VENTORY

WHITEPAPER · 2026

SUPPLY CHAIN RESILIENCE GUIDE

Beyond Tier One

The Invisible Supply Chain

You can see your suppliers. Can you see your stock? A practical guide to the tiers your ERP, your control tower and your risk dashboard never reach.

For supply chain, operations and service leaders in
MedTech · 3PL · Field Services · Energy

Field Inventory Management.
Anytime. Anywhere.

EXECUTIVE SUMMARY

Most supply chains are only visible in the middle.

Five years of resilience work pushed hard on tier one. It worked. Visibility of direct suppliers is now close to universal. But a supply chain has two ends, and both still go dark.

Upstream, the risk sits with the suppliers of your suppliers. Most companies have mapped some of them. Few monitor them.

Downstream, the risk sits in stock you already paid for. In engineer vans. At customer sites. In hospital consignment closets and forward stocking locations. Your ERP knows it left the warehouse. After that, it takes a phone call to find it.

This guide maps both ends, puts a number on the gap and gives a seven-step playbook to close it.

It goes deepest on the downstream half. That is where most programmes stop looking. It is also where most of the money leaks: in emergency freight, write-offs, SLA penalties and lost hours.

95% vs 42%

see tier-one supplier risk. Only 42% see into tier two or beyond.

McKinsey, Supply chain risk pulse 2025 [1]

63%

average field inventory accuracy across 3PLs. In the warehouse it is 99%.

Ventory 3PL Gap Report 2026, n=312 [5]

73%

sent emergency freight in the past year because nobody knew where the stock was.

Ventory 3PL Gap Report 2026, n=312 [5]

1 in 3

MedTech field teams had a case delay or cancellation tied to inventory in the past 90 days.

Ventory MedTech Gap Report 2025, n=150+ [6]

Inside this guide

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01 UPSTREAM

Tier one is where the map ends.

Ask a supply chain team who supplies them and you get a clean answer. Ask who supplies their suppliers and it gets vague. Ask where their own spare parts are today and it goes quiet.

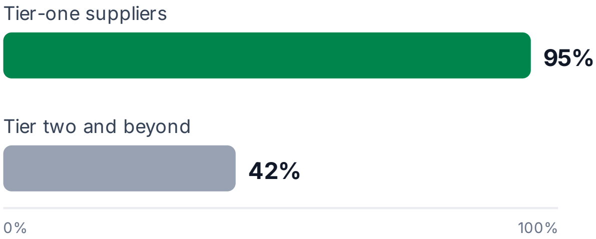
McKinsey's 2025 supply chain risk pulse puts numbers on the first two answers. **95% of companies now see risk at their tier-one suppliers. For tier two and beyond, it is 42%.**[1]

Mapping is further along than monitoring. 58% of respondents have mapped their tier-two suppliers. Fewer than half of those have regular, direct contact with them.[1] A map shows where a supplier is. It does not show what is happening there.

Effort goes where it is easiest. In McKinsey's 2024 survey, tier-one visibility rose ten points for the second year running. Good visibility into deeper tiers fell seven points, also for the second year running.[2]

Some leaders do go deeper. The BCI Supply Chain Resilience Report 2024 found that 17.1% of organisations now analyse critical suppliers down to tier four and beyond, up from 3.7% a year earlier.[3] Still a small minority.

Share of companies with visibility of supplier risk



Source: McKinsey, Supply chain risk pulse 2025.[1]

WHY IT MATTERS

3.7 yrs
average gap between disruptions lasting a month or longer

~45%
expected losses per decade, as a share of one year's profits

McKinsey Global Institute, Risk, resilience, and rebalancing in global value chains.[4]

TWO MEANINGS OF "TIER"

Upstream and downstream both have tiers.

In procurement, tier one is your direct supplier. Tier two supplies them. Tier three supplies tier two.

In service logistics, the tiers run the other way. Tier one is the central warehouse. Tier two is the regional hub. Tier three is the van, the project site and the customer's shelf.

This guide uses both. In both directions, visibility fades with every step away from your ERP.

Three questions for your next supplier review

QUESTION 1

Which critical parts depend on a single tier-two or tier-three source?

QUESTION 2

When did we last hear from that source directly, not through tier one?

