A CONNECTED MANUFACTURING BRIEF

FROM POLYMER TO PIPE

Building a Connected Operating Model for PVC & Plastics Manufacturers

The journey from raw polymer to high-performance pipes involves more than just production. It's a story of precision, coordination and complete visibility.

THE COMPLETE JOURNEY

Raw Materials → Processing & Compounding → Manufacturing → Quality Control → Inventory → Dispatch → Sales & Finance

Because every stage matters — from material to market.

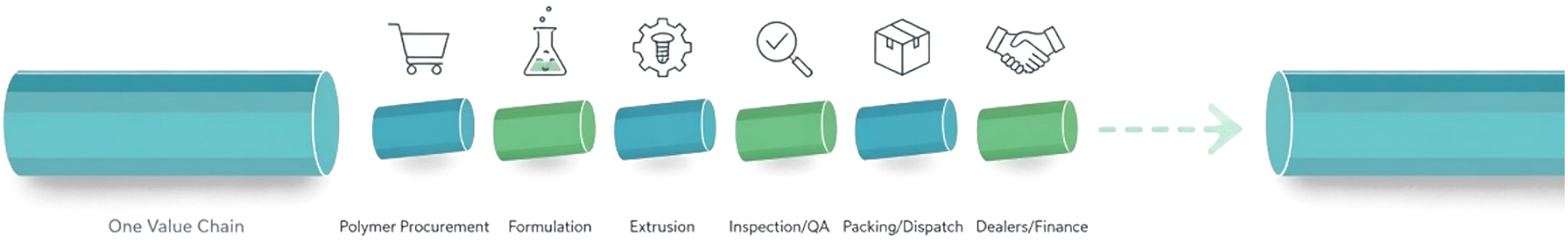
Let's explore how a connected approach can help you work smarter, reduce gaps and unlock new possibilities.

PRIXGEN TECH SOLUTIONS

SWIPE TO EXPLORE

One Value Chain.
Six Disconnected Systems.

Procurement, formulation, production, quality, inventory and finance are each owned by a different team, tracked in a different system, reconciled on a different schedule.



