:
The Components of an Industry-Best Field Ops Platform

Track and trace functionality is only the tip of the iceberg when it comes to an industry-best IoT platform that saves field operators time and money.

Equally important is the software that translates current and historical asset data into actionable insights and allows field operations professionals to better manage and monitor equipment and verify activity. The hardware devices should be top-notch as well, reflecting the latest innovations in design and quality, such as battery service life and durability in hazardous or harsh environments when required.

The Must-Have Features of an Advanced IoT Platform

There are a number of software and hardware differentiators to look for in an advanced IoT platform.

Software	Features	Benefits
	• Access to all asset information, via the web and mobile devices	• Increase asset utilization
	• Tracking and reminders of maintenance tasks	• Increase life span of equipment
	• Ability to email certifications and share related data to relevant parties	• Reduce time preparing reports
	• Detailed mapping and asset reporting capabilities for categories such as location, speed, service verifications, safety events, and days on site	• Reduce billing disputes and recoup rental revenue
	• Dashboards with easy viewing capabilities	• Increase planning and logistics efficiencies
	• Billing management and inventory audit capabilities	• Recoup rental revenue
	• Real-time tracking for vehicle speed and idle trends	• Improve driver's safety and reduce engine run time
	• Engine run-time monitoring	• Optimize asset efficiencies

Hardware	Features	Benefits
	• 100% satellite-based communication for visibility in remote locations	• Increase asset utilization
	• Easy deployment anywhere, with no incremental infrastructure or user-based maintenance required	• Easy installation
	• Exceptional device battery life (5-year minimum)	• Zero maintenance
	• Constant asset reporting in the form of mission-critical data on the device being fed back to the software platform	• Increase asset utilization, regulatory compliance, and labor savings
	• Sensor-support endpoints that incorporate Bluetooth Low Energy (BLE) interfaces	• Lower operation costs
	• BLE-equipped to provide reduced power consumption and cost while maintaining communication range	• Long service life
	• If necessary, IECEx/ATEX Zone 0 rating to remain operable in the most hazardous, extreme environments	• Intrinsically safe in explosive environments

11 Questions for Evaluating Track and Trace Solution Providers

Ultimately, the track and trace technology you adopt depends on your company's specific needs and the industry you are operating in. However, when selecting a solution provider, here are some universally important questions to ask during the evaluation process:

✓ Can data on all assets—owned, rented, or third-party equipment or vehicles—be managed in a single system?

✓ How user friendly is the platform's reporting function?

✓ Are analytics available that field ops professionals can leverage to make informed decisions?

✓ Are devices purpose-built and suitable for your specific industry and assets?

✓ Are the devices reliable with good battery life and communication range, and self-powered for tracking tanks, containers, trailers, and tools?

✓ Are devices plug and play, or do they need additional infrastructure before they can be deployed?

✓ Does the provider have proven customer ROI and a history of maximizing operational efficiencies?

✓ Does the provider offer hands-on device installation support and troubleshooting services?

✓ Does the provider continuously invest in research and development, new product introductions, and other initiatives that drive innovation and scalability?

✓ Do the payment plan options suit your needs (software subscription, hardware as-a-service, or one-time sale)?

✓ Do service plans include both satellite and cellular network access, connectivity, and messages?

Part 3:
How 3 Companies Are Using Track and Trace Technology to Increase ROI

Dynamic reporting coupled with state-of-the-art track and trace technology has led to a significant increase in ROI for companies using IoT platforms to gain control over their field operations. Many have experienced savings in fuel and maintenance, an increase in equipment utilization, and a reduction in disputed invoices, downtime, and equipment needs.

Here's how three companies implemented track and trace technology to solve longstanding challenges in their field operations.

How SCSI Eliminated Billing Disputes by 95%

The Challenge

SCSI, a provider of rental equipment, used to track equipment manually. As a result, project managers and dispatchers had no real way of knowing what equipment was in use and at which client site.

If an invoice was disputed, SCSI had no data to fully support the charges. In some cases, SCSI lost money by settling for less because it didn't have data to validate the number of days the equipment stayed at a client site.