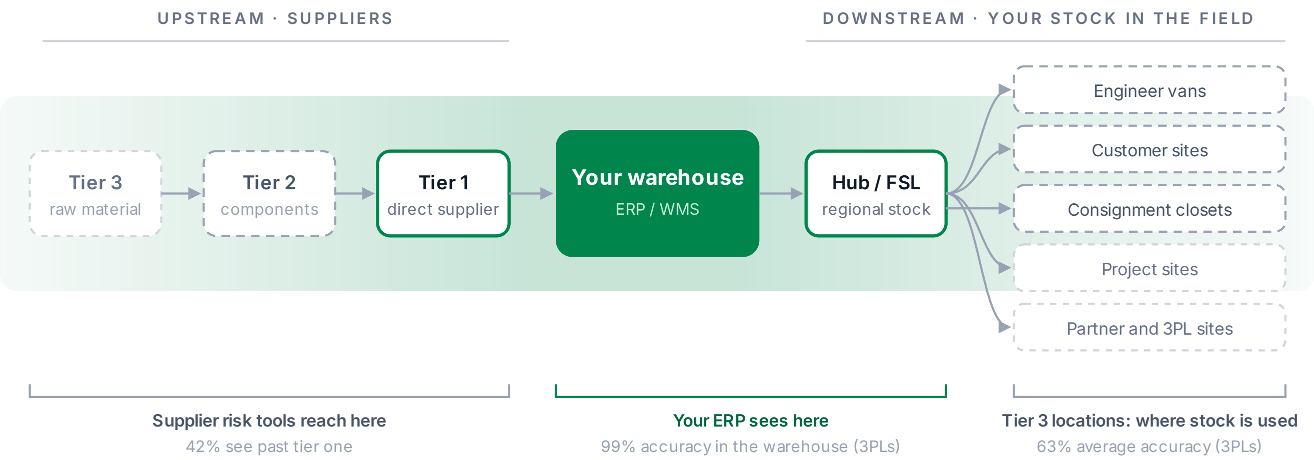
QUESTION 3

If it stopped tomorrow, how many days of stock do we hold, and where exactly is it?

02 DOWNSTREAM

The tiers nobody maps.

Most visibility programmes look upstream. The other invisible supply chain starts at your own loading dock.



Shaded band: how much of the chain is visible. Sources: McKinsey 2025,[1] Ventory 3PL Gap Report 2026.[5]

Once stock leaves the warehouse it splits into hundreds of small locations. A van is one bin in the ERP. A hospital consignment closet is one line on a customer account. A project site is a delivery note.

The goods are still yours. They sit on your balance sheet and behind your service promise. You just cannot see them.

This is not a niche. It is where service happens. A missing implant delays a surgery. A missing inverter part keeps a solar park offline. A missing spare breaches an SLA. **The part rarely failed to exist. It failed to be found.**

> "WMS's and ERPs are clunky and designed to be deployed for large Tier 1 and Tier 2 locations. Ventory fills a clear need in the market for digitizing a growing number of Tier 3 locations and beyond like project sites, engineer vans, inventory at customer locations, etc."
>
> **Andy White**, Director, Manufacturing Logistics, DHL

Logistics teams call these places tier 3 locations. Few supply chain maps include them. Fewer risk registers do.

Tier 3 locations, by sector

MEDTECH
Consignment closets, loaner kits, trunk stock

3PL
Forward stocking locations, customer sites

FIELD SERVICES
Engineer vans, technician kits

ENERGY
Project sites, wind and solar parks

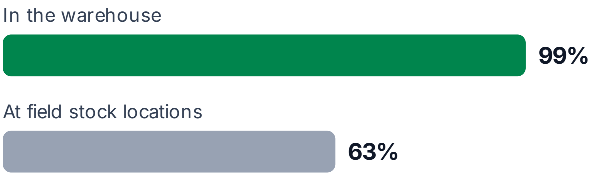
CRITICAL SECTORS
Dispersed depots, forward sites

02 DOWNSTREAM, IN NUMBERS

Inside the warehouse: 99%. In the field: a guess.

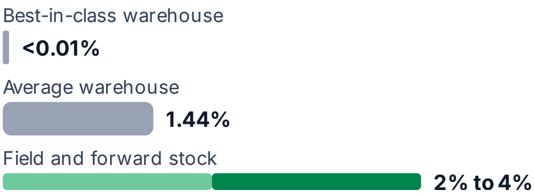
Ventory surveyed more than 460 operations, supply chain and field professionals in two sectors. The same picture came back twice.

