Litum

WHITE PAPER | 2026

The Business Case for RTLS in Industrial Operations

A Practical Guide to Safety, Productivity, and Visibility

INDUSTRIAL RTLS

EXECUTIVE SUMMARY

The physical operation still has blind spots

A factory can tell you how many forklifts it owns.
It may not be able to tell you which ones it actually needs.

An ERP can tell you that a production asset belongs to a work order. It may not know that the asset has been sitting in staging for the last two hours.

A contractor management system can tell you who entered a site that morning. During an emergency, the harder question is who is still inside, and where.

This is an unusual gap in otherwise highly digitized operations.

Manufacturers, warehouses, construction sites, energy facilities, and logistics operations have spent years connecting machines, transactions, inventories, and business processes. Yet many of the movements taking place between those systems remain surprisingly difficult to see.

Real-Time Location Systems, or RTLS, are designed to address that gap.

RTLS creates a live data layer around the movement of people, assets, vehicles, and work-in-progress. At its simplest, that means knowing where something is. At its most useful, it means understanding what that location tells you about safety, utilization, flow, delay, or risk.

Movement between systems of record is where visibility usually ends.

EXECUTIVE SUMMARY

Location data, and operational information

Knowing that a forklift is in Aisle 7 is location data.	**Knowing that five forklifts repeatedly converge in Aisle 7 at shift change is operational information.**
Knowing that a production cart is in Zone 4 is location data.	**Knowing that carts remain in Zone 4 forty minutes longer than expected is operational information.**

And knowing where a worker is when a duress alert is activated may turn location into something more immediate: the difference between searching and responding.

This paper looks at the business case for industrial RTLS through three areas where that information tends to matter most:

Safety gains

Improving awareness around workers, vehicles, hazardous areas, and emergency events.

Productivity gains

Reducing search, waiting, manual processes, and underutilization of assets, vehicles, and labor.

Operational visibility

Using movement, dwell, utilization, and location history to understand how physical operations actually perform.

It also considers a question that becomes more important as RTLS adoption matures: how to move from one useful deployment to an architecture that can support many.

CONTENTS

What this paper covers

How to read this paper. This paper is intended as a practical guide to where RTLS adds value, where it does not, and what buyers should evaluate. Customer examples are included to illustrate real deployment patterns. Reported outcomes vary by environment, scope, baseline conditions, and operating practice.

Two versions of the operation

Walk through almost any large industrial site and there are two versions of the operation taking place at once.

The operation represented in software

Orders have statuses. Assets have IDs. Employees are assigned to shifts. Vehicles belong to fleets. Materials move through defined stages. Everything has a record.

The physical operation

A tool was left in another department. A forklift is waiting where nobody expected it to be. A contractor has moved to a different work area. A tote has stalled between two production steps. A supervisor knows that one intersection feels unsafe, but has little data to explain why.

The two versions overlap, but they are not always the same.

Traditional business and operational systems are generally very good at recording transactions. Location systems add something different: continuous evidence of what is moving, where it is moving, and how long it remains there.

Recorded status vs. physical reality

ERP: Asset 147 is assigned to Production Order 482.

Physical reality: Asset 147 is still in staging and has not moved for 73 minutes.

Fleet system: Forklift 32 is available.

Physical reality: Forklift 32 has been idle for most of the shift.

HR system: 1,200 contractors are scheduled onsite.

Physical reality: The safety team needs to know how many are inside specific work zones now.

RTLS can make these physical states visible in real time and historically. The resulting data can be used to find a resource, trigger an alert, or analyze utilization, dwell, congestion, and workflow behavior over time.

Litum's industrial portfolio applies this model across workforce visibility, asset and fleet optimization, safety, process tracking, and yard operations on shared infrastructure.

Source: Litum industrial product architecture, 2026.

THE INDUSTRIAL VISIBILITY GAP

When manual processes stop scaling

There is nothing inherently wrong with a radio call, a spreadsheet, a barcode scan, or a supervisor who knows the facility inside out. The problem appears when the operation becomes too large or too dynamic for those methods to remain reliable.

Searching is a good example. Five minutes looking for a tool does not sound like a technology problem. Multiply it across people, shifts, assets, and working days, and it becomes a capacity problem.

Emergency headcounts follow the same logic. Manual counting is entirely workable until the site contains hundreds or thousands of employees, contractors, and visitors moving between work areas.

The cost of limited visibility rarely arrives as one large invoice. It is distributed across lost minutes, excess inventory, unnecessary travel, slower response, idle equipment, administrative work, and decisions made with incomplete information.

Existing technology can still be fragmented

The visibility gap can also exist in organizations that already use location technology. Passive RFID may support checkpoints. GPS may cover outdoor vehicles. A standalone collision system may protect forklifts. Another tool may manage mustering.

Individually useful tools can become a fragmented architecture when each brings its own devices, software, integration, and maintenance model.

Manual methods hold until the operation becomes too large or too dynamic to track by hand.

FIVE SIGNS TO LOOK FOR

Your operation may have a location visibility gap if...

01

Teams regularly search for physical resources.

Tools, carts, equipment, materials, vehicles, or work-in-progress are found through calls, walking, and local knowledge.

02

Utilization is difficult to measure objectively.

You know what you own, but not how much of it is active, idle, or unavailable.

03

Safety depends heavily on visual awareness.

High-risk interactions or emergency response rely on people noticing and communicating what is happening.

04

Delays are visible, but their physical causes are not.

Teams know a process is slow but lack continuous data on movement, queues, dwell, and handoffs.

05

Business systems show status, not physical reality.

ERP, WMS, MES, HR, or fleet systems cannot answer location-dependent questions in real time.

A USEFUL STARTING QUESTION

What recurring operational question do we currently answer with walking, calling, counting, or guessing?

WHAT RTLS ADDS TO EXISTING OPERATIONAL SYSTEMS

From physical movement to usable operational data

RTLS is sometimes described as GPS for indoors. That is useful shorthand, but it understates what a modern industrial deployment actually does.