Polymer & Additive Procurement

Formulation & Compounding

Extrusion, Tooling & Cooling

Inspection, Testing & QA

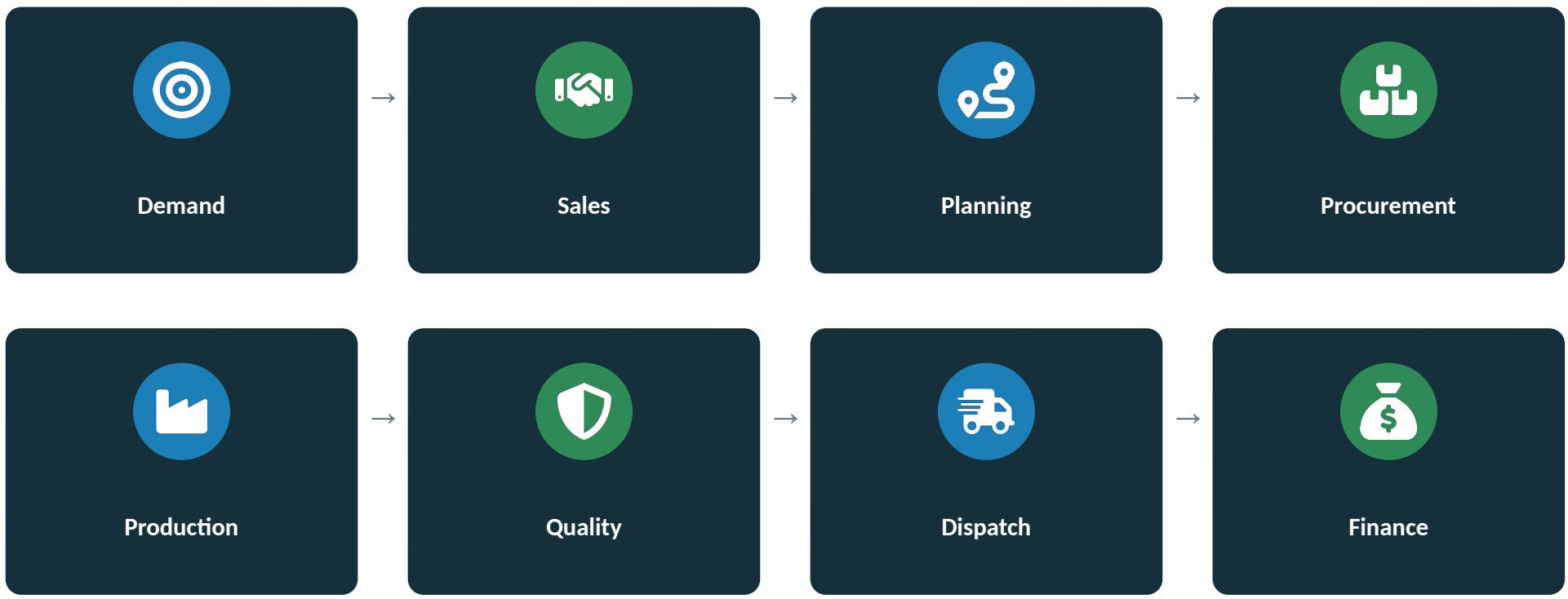
Packing, Warehousing & Dispatch

Dealers, Distributors & Finance

The future of plastics manufacturing is not automated production alone. It is connected decision-making across the entire value chain.

One Business.
Six Operational Lenses.

Demand flows into sales, sales into planning, planning into procurement and production — and finally into dispatch, the customer, and the finance function that closes the loop.



SIX OPERATIONAL DOMAINS UNDERNEATH THE CHAIN

A pipe manufacturer does not have six businesses to run. It has one business, expressed through six operational lenses.

Five Shifts Manufacturers Can't Ignore

None of these shifts is optional, and none is likely to reverse.

01

Demand Volatility & Forecasting Pressure

Markets move faster than periodic, manually reconciled planning cycles can track.

02

SKU & Variant Explosion

Diameter, wall class and colour combinations multiply master-data complexity.

03

Rising Traceability Expectations

Customers and regulators expect a defensible batch-to-dispatch audit trail.

04

Margin Pressure on Commodity Resin

Thin margins leave little room for hidden variance or unmanaged waste.

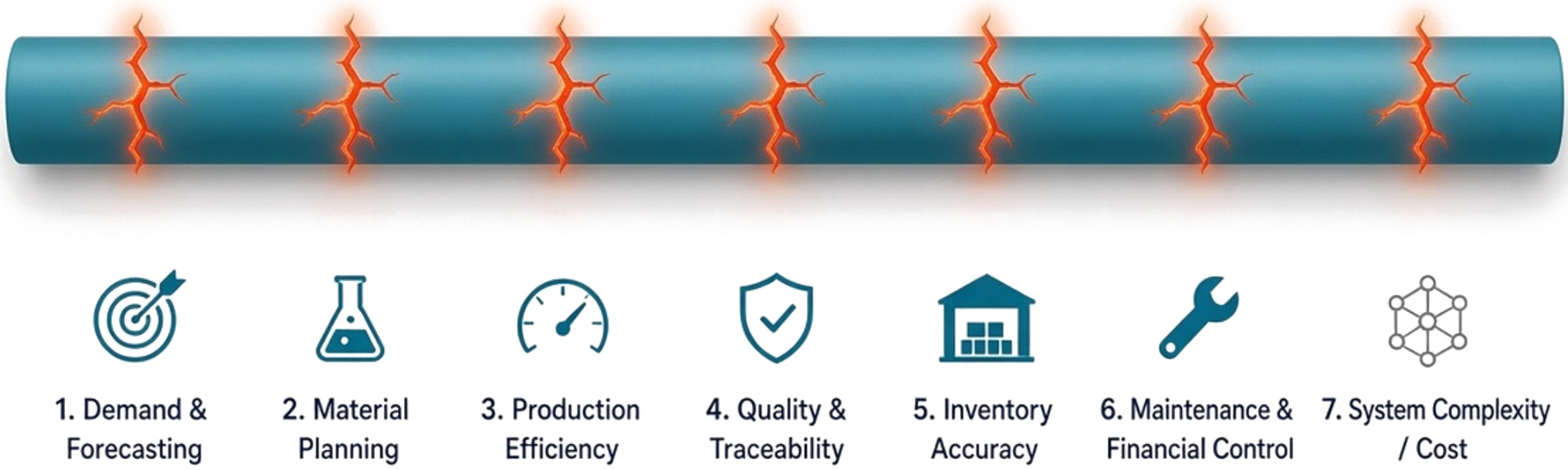
05

Capacity to Visibility, Response & Control

Advantage shifts from how much you can make to how well you can see and steer it.

