CASE STUDY

Machinery & Equipment

Supply Chain Intelligence

3,400 spare part SKUs. Most of them guesswork. Now the right parts are where they need to be - before the machine breaks down.

Industrial machinery OEM & aftermarket parts supplier · 4 product lines · 3,400+ spare part SKUs · Pan-India distribution

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1. Overview

This industrial machinery manufacturer sold capital equipment to process industries and ran a parallel aftermarket spare parts business serving their installed base of 1,200+ machines across India. Their spare parts division stocked 3,400 SKUs - from high-velocity commodity wear parts to ultra-slow-moving critical spares selling twice a year. Managing this long-tail SKU base with a single ERP reorder policy was creating simultaneous overstock on low-risk parts and dangerous stockouts on critical ones.

In one 6-month period, they turned away 23 emergency spare part orders because critical parts were out of stock - and simultaneously held ₹1.8 crore in slow-moving inventory not moved in 90+ days. Two of the 23 stockouts resulted in customer machines down for 4+ days, threatening two service contract renewals.

2. Key Results

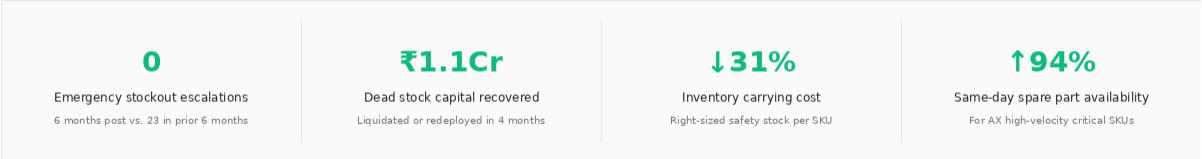

Figure 1: Key outcomes - 6 months post-deployment

3. Challenges

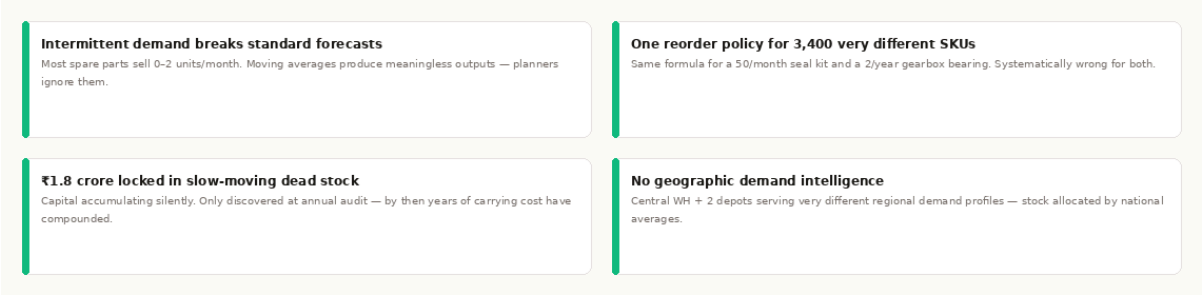

Figure 2: Four challenges driving simultaneous overstock and critical stockouts

Intermittent Demand Breaks Standard Forecasting

Most spare parts sell 0, 1, or 2 units per month. Standard moving average and MRP models assume a continuous demand stream and perform poorly on intermittent patterns - producing meaningless forecasts that planners learn to ignore, reverting to gut feel.

One Reorder Policy for 3,400 Very Different SKUs

Their ERP applied a single safety stock formula across all SKUs - a percentage of average monthly sales. This made no distinction between a seal kit selling 50/month and a gearbox bearing selling 2/year. Systematically wrong for both at the same time.

₹1.8 Crore Locked in Dead Stock

Without systematic dead stock detection, parts ordered based on historical demand continued accumulating even after the machine models they served were upgraded or discontinued. The capital impact was invisible until an annual physical audit - by then years of carrying cost had compounded.