At a basic level, an RTLS environment connects four functions.

01

Detect

Tags, vehicle devices, or sensors identify the people, assets, or vehicles whose location matters.

02

Position

Location infrastructure and positioning technologies determine where those entities are.

03

Interpret

Software relates location to operational context such as zones, dwell, proximity, movement, or rules.

04

Act

The system displays, alerts, records, triggers a workflow, or passes information to another business application.

The practical distinction: Business systems record events. RTLS observes physical movement between those events.

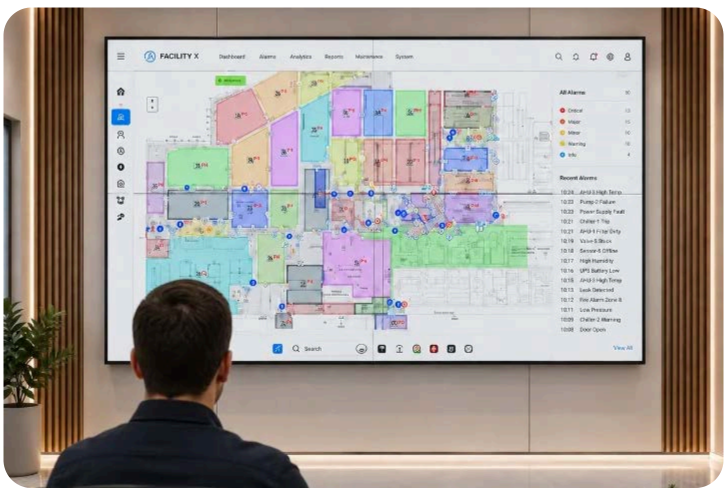
WHAT RTLS ADDS TO EXISTING OPERATIONAL SYSTEMS

A coordinate is only the beginning

A coordinate answers: Where is it?

Operational context can answer: Is it where it should be? How long has it been there? What is happening around it? Is this normal? Does someone need to act?

This is why modern RTLS usually extends beyond tags and anchors. The useful system includes hardware, infrastructure, positioning software, business rules, applications, analytics, and integration.



Anatomy of an industrial RTLS deployment

Hardware

Tags and devices suited to people, assets, vehicles, environments, and battery requirements.

Infrastructure

Anchors, gateways, communications, and coverage appropriate to the site.

Software

Location engine, live maps, business rules, alerts, reports, and analytics.

Integration

Open interfaces connecting location data to ERP, WMS, MES, CMMS, BI, HR, access control, and other systems.

Litum's platform follows this four-layer model.
Source: Litum platform architecture, 2026.

When location becomes safety context

Real-time awareness can make certain industrial risks harder to miss, and emergency response less dependent on knowing where to start looking.

01

Knowing where help is needed

Industrial safety depends heavily on context. The same location can be routine at one moment and dangerous at another.

A worker standing in one location may be perfectly safe. The same worker three meters away may be inside an exclusion zone.

An emergency button without location tells a safety team that someone needs help. Location tells them where to go.

The purpose is not to replace training, supervision, physical controls, or safe operating procedures. RTLS adds information those controls often lack: the ability to connect a safety event to a precise place and time.

THE PRACTICAL CHANGE

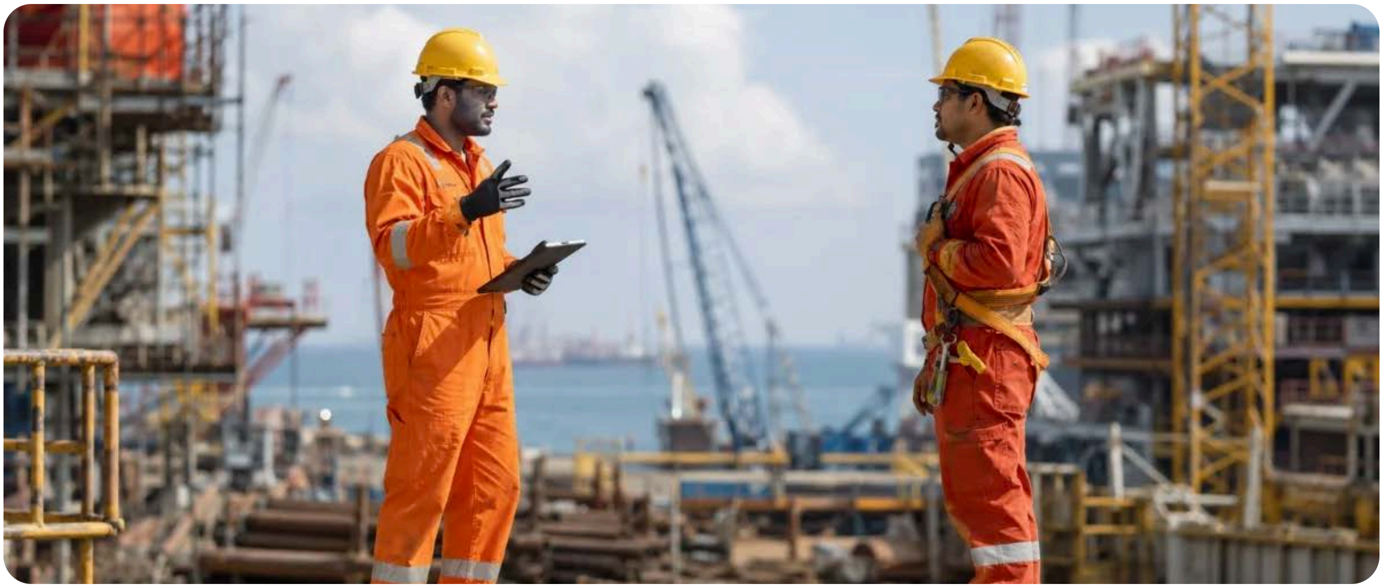
Without location, an alert begins with uncertainty. With location attached to the event, response can begin with a destination.