The manufacturing advantage is shifting from capacity alone to visibility, responsiveness and control.

Seven Fault Lines in Modern Pipe Manufacturing



Demand & Forecasting — demand, capacity and inventory positioning can fall out of sync.

Material Planning — polymer, additive and packaging needs must align to the plan.

Production Efficiency — changeovers, scrap and line speed drive output economics.

Quality & Traceability — batches and inspection data need a defensible audit chain.

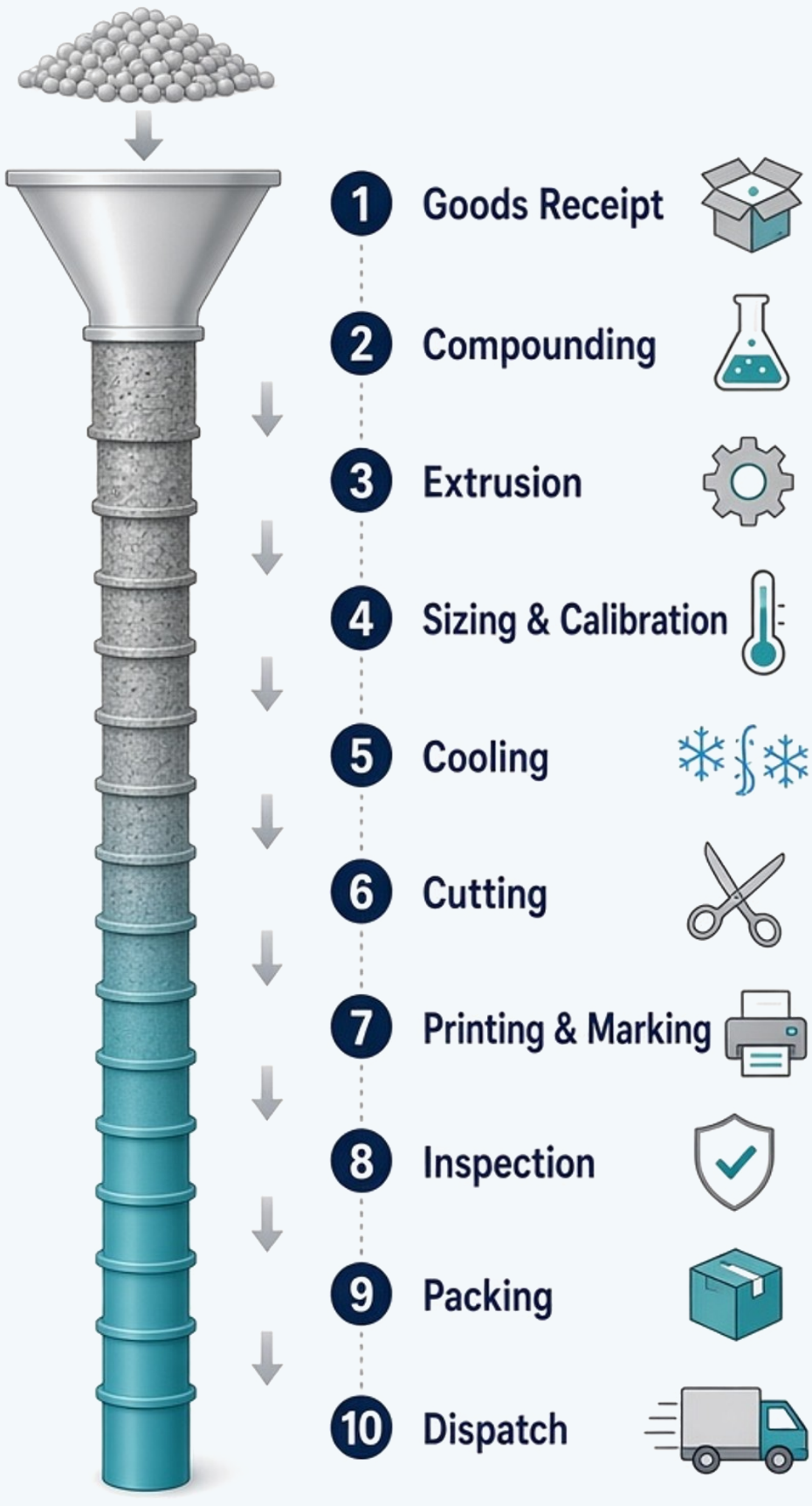
Inventory Accuracy — multiple warehouses, bins and lots complicate stock visibility.