Inventory accuracy, 3PLs



Ventory 3PL Field Inventory Digitization Gap Report 2026.[5]

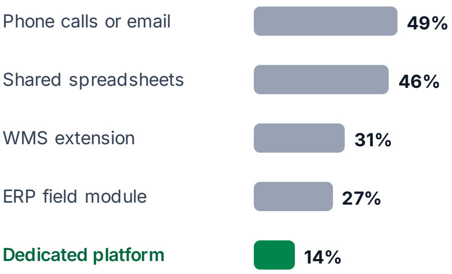
Annual shrinkage, 3PLs



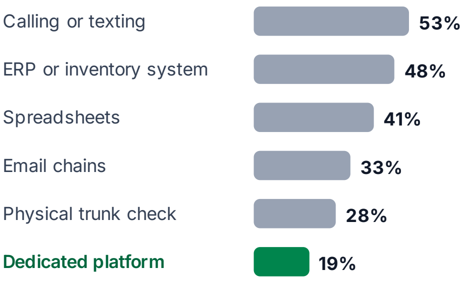
Same source. Field range shown from low to high estimate.[5]

How teams confirm field stock today

3PLs, n=312 (multiple answers)



MedTech field teams, n=150+ (multiple answers)



Sources: Ventory 3PL Gap Report 2026,[5] Ventory MedTech Inventory Visibility Gap Report 2025.[6]

NO SYSTEM OF RECORD

71% of 3PLs rely solely on phone, email and spreadsheets for field stock. In MedTech, **68%** rely on calls, texts or spreadsheets to confirm stock before a case.

LOW CONFIDENCE

Only **18%** of 3PLs are very confident in their field data. In MedTech, **22%** are very or completely confident.

STALE DATA

Only **11%** of MedTech teams update field stock in real time. **57%** update weekly or less often.

WHAT THE LEADERS DO DIFFERENTLY

Only 14% of 3PLs run a dedicated field inventory platform.[5] That is the gap. Teams that close it with Ventory report **99.76% rolling stock accuracy** and **70% fewer stockouts**.[8]

74%

of MedTech field teams say better real-time visibility would improve their ability to support patient care.[6]

03 THE COST

What the invisible tiers cost.

Invisibility never shows up as one line in the P&L. It hides in freight, write-offs, penalties and hours. Add it up and it is a seven-figure number.

MEDTECH · 75 FIELD REPS

COST DRIVER	PER YEAR
Expired or unused product write-offs	$180K to $350K
Emergency freight	$120K to $280K
Unbilled or delayed revenue	$250K to $500K
Rep time lost to manual tasks	$200K to $420K
Estimated leakage	**$750K to $1.55M**

Ventory MedTech Inventory Visibility Gap Report 2025.[6]

3PL · 100+ FIELD STOCK LOCATIONS

COST DRIVER	PER YEAR
Emergency freight	$250K to $600K
Shrinkage and unreconciled stock	$180K to $450K
SLA penalty payments	$120K to $350K
Manual reconciliation labour	$200K to $400K
Expired or obsolete write-offs	$150K to $300K
Capital tied up in overstock	$300K to $700K
Estimated cost	**$1.2M to $2.8M**

Ventory 3PL Field Inventory Digitization Gap Report 2026.[5]

73%

of 3PLs sent emergency freight in the past year because of a field stock visibility failure. "Not because the inventory did not exist, but because they did not know where it was."

Ventory 3PL Gap Report 2026.[5]

The knock-on effects

62%
of 3PLs had an SLA breach caused by a field stock error

66%
of 3PLs found systematic overstocking. Stock you cannot see, you buy twice.

47%
of MedTech teams see billing delays from inventory issues monthly or weekly

Sources: Ventory 3PL Gap Report 2026,[5] Ventory MedTech Gap Report 2025.[6] Cost ranges are survey-based estimates for a typical organisation of the stated size.

WORKSHEET · PUT A NUMBER ON YOUR OWN GAP

Or use the ROI calculator at ventory.io/resources/roi-calculators

Emergency shipments for stock you already owned, per year × average cost	
Write-offs of expired or obsolete field stock, per year	
Hours a week on manual inventory tasks × people × hourly cost × working weeks	
Your invisible-tier cost, per year	

04 ROOT CAUSES

Why visibility decays at every tier.