MODERN CONNECTED WORKER DEPLOYMENTS CAN COMBINE REAL-TIME LOCATION WITH

- Panic or duress alerts
- Free-fall detection
- Immobility or man-down alerts
- Lone-worker protection
- Restricted-zone monitoring
- Geofencing
- Emergency accountability
- Time-stamped incident histories

FROM THE FIELD

Connected workers at scale



At NMDC Energy's fabrication yard, more than 10,000 employees and subcontractors operate across approximately one square kilometer. Litum deployed a UWB-based Connected Worker system integrated with HR processes for time and attendance, workforce allocation, and payroll.

Wearable devices also supported emergency buttons, free-fall and immobility detection, and unauthorized-area alerts.

What is notable is not simply the scale. Safety and operations were not treated as unrelated uses of location. The same visibility supported both.

Source: Litum customer deployment with NMDC Energy. Results reflect this implementation and are not guaranteed for other sites.

Zero

safety incidents recorded

$1M+

saved in the first year

10,000+

workers across a 1 km^2 yard

The moving-vehicle problem, and the headcount problem

Dynamic risk around industrial vehicles

A painted pedestrian walkway does not know whether a forklift is approaching it. A convex mirror does not know whether two vehicles are converging. A speed-limit sign does not know whether a truck has entered a particularly high-risk zone.

Location and proximity technologies can add that context. Depending on the architecture, systems can support forklift-to-pedestrian or forklift-to-forklift alerts, end-of-aisle warnings, geofenced risk areas, crosswalk awareness, zone-specific behavior, and automated slowdown on compatible vehicles.

The data also has a life after the immediate warning. Repeated events can reveal where risk concentrates and how traffic actually behaves.

Large-scale deployment evidence

100%

reduction in forklift-related accidents reported after implementation

One Litum deployment covers more than 45 million square feet and 10,000 forklifts. The customer reported a 100% reduction in forklift-related accidents following implementation and planned broader expansion.

Source: Litum industrial deployment data.

Repeated proximity events show where risk concentrates, not only when it occurs.

Emergency accountability

There is perhaps no worse time to discover that a personnel list is incomplete than during an evacuation.

RTLS-enabled mustering can identify who has reached a safe area, who remains unaccounted for, and, in some architectures, the person's last known location. The same system can keep a time-stamped record of drills and real events.

~70%

faster evacuation drills

A multinational confectionery manufacturer reported evacuation drills becoming approximately 70% faster after moving from manual procedures to RTLS-enabled mustering.

Source: Litum customer deployment data.

The safety business case

The temptation is to calculate RTLS value solely against the cost of an accident. That can be part of the model, but it misses much of the picture.

The business case can also include faster response, reduced disruption, less administrative work, better documentation, improved incident reconstruction, and visibility into risks that previously depended on observation.

RTLS does not make an unsafe operation safe. What it can do is make certain risks harder to miss.

The cost of searching, waiting, and underutilization

Many productivity losses arrive in small increments. RTLS can make them visible enough to measure, and sometimes visible enough to remove.

02

The cost of looking for things

One of the least glamorous industrial problems is also one of the most persistent. People look for things.

Tools. Carts. Containers. Materials. Vehicles. Work-in-progress. Equipment that somebody saw twenty minutes ago but cannot find now.

Searching tends to disappear inside labor costs because it happens in small increments. There is rarely a line item called "time spent walking around trying to locate equipment."

RTLS gives a physical asset a searchable location. A user can find its current position and, depending on the system, see where it has been, how long it stayed there, and whether it moved through expected areas.

The first benefit is obvious: less searching.

The second is more interesting. Once history exists, the operation can ask why the asset was difficult to find in the first place.

"A search problem is often a flow problem in disguise."

Search time hides inside labor cost because it arrives a few minutes at a time.

FROM THE FIELD

1,500+ mobile carts in a distribution operation

At a Cardinal Health warehouse in Juarez, Mexico, more than 1,500 mobile carts moved through multiple operational zones. Reliance on manual searches slowed retrieval and made workflow adherence and resource allocation harder to see.

Litum deployed compact tags, 68 anchors, and 17 gateways. Location data updated every 30 seconds, supported by zone monitoring, alerts, device-status visibility, and reporting.

The more important transition is from "Where is Cart 127?" to "Why are carts repeatedly spending too long in this part of the process?"

Source: Litum customer deployment with Cardinal Health. Individual results vary.

90%

reduction in asset search time

~$300K

annual cost savings

1,500+

mobile carts tracked

Do you need more equipment, or better visibility?

Industrial organizations frequently face a familiar request: more equipment.

The request may be justified. But without utilization data, it is difficult to distinguish a true capacity constraint from poor allocation.

Location history can show how much time an asset is actually active, how often it moves, where it sits idle, whether similar assets are being used unevenly, and whether equipment is available where demand occurs.