Maintenance & Financial Control — downtime and cost variance must connect to the P&L.

System Complexity & Cost — untracked complexity doesn't disappear — it resurfaces as cost.

Complexity that is not modelled in the system is not eliminated. It simply resurfaces later, as cost.

From Polymer to Finished Pipe



Raw material in. • Quality through every step. • Finished pipe out.

Upstream control points capture batch identity; downstream points capture what shipped, to whom, and in what condition.

Two Costs Hiding in Plain Sight

Shooting Waste

Every colour or diameter change forces the extruder to re-stabilise. Material made in that window can't be sold as first-quality — and the cost scales with changeovers, not volume. Sequencing runs and routing scrap through a controlled reclaim loop turns it into a tracked KPI instead of a buried variance.

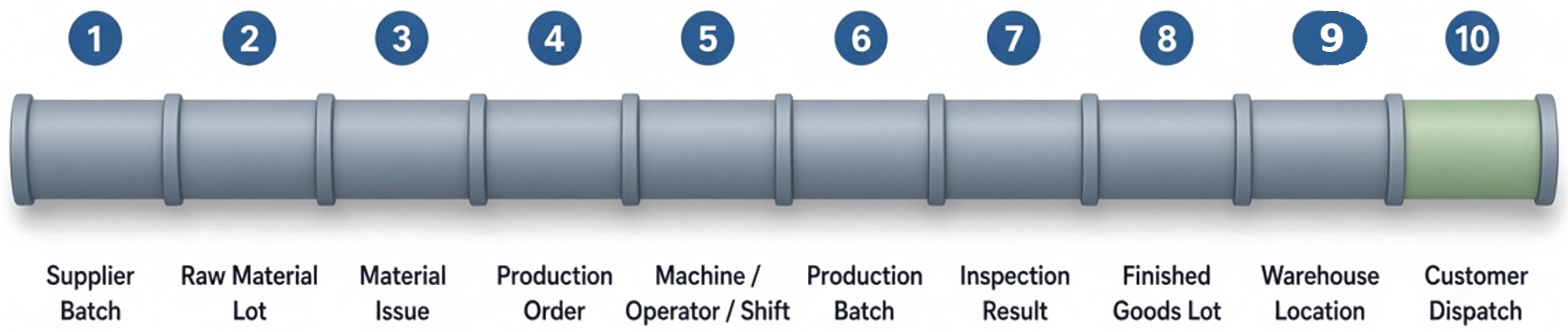
Wall-Thickness Paradox

A thinner pipe fails QC and is rejected — a thicker one still passes, quietly absorbing cost with every gram above spec. Condition-monitoring tracks wear continuously, flagging the tool for replacement before it ever fails an inspection.

Neither cost is tracked as its own line item by default. Both compound automatically as the product range grows — unless measured on purpose.

One Question.
Ten Links in the Chain.

A defensible traceability chain links a supplier batch all the way through to the customer dispatch it was issued against.



Root-Cause Speed

Trace a defect back to the exact batch, machine and shift in minutes, not days.

Recall Precision

Isolate only the affected lots — not the entire production run.