Nobody decides to lose sight of their stock. It happens one handover at a time. Six causes show up again and again, upstream and downstream.

CAUSE 1

Ownership and custody split.

In consignment, you own the stock and your customer holds it. In 3PL, the customer owns the parts and you hold them. By default, nobody has the full picture.

CAUSE 2

Every tier adds a party and a system.

Distributor, carrier, 3PL, subcontractor, end customer. Each keeps its own records, in its own format, on its own schedule. Upstream it is the same with sub-tier suppliers.

CAUSE 3

The ERP sees a location, not a shelf.

ERPs were built for warehouses. A fleet of 200 vans becomes 200 bins with no scan history, no expiry date and no named owner.

CAUSE 4

No signal, no data.

Hospital basements. Wind farms. Rural substations. If a tool needs a connection, the data waits until the evening. Or it never arrives.

CAUSE 5

Counts are events, not a process.

A quarterly count tells you what was there on one day. Only 11% of MedTech field teams update stock data in real time.[6] The rest work from yesterday's number, or last month's.

CAUSE 6

Counting is nobody's job.

Field teams are measured on cases, installs and uptime. Yet 57% of MedTech reps spend five or more hours a week on manual inventory tasks.[6] Admin that nobody owns gets skipped.

THE COMMON THREAD

Every step away from your own system adds a party, a format and a delay.

The fix is the same in both directions. One system of record for every tier that matters, fed at the moment stock moves, and connected back to the systems you already run.

A quick test

Pick your most critical spare part or product. Ask three people where every unit is right now: someone in operations, someone in the field and someone in finance. If the three answers differ, or take more than an hour, you have found your invisible tier.

05 THE PLAYBOOK

Seven moves to see beyond tier one.

Start with the tiers where a missing part hurts most. Then widen the circle.

1

Map every place that holds your stock.

Not just every supplier. List warehouses, hubs, vans, customer sites, consignment accounts and partner sites. Most teams find far more locations than they expected.

GOOD LOOKS LIKE
One list of every stock location, with a named owner for each.

2

Rank tiers by what a stockout costs.

A delayed surgery, a breached SLA and an offline turbine are not equal. Put visibility effort where the consequence is highest, upstream and downstream.

GOOD LOOKS LIKE
A critical-location list agreed by operations, sales and finance.

3

Give every critical tier a system of record.

Chat threads and spreadsheets are not records. Each critical location needs one live stock position that everyone reads from.

GOOD LOOKS LIKE
Zero critical locations run by call, text or spreadsheet.

4

Capture data where stock moves.

Scan at the van, the site and the point of use. Serial, lot and expiry at the moment of movement. Online or offline.

GOOD LOOKS LIKE
Usage recorded the same day, with user, time and place.

5

Connect it to the ERP you already run.

Do not rip and replace. The field layer feeds the ERP. The ERP stays the financial truth. No rekeying in between.

GOOD LOOKS LIKE
Field movements reconciled to the ERP automatically.

6

Share visibility across the tier boundary.

Give customers and partners a view of the stock they hold or own. Upstream, agree regular data sharing with critical tier-two suppliers.

GOOD LOOKS LIKE
Partners see the same numbers you do.

7

Measure accuracy per tier, not in total.

A 99% warehouse can hide a 63% field. Track accuracy, days to reconcile and emergency shipments per tier, every month.

GOOD LOOKS LIKE
A monthly tier scorecard reviewed by leadership.

Three mistakes to avoid

Starting at the top.

A control tower is only as good as the data at the edge. Fix capture first, then build the dashboard.

Rolling out everywhere at once.

Pilot the highest-risk locations. Prove the numbers. Then scale with the business case in hand.

Treating the count as the project.

A wall-to-wall count fixes one day. A system of record fixes every day after it.

06 SECTOR LENS

Same gap. Different consequences.

The invisible tier looks different in every industry. The question it raises is always the same: where is the part right now?

MEDTECH

Consigned implants, loaner kits, trunk stock.

Visibility decides whether a case goes ahead and whether usage gets billed. Traceability rules add pressure. The FDA's QMSR took effect on 2 February 2026.[7] Traceability expectations do not stop at the warehouse door.