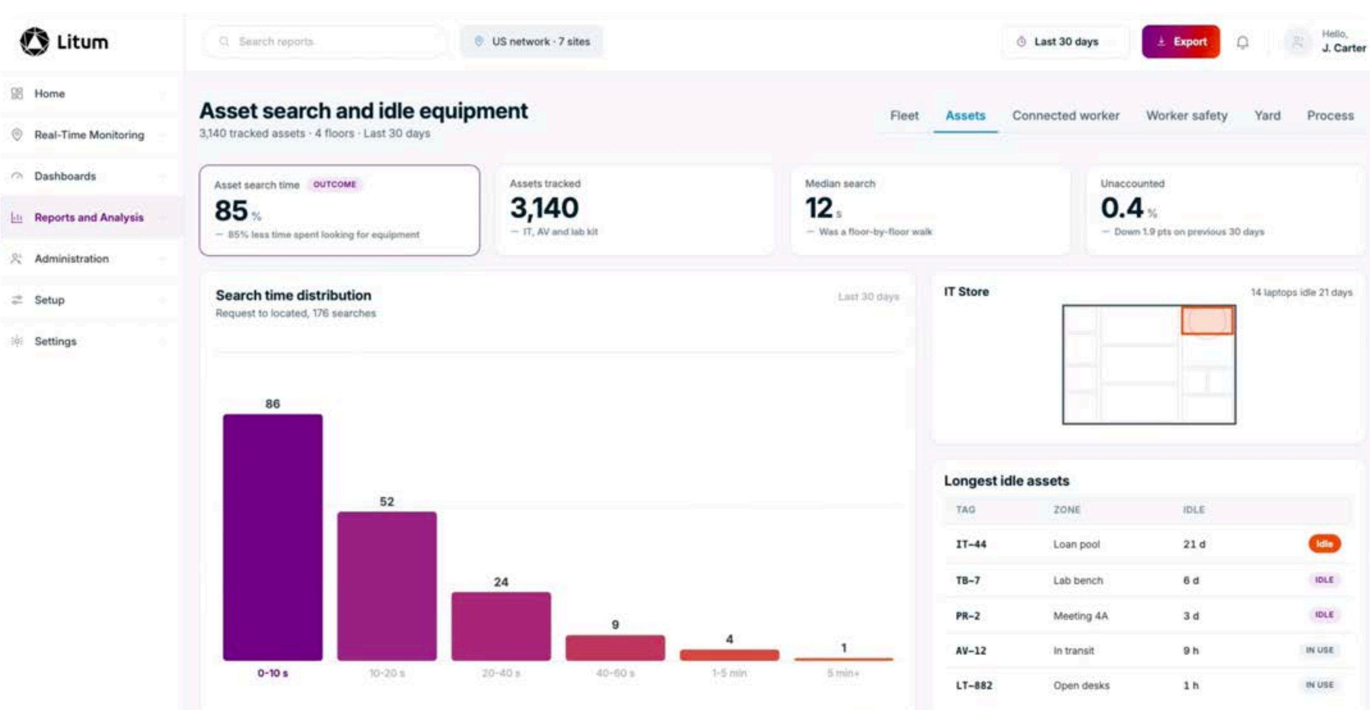
This creates a different purchasing conversation.

Instead of asking: How many assets do we own?

Ask: How much productive capacity are those assets actually providing?

The digital record needs the physical object

Utilization becomes more useful when the location record can be connected to ERP, MES, WMS, maintenance, or other operational systems. The asset then has a digital state and a physical state that can be reconciled.



FROM THE FIELD

3,000 assets in aerospace manufacturing

GE Aerospace venture TEI relied on manual processes to locate and manage approximately 3,000 assets across an aerospace production facility.

A UWB-based RTLS deployment introduced real-time location, movement history, heat maps, reporting, barcode matching, SAP integration, and mobile access.

The SAP integration matters almost as much as the location technology. It connects two versions of the asset: the physical object and the digital record.

Source: Litum customer deployment with GE Aerospace venture TEI.

70%

reduction in manual search time

10%

estimated utilization improvement

3,000

assets tracked

How much capacity are you getting from the fleet?

Forklift fleets are expensive enough that small changes in utilization can have a meaningful economic effect. Yet fleets are often managed using information that says more about ownership than usage.

Real-time movement can show active and idle periods, travel distance, route patterns, zone occupancy, congestion, vehicle availability, and repeated unnecessary movement.

The question changes from whether a forklift is available to whether the current fleet is being used intelligently.

Litum's forklift-tracking deployments use location history, active and idle time, travel distance, route analysis, congestion, zone occupancy, and heat maps. Open interfaces can connect the resulting data to ERP, WMS, maintenance, fleet-management, and BI systems.

Source: Litum industrial platform materials, 2026.

Sometimes the data supports fleet reduction. Sometimes it proves the opposite. Both conclusions are useful when they are based on observed activity rather than perception.

Fleet records describe ownership. Movement data describes usage.

People are different from assets

Workforce location deserves more caution. The fact that technology can measure something does not automatically mean an organization should measure it.

There are legitimate reasons to use worker location: emergency response, contractor accountability, restricted-zone safety, workforce allocation, mustering, time and attendance, and aggregate movement analysis.

Those uses should come with governance. Who can access individual-level data? How long is it retained? Is the purpose safety, attendance, process analysis, or individual performance? Can aggregated data answer the question instead? Are workers told clearly how information is being used?

Governance by design

Litum's Connected Worker environment combines attendance, dwell, zone transitions, movement analysis, and HR integration with role-based access and anonymization options.

The productivity business case

Productivity gains often come from things that stop happening: less searching, less waiting, less walking, less manual counting, less idle equipment, and less administrative reconciliation.

The prerequisite is a baseline. If the current cost is unknown, the value of improving it will also be difficult to prove.

Location becomes more interesting over time

A live map answers an immediate question. History answers a different class of questions about dwell, flow, congestion, and how work actually moves.

03

Movement is data

Every location update is one observation. Over days, weeks, and months, those observations form a picture of how physical work actually moves.

A facility may contain thousands of movements every hour. Workers move between zones. Forklifts travel between docks and staging areas. Work-in-progress advances through production. Containers wait. Assets circulate. Queues form and disappear.

Without continuous location data, much of this activity is difficult to quantify.

The value of dwell

Dwell time sounds almost trivial. Something entered a zone at 10:14 and left at 10:52. Thirty-eight minutes.

But if the expected time is ten minutes, there is a problem. If the same delay happens every afternoon, there may be a pattern. If it only affects one asset type, the cause may be different again.

A transaction system might tell you the total process took four hours. **Location data can help show where those four hours went.**

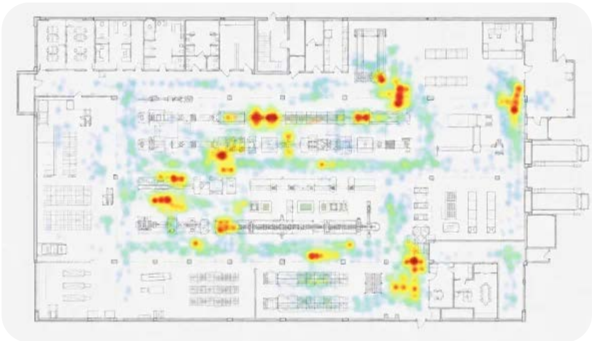
Thousands of movements an hour, most of them invisible to systems of record.

