

RFID ASSET TRACKING · UNITED ARAB EMIRATES

RFID Asset Tracking Buyer's Guide

How to specify, evaluate and buy an RFID asset tracking system for a UAE operation — and how to tell a system that will work on your site from one that works in a demonstration.

COMPARISON MATRIX

EVALUATION CRITERIA

COST DRIVERS

CHECKLIST

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01

SCOPE

Who this guide is for

This guide is written for the people who have to sign for an asset tracking system and then live with it. It assumes no RFID knowledge and no shortlist, and it is written to be read before a supplier is in the room.

OPERATIONS AND WAREHOUSE LEADERSHIP

You own the count

You need to know where equipment, stock and tooling are without stopping the shift to find out, and you carry the cost when a search replaces a lookup.

FINANCE AND FIXED-ASSET OWNERS

You own the register

You need the asset register to match the assets on the floor, and evidence that it does that survives an external auditor reading it.

IT AND SYSTEMS INTEGRATION

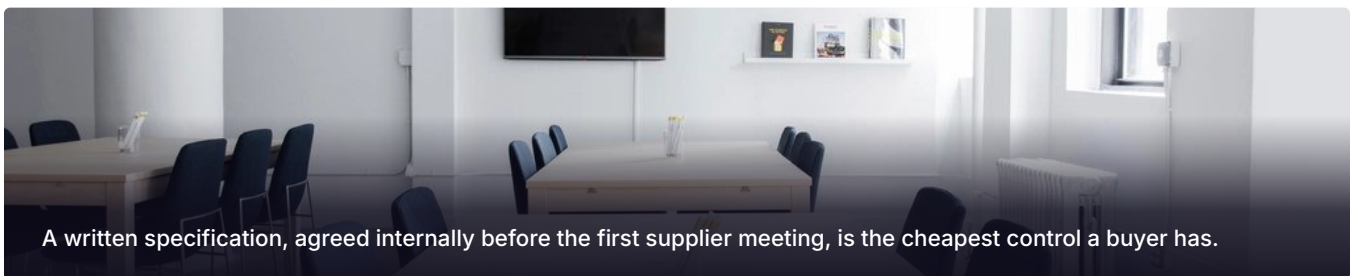
You own the interfaces

You need to know what the system writes back, in which direction, how often, and which record stays master when the two disagree.

FACILITIES, MAINTENANCE AND HSE

You own the equipment record

You need custody, inspection and calibration history attached to the physical item rather than to a line in a spreadsheet.



WHAT THIS GUIDE DOES NOT COVER

- **Prices** — Hardware, tags and licences are quoted against a surveyed site, not against a page. Section 07 names the variables instead.
- **Vendor rankings** — No supplier is scored here, and that includes the publisher.
- **Real-time location design** — Continuous positioning, zoning and accuracy budgets are a separate discipline from asset identification.
- **Regulatory approval** — Permitted radio band and radiated power are confirmed with the TDRA for each site.

02

THE REQUIREMENT

The requirement behind the request

Asset tracking is rarely bought because somebody wants asset tracking. It is bought because a record has stopped being trustworthy and something downstream — an audit, a claim, a handover, a write-off — depends on it.



Figure 1 — The asset lifecycle. Disputes trace back to a step where the event happened and the record did not.

Audit burden

A physical verification that ties up operational staff for days, is scheduled around the business rather than the other way round, and produces a result that nobody entirely trusts by the time it is signed.

Custody

Equipment issued to a person, a crew, a vehicle or a subcontractor, with the handover recorded in whatever was to hand at the moment it happened.

Disposal and write-off

Assets that left the site years ago and are still carried on the register, and assets still in daily use that were written off. Both are audit findings.

Insurance and regulatory evidence

A claim, an inspection or a contractual audit asks what you held, where it was and who had it. That answer has to be reconstructable, not remembered.

THE REQUIREMENT, STATED PROPERLY

The requirement is not “track our assets”. It is: which record must become trustworthy, for whom, and what evidence will be accepted that it is. A specification that answers those three questions can be quoted against. One that does not will be answered with a demonstration.