Track: case delays tied to inventory, days from use to invoice.

3PL AND LOGISTICS

Customer-owned spares at forward stocking locations.

You hold the stock, the SLA and the penalty. 62% of 3PLs had an SLA breach from a field stock error last year, and 38% triggered contract penalty clauses.[5]

Track: SLA hit rate and emergency shipments per location.

FIELD SERVICES AND ENERGY

Engineer vans, project sites, remote assets.

A wind turbine or a solar inverter waits on one part. Often that part sits in another van, one region over. Nobody knows, so a new one ships.

Track: first-time fix rate, truck rolls for missing parts.

DEFENCE AND CRITICAL INFRASTRUCTURE

Spare parts at dispersed and forward sites.

Readiness depends on parts that sit far from the central depot. A resilience plan that stops at tier-one suppliers cannot answer the first question in a crisis: where is the part right now?

Track: time to locate a critical part across all sites.

Your first 90 days

DAYS 1 TO 30 · SEE

Map and baseline.

- List every stock location and name an owner.
- Spot-count ten critical sites. Compare with the ERP.
- Log every emergency shipment and why it happened.

DAYS 31 TO 60 · CAPTURE

Pilot where it hurts most.

- Pick the highest-risk locations.
- Put scan-based capture in field hands, offline included.
- Replace calls and spreadsheets with one record.

DAYS 61 TO 90 · CONNECT

Integrate and scale.

- Connect field data to the ERP.
- Publish the first tier scorecard.
- Decide the rollout, backed by pilot numbers.

4-8
weeks to live

Why 90 days is realistic. Ventory runs on top of the ERP you already have, so there is no replacement project. Teams go live in 4-8 weeks, which leaves the final month for the first scorecard and the rollout decision.

07 SELF-ASSESSMENT

Where do you stand?

Four levels of tier visibility. Most organisations sit at level one or two for their field stock, even when their warehouse is at level four.

LEVEL	HOW STOCK BEYOND TIER ONE IS TRACKED	WHAT YOU CAN ANSWER
LEVEL 1 **Dark**	Calls, texts and spreadsheets. Counts when someone asks.	"We think it is in the Leeds van. Let me check."
LEVEL 2 **Periodic**	Field locations exist as ERP bins. Monthly or quarterly counts.	What was there on the last count date.
LEVEL 3 **Connected**	A system of record per location. Scan-based capture, offline included. Synced to the ERP.	What is where today, with serial, lot and expiry.
LEVEL 4 **Resilient**	Live stock across all tiers. Alerts, smart replenishment, partner views, tier scorecard.	What will run out, where, and what to move before it does.

Ten-question self-check

01	We have one list of every location that holds our stock, with an owner per location.	☐ Yes	☐ No
02	We can state today's stock at any field location without calling anyone.	☐ Yes	☐ No
03	Field movements are captured by scan at the moment they happen.	☐ Yes	☐ No
04	Capture works without a network connection.	☐ Yes	☐ No
05	Serial, lot and expiry are recorded for field stock where they apply.	☐ Yes	☐ No
06	Field data reaches the ERP without anyone rekeying it.	☐ Yes	☐ No
07	We measure inventory accuracy per location type, not only in total.	☐ Yes	☐ No
08	Customers and partners who hold our stock see the same numbers we do.	☐ Yes	☐ No
09	We have mapped our critical tier-two suppliers and review them at least once a year.	☐ Yes	☐ No
10	Last quarter, we sent no emergency freight for stock we already owned somewhere else.	☐ Yes	☐ No

0 to 2 yes
Level 1. Start with questions 1 and 2.

3 to 5 yes
Level 2. Move capture to the field.

6 to 8 yes
Level 3. Share and measure per tier.

9 to 10 yes
Level 4. Keep it true as you grow.

08 HOW VENTORY HELPS

Make the invisible tiers visible.

Ventory is the field inventory layer between your ERP and your field teams. It does not replace your ERP or your supplier risk tools. It covers the tiers they never reach.

EVERY LOCATION

Vans, project sites, customer sites, consignment closets and forward stocking locations. One live stock position for each.

CAPTURE AT SOURCE

Multi barcode scanning with serial, lot and expiry. Instant cycle counts. Built for field teams, not warehouse clerks.

WORKING OFFLINE

Full capture with no signal. Data syncs when the connection returns. Basements and wind farms included.