Typical questions location history can answer

Dwell time	How long does an entity remain in a particular area?
Zone transitions	How does a person, vehicle, or asset progress between operational areas?
Heat maps	Where does activity concentrate?
Spaghetti diagrams	What paths are people, assets, or vehicles actually taking?
Utilization	How much time is equipment active versus idle?
Lead time	How long does movement from one defined stage to another actually take?
Alert history	Where and when do exceptions repeatedly occur?

These analytics are available in Litum's RTLS software environment through movement paths, heat maps, utilization reports, zone occupancy, lead-time reporting, and historical event views.

Source: Litum RTLS software materials, 2026.



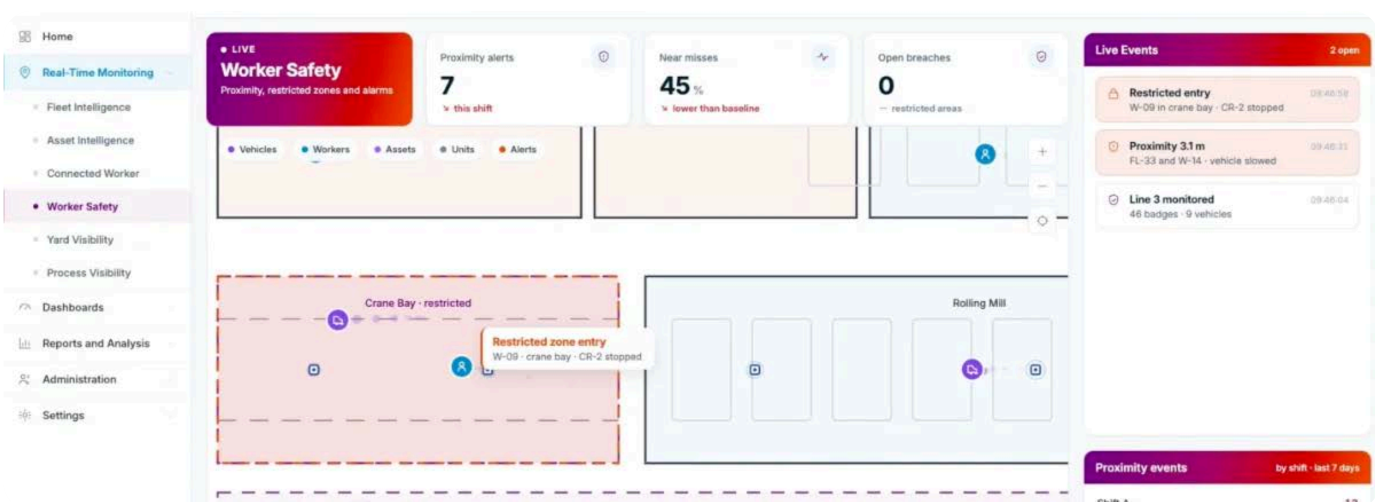
From "Where?" to "What should happen?"

There is a natural progression in the way organizations use location data.

LEVEL 1	**Locate**	Where is it?
LEVEL 2	**Understand**	What is happening?
LEVEL 3	**Detect**	Is something outside expected conditions?
LEVEL 4	**Respond**	Who or what system should act?
LEVEL 5	**Optimize**	What can repeated patterns tell us about routing, layout, capacity, staffing, or process design?

An asset enters the wrong area. A worker remains immobile. A forklift approaches a defined risk zone. A container exceeds its expected dwell time. A process item skips a required stage.

At this point, the value is no longer simply visibility. Location is being interpreted against an operational rule.



Layers, not dashboards

Modern RTLS platforms therefore increasingly contain several layers: a location engine that determines position, a rules layer that interprets events, applications that present information to users, and integration capabilities that pass events into other systems.

Litum's software architecture follows this model and can move location-derived information into systems such as ERP, WMS, MES, Tableau, and Power BI.

"A live map can be useful. A history of how the operation moves can be much more valuable."

The operational business case

Operational value can emerge through reduced process dwell, shorter lead times, improved throughput, fewer workflow deviations, better route design, reduced congestion, improved space utilization, and more accurate capacity planning.

The important distinction is between watching an operation and understanding it.

The best result is often not a dashboard. It is a process change made because the dashboard revealed something the organization could not previously see.

Value starts with the baseline, not the technology

RTLS projects are easier to justify when they begin with a business problem and a measurable starting point.

Where value typically comes from

Labor	Search time, manual counting, administrative data entry, unnecessary travel, repeated checks.
Asset and fleet utilization	Idle equipment, underused vehicles, excess capacity, avoidable purchases, poor allocation.
Process flow	Dwell, waiting, bottlenecks, inefficient routing, workflow deviations.
Safety and response	Incident exposure, emergency response, evacuation time, operational interruption, incident review.
Integration and administration	Manual reconciliation between physical and digital records, duplicate entry, disconnected reporting, manual audit trails.

A SIMPLE FRAMEWORK

Annual value created = labor recovered + capacity released + operational delay avoided + risk-related value + administrative savings.

Measure before you change

For asset tracking

Establish current search time, searches per shift, utilization, and replacement or duplicate purchasing.

For fleet visibility

Capture active time, idle time, travel distance, fleet size, throughput, accidents, and near misses.

For connected workers

Measure manual attendance effort, emergency headcount time, response time, contractor allocation, and time spent in assigned work areas.

For process visibility

Establish current lead time, dwell by stage, queue time, deviations, and throughput.

What RTLS does not automatically fix

RTLS is a source of data and operational context. It does not substitute for good process design. It will not automatically solve a fundamentally inefficient workflow, poor master data, unclear ownership, weak change management, inadequate safety procedures, an undefined business problem, or a project with no measurable KPI.

In fact, location data may expose problems that were previously hidden. That is often part of its value.

Start with the decision, not the radio technology

The strongest RTLS architectures match accuracy and infrastructure to the operational question, then leave room for the next useful application.