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TECHNOLOGY OPTIONS

Five ways to identify an asset

Each of these does one thing well. Most disappointing deployments start by choosing the technology and discovering the constraint afterwards.

TECHNOLOGY	BEST AT	LIMITED BY
Barcode / QR 1D / 2D optical	Lowest unit cost of any identifier, no power, no radio approval, and a label that can be reprinted on site the same afternoon.	One item at a time, in the line of sight, at close range. Reading is a task a person has to stop and perform, so the count is only as good as the discipline.
Passive UHF RFID UHF · EPC Gen2	Reading many tagged items at once, without line of sight, in seconds — including items still boxed, racked or inside a cabinet.	Metal detunes it and liquid absorbs it. Tag class, mounting and read-point placement decide whether it works, which is what a site survey establishes.
BLE beacons BLE 2.4 GHz	Continuous zone-level presence for a moderate population of high-value assets, using readers or existing mobile devices.	A battery in every tag, and therefore a battery replacement programme, an inventory of spares and a way of knowing which tag went quiet.
Ultra-wideband UWB 3.1–10.6 GHz	Sub-metre position, where knowing which bay, which cell or which side of a partition an asset is on genuinely changes the decision.	Anchor infrastructure, calibration and a cost per tracked item that only a location problem justifies. Over-specified for a fixed-asset register.
GNSS / GPS GNSS · outdoor	Assets that move between sites and across open ground: vehicles, plant, generators, containers and trailers.	Sky view. It stops indoors, and it reports a position rather than a custody event, so it answers where, not who has it.



THE HONEST DEFAULT

Most fixed-asset registers are answered by passive UHF RFID for bulk verification, with a printed barcode on the same label as a fallback any phone can read. Adding BLE or UWB is a decision about continuous location, not about counting.

04

EVALUATION CRITERIA

What separates a working system from a demonstration

A demonstration is run on chosen items, in a chosen room, by the person who built it. These are the six dimensions on which that advantage disappears — and the evidence that settles each one.

Read reliability on your materials

Your assets, your packaging, your racking, your metal. Read behaviour changes completely between a cardboard carton and a steel cabinet.

Evidence to ask for: A read test on your own items, on your own site, witnessed.

Tag survivability

Wash-down, heat, solvents, sunlight, abrasion, over-painting, and the person who picks at a corner of the label because it is peeling.

Evidence to ask for: A tag specification written against your environment, and a replacement plan.

Exception handling

Every system misses reads. The question is what the process does next, not whether it happens.

Evidence to ask for: The exception queue, who works it, and what closes an item.

Integration transaction model

What is written back, in which direction, how often, and which system stays master of the asset record when the two disagree.

Evidence to ask for: A field-level interface specification, not a logo on a slide.

Site survey ownership

Who walks the site, measures the RF environment, places the read points and is accountable when one of them underperforms.

Evidence to ask for: A named owner and a dated deliverable inside the contract.

Operating model after go-live

Who encodes new tags, who trains new staff, who holds spares, and what happens when a fixed reader fails on a Friday afternoon.

Evidence to ask for: A support model with response times and a stated spares holding.



Evidence means a read test on your own assets, in the environment they actually live in.

05

COMPARISON

How the five technologies actually compare

The same five technologies, compared on the properties that decide a deployment rather than the ones that sell one.

TECHNOLOGY	TYPICAL READ RANGE	LINE OF SIGHT	BULK READ	POWER IN THE TAG	INFRASTRUCTURE REQUIRED
Barcode / QR 1D / 2D optical	Contact to about a metre	Required	No — one item at a time	None	A printer and a scanner
Passive UHF RFID UHF · EPC Gen2	Centimetres to several metres	Not required	Yes — many tags per second	None	Readers, antennas, encoding
BLE beacons BLE 2.4 GHz	Zone level, tens of metres	Not required	Yes — presence, not sequence	Battery	Gateways or mobile devices
Ultra-wideband UWB 3.1–10.6 GHz	Tens of metres, sub-metre accuracy	Not required	Yes — with position	Battery	Anchors and calibration
GNSS / GPS GNSS · outdoor	Outdoors, wherever there is sky view	Sky view required	One device per asset	Battery or vehicle power	Cellular or satellite backhaul

Table 1 — Read range is a property of the technology. What you achieve on a given asset is established by survey.

