Wiliot

CASE STUDY · 2026

AUTOMOTIVE MANUFACTURING

Where RFID failed, a top-five automaker got 100% visibility

A leading global automaker validated battery-free tracking on the returnable assets RFID could not see — metal-dense bins and layered racks — with a 10-month payback.

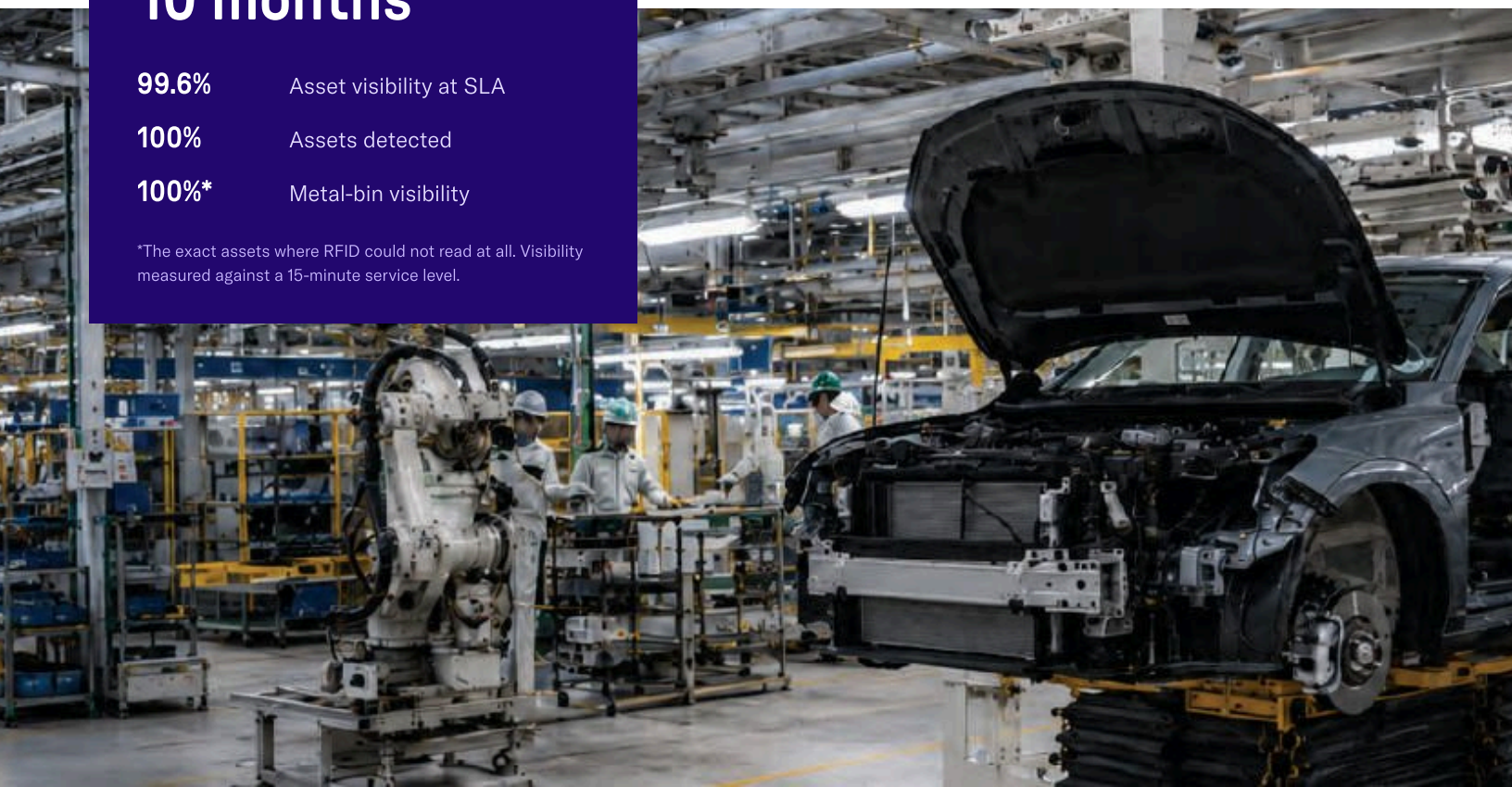
BUSINESS IMPACT AT A GLANCE

PAYBACK PERIOD

10 months

99.6%	Asset visibility at SLA
100%	Assets detected
100%*	Metal-bin visibility

*The exact assets where RFID could not read at all. Visibility measured against a 15-minute service level.



PROJECT OVERVIEW

Industry	Top-five global automotive manufacturer
Environment	High-volume vehicle assembly plant — staging, dock, and trailer
Use case	Reusable asset tracking across a closed-loop, supplier-to-line returnable network
Assets in network	400,000+ reusable containers, totes, racks, and pallets
What was tested	139 assets · 9 asset types · 425 battery-free IoT Pixels · 3 zones · 187K sensing events

01

The challenge

With 400,000+ reusable assets circulating between suppliers and the line, the manufacturer had no reliable count of how many existed or where they were.