The Solution

To solve this problem, SCSI used GPS-based asset tracking solutions to access the exact location, status, and availability of assets to increase client transparency and operational efficiency, while simultaneously supporting invoices with reports showing actual number of days equipment stayed on various client sites.

SCSI was able to:

- ✔ View rental statistics and location information

- ✔ Integrate locations with in-house and third-party rental systems

- ✔ Quickly verify rental invoices for supplier transparency with indisputable location data

- ✔ Locate assets on rent and audit billing based on GPS location

The Results

With the track and trace platform, SCSI all but eliminated the stress, embarrassment, and lost revenue associated with billing disputes. Dispatch operations and projects are run off of automated, accurate data, leading to greater opportunities to drive client satisfaction.

95% reduction in billing disputes

20% increase in operational efficiency

5% decrease in administrative costs

100% transparency with clients

How Compact Compression Increased Equipment Uptime by 99.9%

The Challenge

A provider of casing gas compression solutions, Compact Compression faced a dwindling market for the wellhead gas compression systems it developed. Part of the problem was the intense maintenance that these systems required, not to mention they were prone to frequent breakdowns—which limited their market appeal.

It became critical for business survivability to integrate technology that enabled the company to stay relevant and competitive.

The Solution

Compact Compression worked with an asset tracking solutions provider to develop a system for tracking compressor performance remotely. Technicians could consult a digital map that tells them which units are in distress, identify where they are located, and provide an indication of what repairs may be required.

The system also tracks patterns over time to identify performance trends and predict issues before they become a problem. Compact Compression was able to:

✓	Respond immediately to compliance alerts, with context of asset location
✓	Reduce downtime waiting for equipment maintenance
✓	Share data with clients through asset visibility sharing platform, reducing risk of out-of-compliance equipment
✓	Audit equipment locations for inventory and liability management
✓	Create an audit trail that documents correct certification and maintenance

The Results

The company is now able to plan servicing trips more efficiently and avoid unnecessary travel. Compact Compression was able to reduce maintenance costs and make them more predictable, and this enabled it to offer a more appealing "no hassle" fixed-fee service subscription to clients. At the same time, equipment downtime has been dramatically reduced.

99.9% increase in uptime

3x increase in technician productivity

15% reduction in technician travel time

How Solaris Saved up to $70,000 Annually on Fuel and Maintenance

The Challenge

Solaris Oilfield Infrastructure has been using an asset tracking provider to track specialized trailers, sand silos, and generators. But with a fleet size of 359 powered and non-powered assets in total, the company had access to so much data that making sense of all that information was a challenge in and of itself.

The Solution

Solaris implemented a telematics solution that integrated with an asset tracking platform to gain better insight into the fleet, particularly vehicle and asset location.

Field operations managers had access to customized reporting for idling that was automatically generated (prior to the customization, the report had to be created from scratch each month). Solaris was able to:

✓	View real-time data on vehicle location, health, and idling
✓	Receive alerts and notifications of engine faults, fast acceleration, hard cornering, and harsh braking
✓	Manage maintenance proactively to prevent unexpected vehicle breakdown and downtime
✓	Monitor driving records via smartphone-compatible apps for hours of service, DVIR, and messaging
✓	Generate reports including felt alerts, action items, driving violations, training reports, and incident graphs

The Results

Overall, the solution saved time and took the guesswork out of monitoring and measuring fleet operations. Fleet data has been turned into a valuable tool that Solaris can use to optimize the efficiency and safety of its fleet.

$70,000 initial savings per year on fuel and maintenance	**50%** reduction in idling time	**Enhance driver safety** through driving behavior insights

Conclusion:
Ready to Gain Control of Your Field Operations?

Forward-thinking leaders and managers in field operations have recognized the value of track and trace technology in providing unprecedented visibility and control over assets, personnel, operations, and processes—and are enjoying first-mover benefits in the form of reduced operating costs and increased operational efficiencies.

If you'd like to see how a track and trace platform can give you the advantage in field operations, contact 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. Geoforce is headquartered in Dallas, Texas, and has R&D offices in Bozeman, Montana.

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