FIT FOR A FIXED-ASSET REGISTER

Barcode / QR	Passive UHF RFID	BLE beacons	Ultra-wideband	GNSS / GPS
				
Works, if somebody scans every item.	The usual answer for bulk verification.	Suits a small, high-value population.	Right technology, wrong problem.	For assets that leave the site.

WHERE RFID IS THE WRONG ANSWER

- A few hundred assets in one building that staff already walk past. A barcode costs less and fails less.
- Assets that must be located continuously and precisely while moving. That is RTLS, not a read point.
- Assets whose problem is that they leave the site altogether. That is GNSS, with a connectivity plan.

06

VENDOR QUESTIONS

Six questions that expose a weak proposal

Ask these before the demonstration rather than after it, and ask for the answers in writing. A supplier who can answer all six has done the work; a supplier who answers four has priced four.

Q01

What read rate did you achieve on our materials, on our site?

A WEAK ANSWER

A figure borrowed from another industry, or a promise to test after award. Read behaviour is a property of your assets, not of the reader.

Q02

What is the expected life of this tag in this environment, and who replaces it?

A WEAK ANSWER

"The tag lasts for years." Ask which tag, on which surface, at which temperature, and who pays for the second application.

Q03

What happens when a read is missed?

A WEAK ANSWER

"That does not happen." Ask to see the exception queue, who is accountable for clearing it and what the process does in the meantime.

Q04

Which system stays master of the asset record, and what exactly is written back?

A WEAK ANSWER

A named integration with no field list, no direction and no frequency. Ask for the interface specification you would hand to your own developer.

Q05

Who owns the site survey, and what is in it?

A WEAK ANSWER

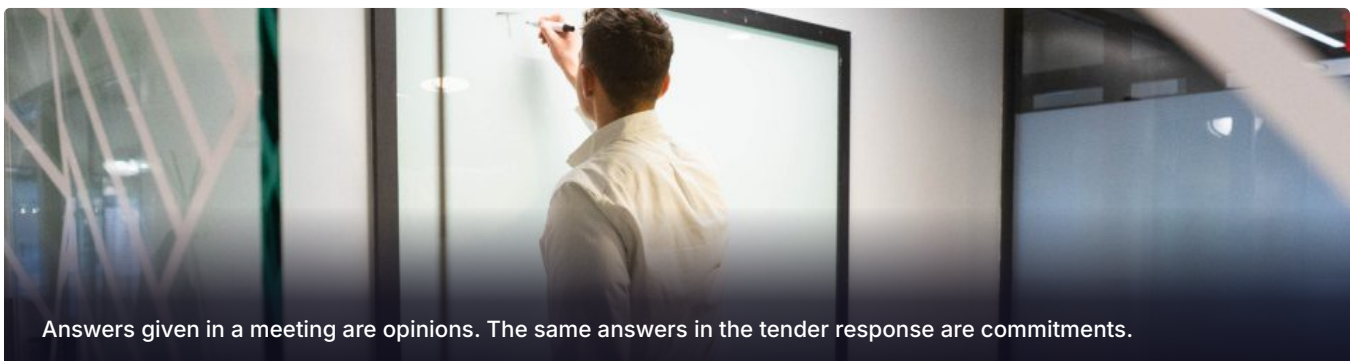
A survey priced as an option, or scheduled after the hardware order. The survey is what turns an estimate into a quotation.

Q06

Who encodes and commissions the tags, and what does handover include?

A WEAK ANSWER

Commissioning left to "the customer team" with no volume, no method and no acceptance test. Somebody applies every tag, once, by hand.



07

COST DRIVERS

What actually drives the cost

No price appears in this guide, because every price depends on a site nobody has surveyed yet. These are the seven variables that decide the number. Ask a supplier to quote against each one separately.