04

There is no single "best" RTLS technology

There is only technology that is appropriate, or inappropriate, for a particular problem.

RTLS discussions often begin with a technology question: UWB or BLE? Active or passive? Indoor or GPS? A better starting point is: How accurate does the location need to be for the operational decision to work?

TECHNOLOGY	TYPICAL STRENGTH	ILLUSTRATIVE FIT
UWB Ultra-Wideband	High-accuracy positioning for applications where location precision materially affects the decision.	Safety-critical positioning, precise vehicle or asset location.
BLE Bluetooth Low Energy	Scalable, cost-efficient area or zone visibility where sub-meter precision is not always necessary.	Broad asset or workforce visibility.
GPS	Satellite positioning for outdoor location where indoor infrastructure is not appropriate.	Yards and outdoor vehicle movement.
LoRaWAN	Long-range, low-power communication over distance.	Telemetry and distributed environments.
RFID	Identification at defined points without continuous positioning.	Checkpoint, doorway, and existing identification workflows.

Accuracy should follow the use case

Knowing whether a container is in Yard A or Yard B may require very different technology from detecting a high-risk interaction between a forklift and a pedestrian.

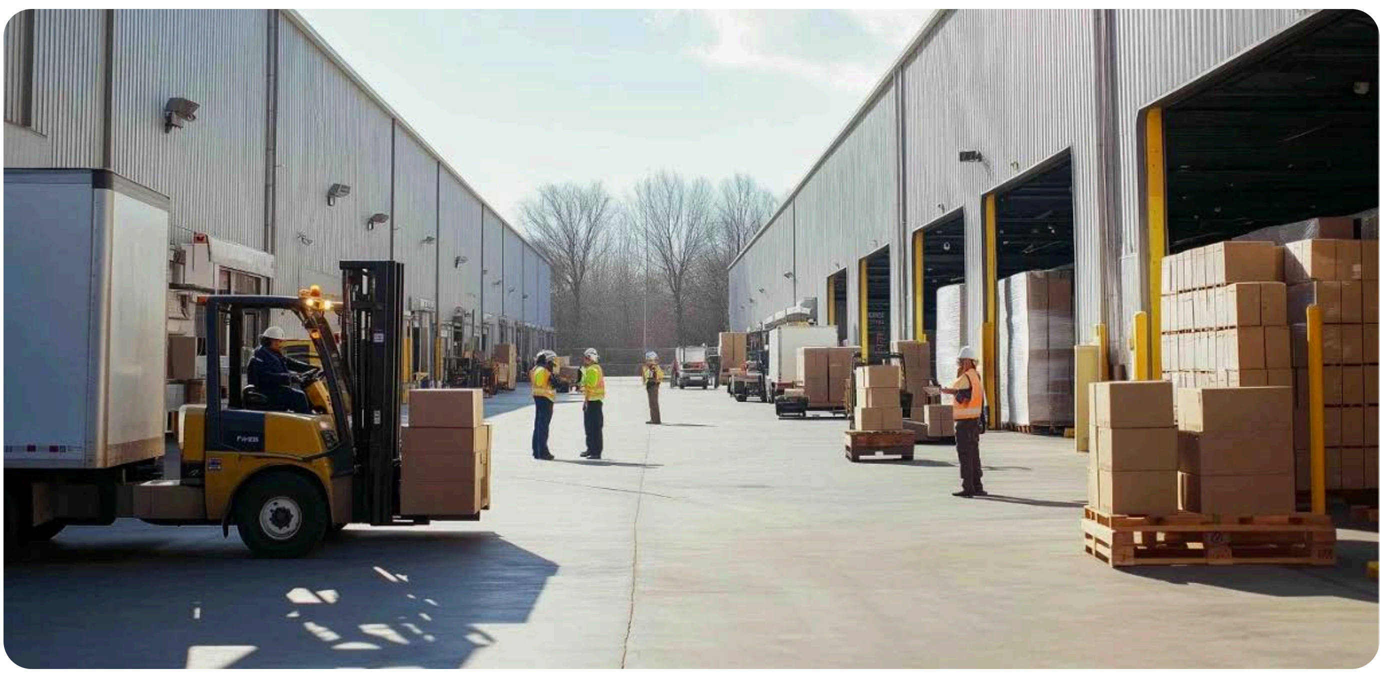
Avoid forcing every use case onto the same technology merely because it is already installed.

One architecture can still support several technologies

Litum's industrial stack supports UWB, BLE, GPS, LoRaWAN, and RFID within the same broader platform architecture. The underlying principle is more useful than the vendor example: multiple positioning approaches can coexist when the software and integration layer is designed for it.

Source: Litum industrial platform materials, 2026.

UWB | BLE | GPS | LoRaWAN | RFID



Outdoor yard movement and sub-meter safety positioning are rarely the same problem.

Start with something worth solving

There is no requirement to deploy RTLS everywhere at once. A good first project is often deliberately narrow.

- One troublesome group of assets
- One production process
- One forklift risk area
- One contractor workforce
- One mustering problem
- One yard

