

KEEP RETURNABLE PACKAGING MOVING

Cross-enterprise visibility for automotive racks, bins and pallets - from supplier to line side and back into the pool.

VISIBILITY	PRECISION	CONTROL	SECURE
one asset identity across the supply chain	3 m / 10 ft resolution inside configured facilities*	each partner sees only authorized location detail	no facility-LAN dependency reduces integration exposure

THE CHALLENGE

Automotive production depends on a continuous circulation of reusable racks, bins and pallets. When a container is missing or slow to return, a supplier may be unable to ship ready parts. At the same time, excess dwell in staging, line-side areas or consolidation centers can signal a material-flow problem before it becomes a production issue.

The information is often fragmented across companies, sites and systems. Teams search, expedite, rebalance or buy additional packaging without a dependable view of where existing assets are located or how quickly they are turning.

THE OPERATIONAL COST

Poor packaging visibility increases search and reconciliation work, emergency purchases, premium freight and pool imbalance. More importantly, packaging shortages can place otherwise available parts - and the production schedule - at risk.

> The packaging is reusable.
> The information about it is often fragmented.

A PERSISTENT VIEW ACROSS THE CLOSED LOOP

01	02	03	04
SUPPLIER	CONSOLIDATION	PLANT & LINE SIDE	RETURN LOOP
Confirm packaging availability for the next release.	Measure arrivals, dwell, sequencing and departure.	See staging, point-of-use and dwell exceptions.	Find stopped assets and rebalance the shared pool.

SHARED VISIBILITY WITHOUT EXPOSING THE PLANT FLOOR

SPARQ separates asset identity, signal capture, geolocation and business permissions so each organization can participate at the appropriate level of detail.

ONE PROTOCOL. MANY PARTICIPANTS.

Aligning suppliers, logistics providers and plants to a common tracking protocol becomes practical through cost-effective, infrastructure-light deployment and restricted, permission-based visibility for every participant.

THE SPARQ APPROACH

A proprietary SPARQ tracking protocol follows the returnable asset wherever participating infrastructure is available. Facility users can receive precise location, while external partners receive only the authorized facility, arrival, departure or dwell information appropriate to their role.

Encrypted messages carry only the identifiers and signal observations required for geolocation. Approved events and dwell metrics can be delivered through APIs to each participant's preferred operational platform.

INFRASTRUCTURE-LIGHT DEPLOYMENT

- BLE trackers matched to each asset
- Battery repeaters provide redundant coverage
- Cellular gateways avoid production Wi-Fi and LANs
- Cloud geolocation resolves facility, zone or ~3 m
- APIs, dashboards and alerts drive action

THE DECISIONS VISIBILITY ENABLES

PACKAGING AVAILABILITY PROTECTION
Confirm that suppliers have the containers needed for upcoming releases.

FASTER ASSET CIRCULATION
Identify excess dwell and move containers back into circulation faster.

LOSS AND SEARCH REDUCTION
Find assets with stale locations, unexpected routes or prolonged inactivity.

SHARED POOL BALANCING
Move existing capacity from surplus nodes to locations facing a shortage.

EARLIER FLOW-PROBLEM DETECTION
Use line-side and staging dwell to identify accumulation or starvation risk earlier.

> Visibility turns returnable packaging from an unmanaged expense into measurable production infrastructure.

BUILD THE BUSINESS CASE FROM REAL DATA

AVOIDED REPLACEMENT PURCHASES	RECOVERED LABOUR	REDUCED PREMIUM FREIGHT	DEFERRED POOL EXPANSION

START WITH A CONTROLLED FIELD STUDY

Select a returnable-packaging route that includes actual custody transfers between a supplier or consolidation centre and a manufacturing plant. Establish baseline measurements for asset loss, cycle time, dwell time, search labour, premium freight and available pool capacity. Then deploy trackers on a representative group of assets and monitor their movement through the complete receiving, staging, and line-side workflow.

VALIDATE BEFORE SCALING

Measure location performance, coverage, latency, battery assumptions, dwell events, permissions and user response. Compare the results with the baseline, quantify hard savings separately from production-risk reduction, and use the evidence to design the scaled network.

KEEP PACKAGING MOVING. PROTECT PARTS FLOW. REDUCE PRODUCTION RISK.

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*Approximately 3 m (~10 ft) is an intended performance specification for a properly configured deployment and requires validation under representative operating conditions.