1 Tag count and tag class

TAGS × CLASS

The largest line in most projects. A label inlay and an on-metal hard tag are different purchases, and your asset list decides the split.

2 Metal and liquid in the environment

SURFACE + CONTENT

Every asset on metal or holding liquid moves to a different tag class, and often to a spacer or a bracket, which changes the unit cost and the labour.

3 Read points, by count and by type

POINTS × TYPE

Handhelds, fixed readers, gates and tunnels differ by an order of magnitude in cost and effort. The count comes from the process map, not the floor plan.

4 Integration depth

INTERFACES × DEPTH

Reading an asset list out of a system is cheap. Writing transactions back with reconciliation, retries and error handling is the work.

5 Site survey

SURVEY DAYS

RF measurement, material testing and read-point placement. Priced separately or absorbed into a rate, but never free.

6 Encoding and commissioning labour

ASSETS × MINUTES

Somebody encodes, applies, verifies and registers every tag on every asset, once. On a large estate that is a project in itself.

7 Support model

RESPONSE + SPARES

Response times, spares holding and reader replacement across the life of the system, not the warranty.



Tag class is chosen by surface, not by unit price.

THE TRAP

The cheapest tag is rarely the cheapest system. A tag that fails on a steel cabinet is replaced by hand, one asset at a time, by somebody who has to find the asset first.

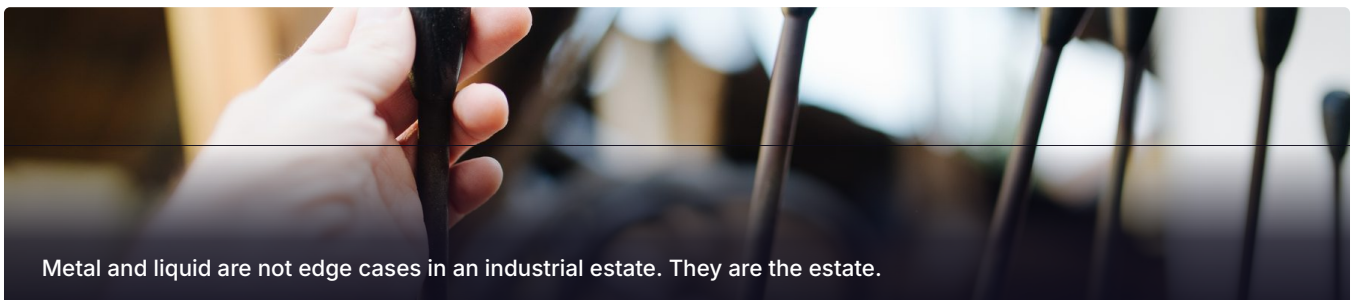
08

RISK

Six risks, and the mitigation for each

None of these are RFID problems. They are procurement and process problems that an RFID project exposes, which is why they are cheaper to fix in the specification than in the second phase.

RISK	MITIGATION
R01 The RF environment is discovered after the hardware is ordered	Make the site survey a priced, dated deliverable that closes before the hardware order is raised, with one named owner on the supplier side.
R02 The tag is chosen against the asset list, not against the surface	Sample and test on the actual surfaces — bare metal, painted metal, plastic, curved, wrapped — and hold the bulk order until the samples pass.
R03 The process does not change, so the old spreadsheet survives	Set a date on which the parallel record is retired, and make the system the only place a custody change is accepted after it.
R04 Integration is treated as a final-phase task	Agree the field list, direction and frequency during evaluation, and test the interface against a copy of live data before the tags are ordered.
R05 There is no defined path for a missed read	Design the exception queue before go-live: who sees it, within what time, what closes an item, and what the process does while it is open.
R06 Ownership after go-live is undefined	Name the tag encoder, the reader owner, the spares holder and the escalation route in the contract, not in the kick-off deck.



Metal and liquid are not edge cases in an industrial estate. They are the estate.

09

ARCHITECTURE

An architecture that survives contact with an ERP

Five layers. A proposal that names four of them has left out the one that decides whether your ERP receives events or noise.