Three problems compounded:

- **No visibility.** Over 400,000 assets moved through the network with no dependable inventory or location.
- **Return gaps.** Roughly $3M a year in chargebacks from empty totes not returning to suppliers fast enough — forcing costly cardboard repack when reusables ran short.
- **RFID failed.** Metal parts and dense stacking blocked RFID. The hardest assets — enclosed metal bins and layered racks — stayed invisible.

The test set out to prove one thing: that Wiliot could read metal-dense, palletized assets where RFID cannot. The commitment going in was an 85% read rate.

02

The solution

Wiliot applied battery-free IoT Pixels — two to four per asset — and captured reads continuously across staging, dock, and a sealed trailer using low-cost Bluetooth infrastructure. No scanning, no fixed RFID gates.

Tagged 139 assets across 9 types. Validating the full RF range, from open plastic totes to fully enclosed metal bins.

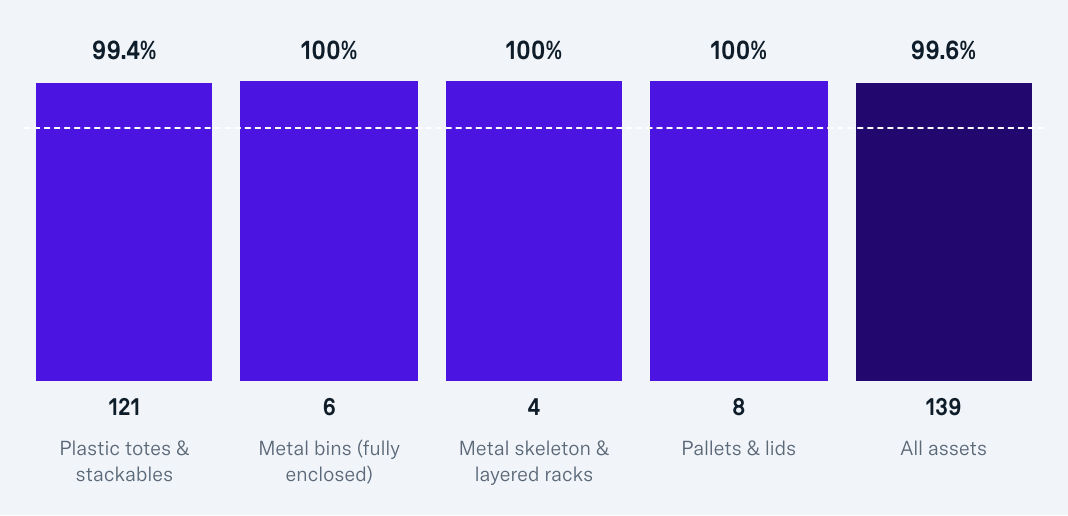
Redundant tagging. Two tags per asset on opposite faces. When metal walls shadowed one tag, the other held the read — so the asset was never lost, even when an individual tag read intermittently.

Sealed-trailer test. With doors closed in the yard, only the trailer's onboard bridges could see in — capturing the transit leg the manufacturer loses visibility on today.

03

The results

Every asset type cleared the 85% commitment — by a wide margin. Across all 139 assets, visibility averaged 99.6% at the 15-minute service level, and 100% of functional assets were detected.



Asset visibility at the 15-minute SLA, by asset type (number of assets tested). Dashed line: 85% commitment.

On the enclosed metal bins where RFID could not read at all, Wiliot IoT Pixels delivered 100% asset visibility at the SLA.

Two tags per bin: when metal walls shadowed one, the other held the read.



Visibility that follows the asset. Tracking continued from the dock onto the loaded trailer with no added infrastructure, closing the in-transit blind spot most systems lose the moment an asset leaves the building.

Always-on, not just at checkpoints. Every asset reported its location continuously (far more often than needed for reliable real-time tracking) so the data stays fresh and accurate with significant reliability headroom, even on the hardest-to-read assets.

04

The ROI

Deployed across three sites and 40,000 reusable assets, the solution pays for itself in under a year.

$1.1M	10 months	117%
ANNUAL SAVINGS	PAYBACK	FIRST-YEAR ROI

WHERE THE ANNUAL SAVINGS COME FROM



SAVINGS DRIVER	ANNUAL SAVINGS	SHARE
Cardboard repack reduction	$975,000	86%
Shrinkage reduction	$93,375	8%
Labor & reconciliation	$60,500	5%
Total	**$1,128,875**	

The largest driver. ~$975K a year in avoided cardboard repack and its chargebacks. The rest comes from reduced shrinkage, faster mis-ship resolution, and scan-free handling.

WHY WILIOT

ABOUT WILIOT

Wiliot is a Physical AI company that gives organizations continuous, scan-free visibility into the location and condition of every item in their supply chain. Battery-free Bluetooth sensors, called IoT Pixels, capture the data, and the Wiliot Physical AI platform refines it into actionable insights — predicting problems like shrink, mis-ships, and spoilage, and recommending the next move. Trusted by many of the world's largest retailers, carriers, and consumer brands, Wiliot has tagged more than 1 billion assets worldwide.

See what continuous, scan-free visibility could recover in your returnable-asset network. Book a working session with the Wiliot team at wiliot.com/contact.