The first deployment should answer two questions

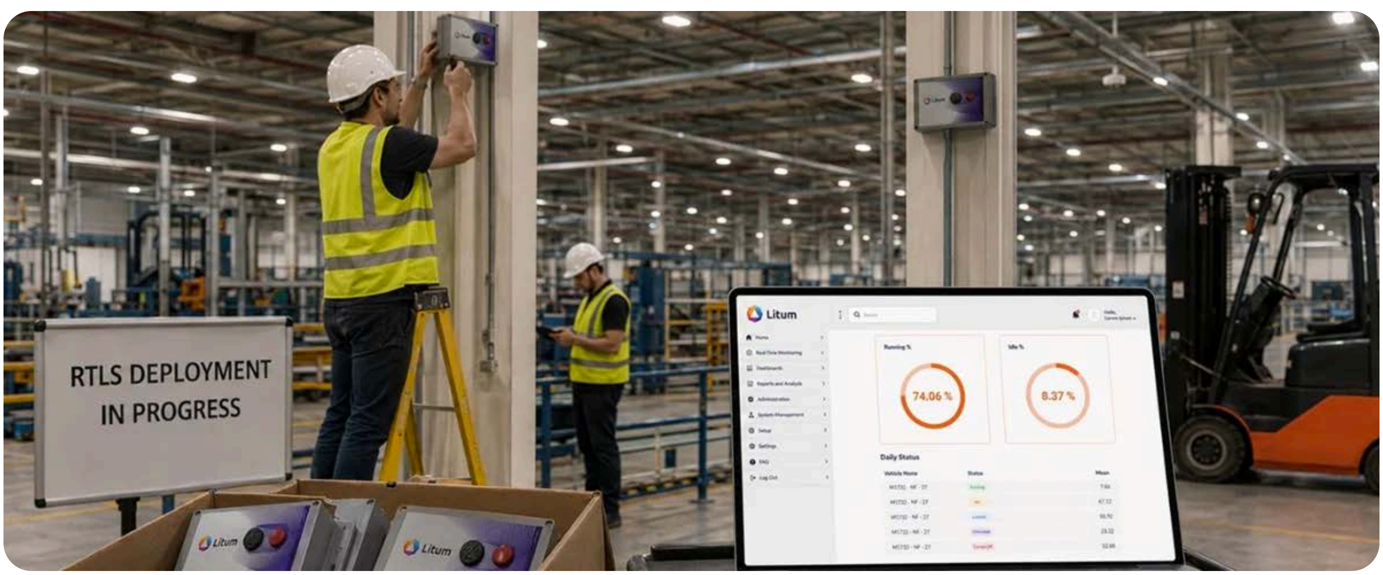
Did the technology work in the real environment? Did the resulting information improve the chosen outcome?

If the answer to both is yes, expansion becomes easier to justify.

The economics change when infrastructure can be reused

If every new use case brings another server, another integration, another set of gateways, another device-management tool, and another support relationship, the operational cost of location technology can grow quickly.

Shared infrastructure does not mean identical hardware everywhere. It means reusing software, integrations, infrastructure, and data where doing so makes technical and operational sense.



04 | FLEXIBLE DEPLOYMENT AND SCALABILITY

RTLS should not become another data island

Location data is most useful when it can reach the systems where work is already being managed.

An asset's physical position may need to be reconciled with SAP. A process event may need to update an MES. Vehicle data may belong in fleet-management software. Workforce information may connect to HR. Operational analytics may ultimately belong in Tableau or Power BI.

Modern industrial RTLS therefore needs APIs and integration capabilities alongside positioning.

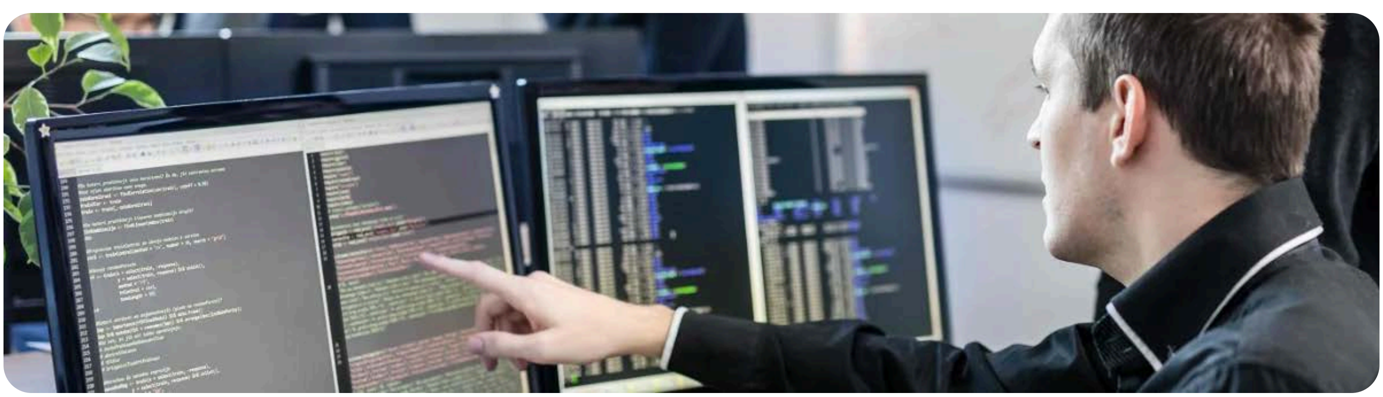
LITUM ARCHITECTURE

Litum's architecture supports integration with ERP, WMS, access control and other business and operational applications, together with configurable workflows, cloud or on-premise deployment, encrypted data, access controls, and ISO 27001-certified information security.

Security and governance belong in the architecture

Role-based access, authentication, data retention, privacy controls, encryption, availability, and audit records should be evaluated before large volumes of location data are collected, not after.

- Role-based access
- Authentication
- Data retention
- Privacy controls
- Encryption
- Availability
- Audit records



What should an industrial RTLS buyer look for?

A specification sheet can tell you a great deal about a tag. It tells you less about whether the system will become useful infrastructure.

01 Accuracy appropriate to the use case

More accuracy is not automatically better if it adds cost without improving the decision.

02 Technology flexibility

Can different indoor, outdoor, precise, zone-level, and checkpoint applications coexist?

03 Infrastructure reuse

Can later applications build on hardware, software, and integrations already deployed?

04 Business rules

Can the platform interpret dwell, proximity, entry, exit, inactivity, and escalation?

05 Analytics beyond the live map

Look for utilization, heat maps, movement paths, zone occupancy, lead time, and event history.

06 Systems integration

Evaluate APIs and interoperability with ERP, WMS, MES, HR, maintenance, access control, and BI.

07 Security and governance

Access, privacy, encryption, deployment architecture, retention, and auditability matter.

08 Environment fit

Industrial sites can include metal, moving machinery, limited power, network gaps, outdoor areas, and changing layouts.