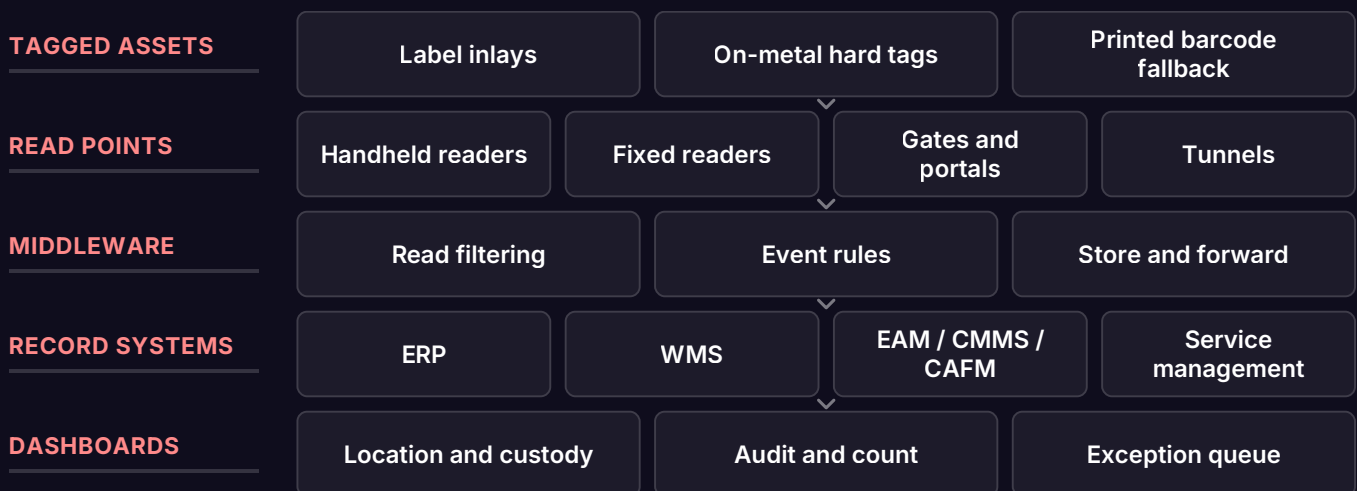


Figure 2 — Reference architecture for RFID asset tracking. Read points are chosen per process step, not per doorway.

WHY THE MIDDLEWARE LAYER IS NOT OPTIONAL

A single movement produces hundreds or thousands of reads, and a system of record should receive one transaction. Something has to filter, de-duplicate and hold the queue when the ERP is unavailable. If a proposal does not say where that happens, it happens in your ERP.

WHERE THE READ POINTS GO

Handheld for verification, audit and search. Fixed readers and gates where movement already funnels through one place. A tunnel where read certainty matters more than flexibility. The count comes from the process map.

SYSTEMS THIS CONNECTS TO

ERP

Odoo
SAP
Oracle
Microsoft Dynamics 365
NetSuite

WAREHOUSE

WMS platforms
Octopus WMS

MAINTENANCE AND FACILITIES

CMMS
CAFM
EAM

SERVICE MANAGEMENT

ServiceNow

Integration is delivered by API, by middleware or by a custom interface, depending on what the receiving system exposes.

Product and company names are the trademarks of their respective owners. Naming a system here describes an integration Swedish Technology builds and supports, not a partnership or an endorsement.

10

CHECKLIST

Pre-procurement checklist

Complete this before the first supplier meeting. Every line left blank is a variable a supplier will fill in on your behalf, and price accordingly.