No Geographic Demand Intelligence

Spare parts were distributed from a central warehouse and two regional depots. Demand differed significantly by region - food processing machinery in Punjab had very different wear part profiles versus textile machinery in Gujarat. Stock was allocated using national averages that fit no region accurately.

4. Our Solution

The core challenge was intermittent demand - a class of forecasting problem that standard algorithms cannot solve. We deployed Croston's method and variants for intermittent SKUs, combined with machine-age-weighted demand modelling that accounts for how wear part consumption rates change as installed machines age. The result: per-SKU safety stock recommendations reflecting actual risk, not formula averages.

Modules Deployed

Intermittent Demand Forecasting	**ABC-XYZ SKU Classification**	**Dynamic Safety Stock Engine**
Dead Stock Detection	**Multi-Location Inventory Balancing**	**AI Assistant**

Implementation Timeline

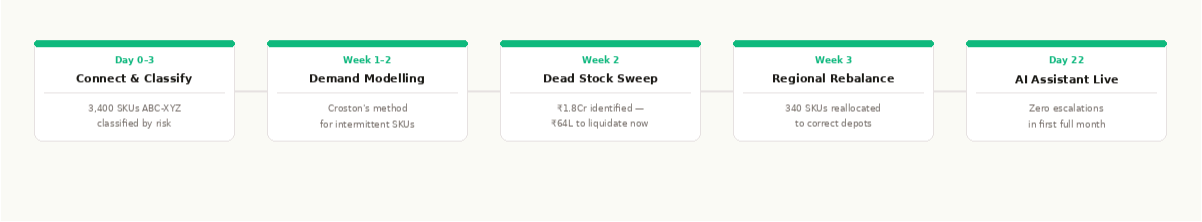

Figure 3: From SKU classification to zero emergency escalations in 22 days

Key Capabilities

- **Intermittent demand AI:** Croston's method for intermittent demand: designed specifically for spare parts with irregular, infrequent demand - standard algorithms don't work here

- **SKU classification:** ABC-XYZ classification applied to all 3,400 SKUs - separating high-velocity critical parts from slow-moving non-critical ones with different policies for each
- **Dead stock detection:** Dead stock flagged daily with exact capital value locked - not discovered at year-end audit
- **Regional intelligence:** Regional demand profiles built per depot - stock allocated to where it will actually sell, not national averages
- **Machine intelligence:** Machine-age weighting: wear part demand rates increase as machines age - the model accounts for the age profile of the installed base per region

5. Results - Before & After

Area	Before	With Innovacio
Emergency spare part stockouts	23 in 6 months — 2 formal complaints	0 in the following 6 months
Safety stock methodology	Single formula across all 3,400 SKUs	Per-SKU dynamic stock by demand profile
Dead stock identification	Found at annual physical audit only	Flagged daily — ₹1.8Cr found in 2 weeks
Slow-moving SKU treatment	Same reorder policy as fast-movers	Intermittent demand model applied
Regional stock allocation	National average — wrong for all regions	Region-specific — 340 SKUs rebalanced
Inventory carrying cost	₹1.8Cr+ non-moving at any time	↓31% — capital released and redeployed

Figure 4: Six operational metrics - before and after deployment

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> We were sitting on ₹1.8 crore of parts that weren't selling, while turning away customers whose machines were down because we didn't have the right part in stock. Both problems had the same root cause. Now we can see exactly which SKUs are doing what - and the AI tells us what to do about it.

- Anshul Sharma, GM Spare Parts Division · Indotec Machinery

6. See It in Your Operation

We connect to your ERP and show you - in 30 minutes - your current dead stock profile, intermittent SKU risk, and regional imbalances. On your actual data, in the demo.

Innovacio Technologies AI in Supply Chain	**Book a Free Discovery Call** 30 minutes · No commitment · Your data	**Phone** **Email** **Web**	**+91 90072 71601** **hello@innovaciotech.com** **innovaciotech.com**