09 Operational scale

Supporting 50 devices in a pilot is different from supporting thousands across multiple sites.

10 Clear accountability

When hardware, firmware, positioning, software, integration, and deployment intersect, who owns the problem?

One model is end-to-end ownership. Litum designs its hardware, firmware, location engine, applications, and analytics as a connected system, while supporting systems integration and deployment across 50+ countries.

That is not the only valid vendor model. Whatever model is chosen, responsibility should be clear before the project scales.

Different problems.
The same missing data layer.

The following examples are drawn from Litum deployments. They are included because they show the range of business problems location data can address. Outcomes are specific to each site's environment, baseline, deployment scope, and operating model.

10,000+ people | Fabrication yard

Challenge: Workforce safety and coordination across a one-square-kilometer yard.

Approach: UWB worker location, HR integration, attendance, payroll, emergency buttons, fall and immobility detection, restricted-zone alerts.

- Zero recorded safety incidents
- $1M+ reported first-year savings

NMDC Energy | Litum customer deployment

3,000 assets | Aerospace manufacturing

Challenge: Manual equipment search and limited utilization visibility.

Approach: High-precision RTLS, movement history, heat maps, barcode matching, SAP integration, mobile access.

- 70% less manual search time
- 10% estimated utilization improvement

GE Aerospace venture TEI | Litum customer deployment

1,200 contractors | Refinery turnaround

Challenge: Temporary workforce, heavy equipment, changing zones, limited power, connectivity constraints, and safety requirements.

Approach: Battery-powered UWB badges, resilient field infrastructure, mustering, collision warning, restricted-zone alerts, emergency buttons.

- $300K in mismanaged time identified in week one
- Zero accidents recorded after implementation

Refinery turnaround | Litum customer deployment

1,500+ carts | Distribution operation

Challenge: Manual search, constant movement between zones, and limited workflow visibility.

Approach: RTLS tags, anchors, gateways, zone monitoring, alerts, battery status, reporting dashboards.

- 90% reduction in asset search time
- ~$300K reported annual savings

Cardinal Health | Litum customer deployment

Four very different operations. Four different business problems. The common denominator was not tracking for tracking's sake. It was a decision that became easier once physical movement was visible.

From location data to operational intelligence

The earliest location systems answered a fairly narrow question: Where is it?

That question is not going away. But the more interesting questions now sit around it.

How did it get there? How long has it been there? What happened before it arrived? What normally happens next? Is this movement unusual? Is someone at risk? Is this equipment being used? Is the process slowing down? Should another system do something because of what just happened?

This is where the boundaries between RTLS, IoT, analytics, operational technology, and business software begin to blur.

A forklift position becomes utilization information. A worker location becomes emergency context. An asset movement becomes process information. A repeated route becomes evidence of inefficiency. A zone transition becomes the timestamp of a physical event that never existed digitally before.

The evolution is not from tracking to a more sophisticated form of tracking. It is from location data to operational intelligence.

01
Location
Where is it?

02
Context
What is happening?

03
Pattern
Is this normal?

04
Prediction
What may happen next?

A broader operational role

As organizations digitize more of their physical operations, knowing what exists in the real world will not be enough.

They will increasingly want systems to understand where it is, what it is doing, what is happening around it, whether the pattern is unusual, and what that means for the operation.

The long-term opportunity is larger than knowing where things are. It is using location to understand how the operation behaves.

ABOUT LITUM

A location technology company built around physical operations

Founded in 2004, Litum develops Real-Time Location Systems for industrial and healthcare environments.

The company works across manufacturing, logistics, construction, energy, aerospace, healthcare, and other complex physical operations.

22	120+	40+	50+
years of market presence	customers	Fortune 500 customers	countries

Litum designs hardware, firmware, its location engine, applications, and analytics as an integrated system. Its industrial technology stack supports UWB, BLE, GPS, LoRaWAN, and RFID, alongside systems integration and cloud or on-premise deployment options.

Industrial applications include connected worker, worker safety, emergency mustering, forklift safety and tracking, asset tracking, process visibility, and yard operations.

DEPLOYED AT SCALE

A footprint across people, assets, vehicles, and physical space

1M+ assets	250K+ people
17K+ forklifts	300M+ square feet of operational area

Litum's industrial architecture combines end-to-end technology ownership, shared infrastructure across multiple applications, integration with existing business and operational systems, ISO 27001-certified security, and global implementation and support.

Source: Litum company and deployment data, 2026.

WHERE TO GO FROM HERE

Start with the business question

The first question in an RTLS project probably should not be: Which technology should we buy?

A better question is: What are we unable to see today that is costing us something?

Maybe the cost is time. Maybe it is excess equipment. Maybe it is a safety exposure. Maybe it is delay. Maybe it is uncertainty during an emergency. Maybe the operation simply knows something is inefficient but has never had the data to see exactly where the inefficiency begins.

Start there.

Measure the current state before changing it. Decide what improvement would be meaningful. Determine how much location accuracy the decision actually requires. Test the system in the environment where it will have to work. Then measure again.

If the result is valuable, expand. If it is not, do not.

The technology matters. The location matters. But the business question comes first.

A PRACTICAL SEQUENCE

1. Identify the visibility gap

Where are you losing safety, time, utilization, or throughput?

2. Establish the baseline

Quantify the current state before selecting the system.

3. Define the decision

What will someone do differently when the location data exists?

4. Match accuracy to the use case

Choose technology after the operational requirement is clear.

5. Prove the result

Measure the same KPI after deployment.

6. Scale deliberately

Reuse infrastructure and integrations where the economics and architecture make sense.

Let's talk

For organizations evaluating where real-time location could add useful operational context, Litum works with industrial teams to assess use cases, deployment requirements, and paths to scale.

Litum

litum.com
info@litum.com

Safer, smarter, more visible operations

Customer results referenced in this paper are based on specific Litum deployments and reported customer outcomes. Results vary according to operating environment, deployment design, baseline conditions, adoption, and other factors. They should not be interpreted as guaranteed performance for other implementations.

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litum.com | info@litum.com