SCOPE

- ☐ Asset classes in scope, with a count against each
- ☐ Which record must become trustworthy
- ☐ Sites, buildings and zones included in phase one

ENVIRONMENT

- ☐ Surfaces the tag must survive, including bare metal
- ☐ Temperature, humidity, wash-down, outdoor exposure
- ☐ Permitted radio band and power confirmed for the site

PROCESS

- ☐ Events captured: receipt, issue, transfer, disposal
- ☐ Who performs each read, and where they stand to do it
- ☐ The exception path when a read is missed

SYSTEMS

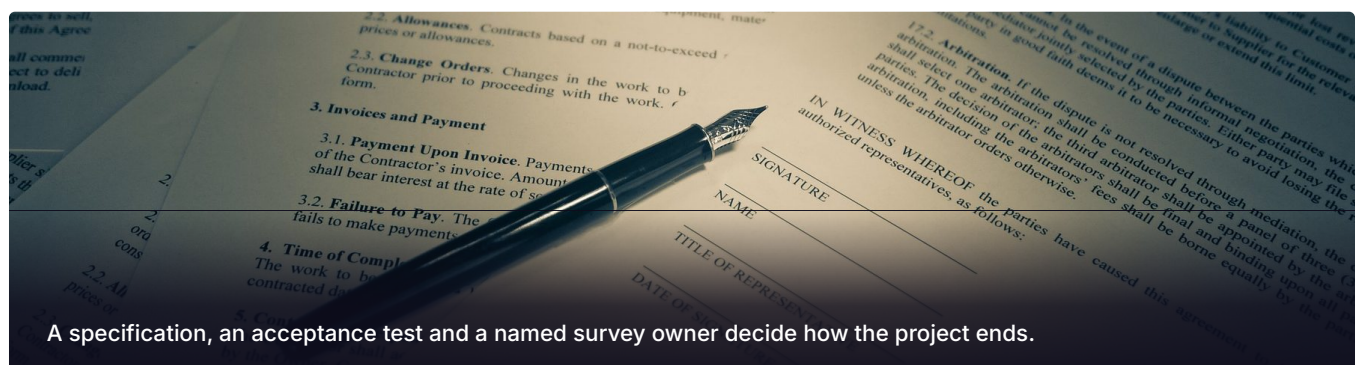
- ☐ The system that stays master of the asset record
- ☐ Fields written back, in which direction and how often
- ☐ A test environment and live data for interface testing

COMMERCIAL

- ☐ Site survey scope, named owner and delivery date
- ☐ Encoding volume, method and acceptance test
- ☐ Support model: response times, spares, replacement

ONE MORE LINE, AND IT IS THE ONE THAT MATTERS

Write down what "done" looks like: the count that must reconcile, the report it must produce, and the date it must first produce it. A system with an acceptance test is bought; one without it is subscribed to.



A specification, an acceptance test and a named survey owner decide how the project ends.

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NEXT STEP

Working with Swedish Technology

If the checklist on the previous page has gaps, the next step is a survey rather than a proposal — a proposal would answer those gaps with an assumption.

CERTIFICATION

- ✓ **ISO 9001:2015**
Quality management
- ✓ **ISO/IEC 27001:2022**
Information security management
- ✓ **ISO 45001:2018**
Occupational health and safety
- ✓ **ISO 14001:2015**
Environmental management

Certification describes how the work is run: a documented quality process, an information-security management system, and defined safety and environmental practice on your site. It is not a statement about the outcome of your project.

INTEGRATION

- Odoo
- SAP
- Oracle
- Microsoft Dynamics 365
- NetSuite
- WMS, including Octopus WMS
- CMMS / CAFM / EAM
- ServiceNow

Delivered by API, by middleware or by a custom interface, depending on what the receiving system exposes.

HARDWARE SUPPORTED

- Zebra
- Chainway
- Impinj
- Chafon
- Nordic ID
- TSL
- FEIG
- CAEN RFID
- Honeywell
- Alien Technology
- Datalogic

Supported means our engineers integrate, deploy and maintain it. It is not a partnership or an endorsement by the manufacturer.

NEXT STEP

Request a site survey

A survey establishes read behaviour on your own materials, the read points your process needs and the tag classes your environment demands — before anything is quoted.

[Request a Site Survey](#)

[Request a Technical Consultation](#)

OFFICE

Mai Tower 505, Dubai, UAE

EMAIL

info@swedishtechology.com

TELEPHONE

+971 4 733 3566

MOBILE

+971 56 404 6555

WEB

swedishtechology.com

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