CONSIGNED STOCKS

Track stock you own at customer sites, and stock you hold for customers. Usage flows to order management and billing.

ALERTS AND REPLENISHMENT

Expiry alerts, low-stock notifications and smart replenishment. Act before the stockout, not after.

ERP AND WMS INTEGRATION

Works with the systems you already run. No rip and replace. Available on the SAP Store and Microsoft Azure Marketplace.

99.76%	+30%	+35%	+70%	4-8 wks
rolling stock accuracy	productivity	excess stock reduction	reduction in stockouts	to go live

Results reported by Ventory customers, as published on ventory.io.[8]

CUSTOMER STORY · ELTEROS

From Excel to 250+ locations.

Field technicians at Elteros lost time chasing stock instead of doing project work. Excel tracking delayed billing, and shortages held up projects. Ventory connected 250+ locations and 130 active users to their ERP.

> “Ventory was selected for its partnership mindset. They allowed us to prioritize long-term problem prevention over quick fixes.”
>
> **Norvilas Žukauskas**, Chief Commercial Officer, Elteros

- **1.8x** company growth in 2 years
- **≥95%** inventory accuracy
- **9,200+** orders processed last year
- **Eliminated** payment collection delays

Trusted by teams at **DHL Supply Chain**, **Unilever** and **NHS London Ambulance Service**.

ISO 27001 | SOC 2 | GDPR

SOURCES AND METHODOLOGY

Where the numbers come from.

1 **McKinsey & Company**, Supply chain risk pulse 2025: Tariffs reshuffle global trade priorities, 2 December 2025. mckinsey.com/capabilities/operations/our-insights/supply-chain-risk-survey

2 **McKinsey & Company**, Supply chains: Still vulnerable. McKinsey Global Supply Chain Leader Survey 2024, 88 senior supply chain executives, fielded 26 April to 10 June 2024. mckinsey.com/capabilities/operations/our-insights/supply-chain-risk-survey-2024

3 **Business Continuity Institute (BCI)**, Supply Chain Resilience Report 2024. thebci.org

4 **McKinsey Global Institute**, Risk, resilience, and rebalancing in global value chains, 6 August 2020. mckinsey.com

5 **Ventory**, The 3PL Field Inventory Digitization Gap Report 2026. 312 validated respondents in EMEA (44%), North America (38%) and APAC (18%), fielded October 2025 to January 2026. Margin of error ±5.5% at 95% confidence. ventory.io/whitepapers/the-3pl-field-inventory-digitization-gap-report

6 **Ventory**, The MedTech Inventory Visibility Gap Report 2025. 150+ validated respondents with responsibility for field inventory, loaner kits, trunk stock or consigned product, across North America, EMEA and APAC, fielded Q1 2025. Margin of error ±7% at 95% confidence. ventory.io/whitepapers/the-medtech-inventory-visibility-gap-report

7 **U.S. Food and Drug Administration**, Quality Management System Regulation (21 CFR Part 820), effective 2 February 2026.

8 **Ventory**, customer results as published on ventory.io, and the Elteros customer story at ventory.io/case-studies.

Notes. Percentages from Ventory research are shares of respondents unless stated otherwise. Figures from the MedTech and 3PL reports that combine answer options (for example "weekly or less often") are sums of the published answer shares. Cost ranges are survey-based estimates for an organisation of the stated size, not a benchmark for any single company.

ABOUT VENTORY

Ventory gives leaders total control and visibility of inventory, anywhere, anytime. It is the field inventory layer between ERP and field teams, used by enterprises in MedTech, Renewable Energy, Field Services and 3PL to reach 99%+ accuracy at locations outside the warehouse.

Ventory BV · Excelsiorlaan 8, 1930 Zaventem, Belgium · BE 1001714644 · ventory.io

VENTORY

NEXT STEP

See every tier.
Anytime. Anywhere.

Bring one question to a 30-minute call: where is your most critical part right now? We will show you how to answer it for every location, in real time, on top of the ERP you already run.

Book a demo · ventory.io/company/get-in-touch

MEDTECH

MedTech Inventory Visibility Gap Report

ventory.io/whitepapers

3PL

3PL Field Inventory Digitization Gap Report

ventory.io/whitepapers

BUSINESS CASE

ROI calculator

ventory.io/resources/roi-calculators