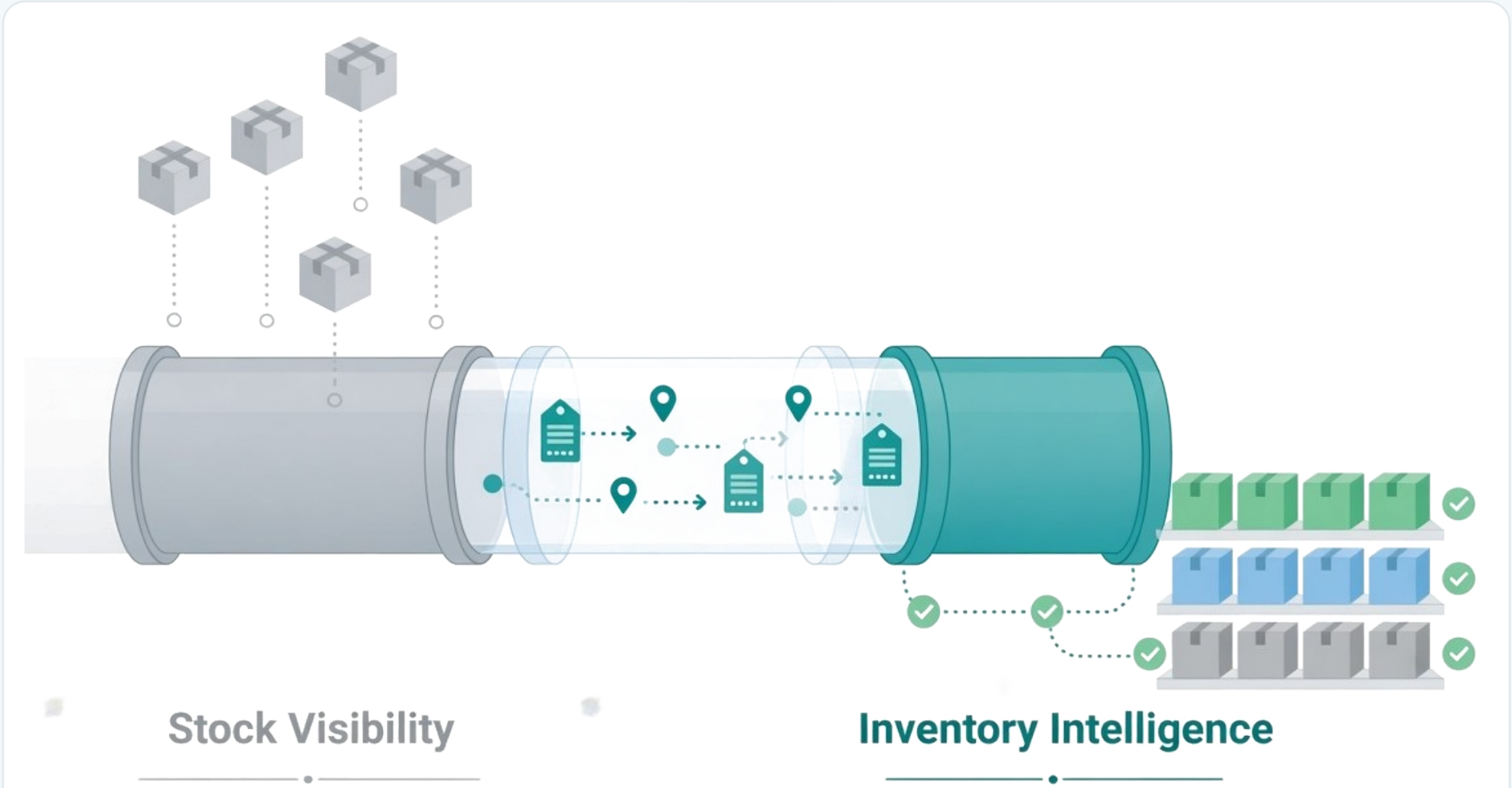
Audit Confidence

Answer any customer or regulator query with a defensible, end-to-end record.

Traceability is not a quality-department feature. It is the audit trail that protects the entire business when something goes wrong.

From Stock Visibility to Inventory Intelligence

Accuracy on quantity, batch, location, allocation and status — all five dimensions at once — is what makes a stock figure trustworthy enough to plan against.

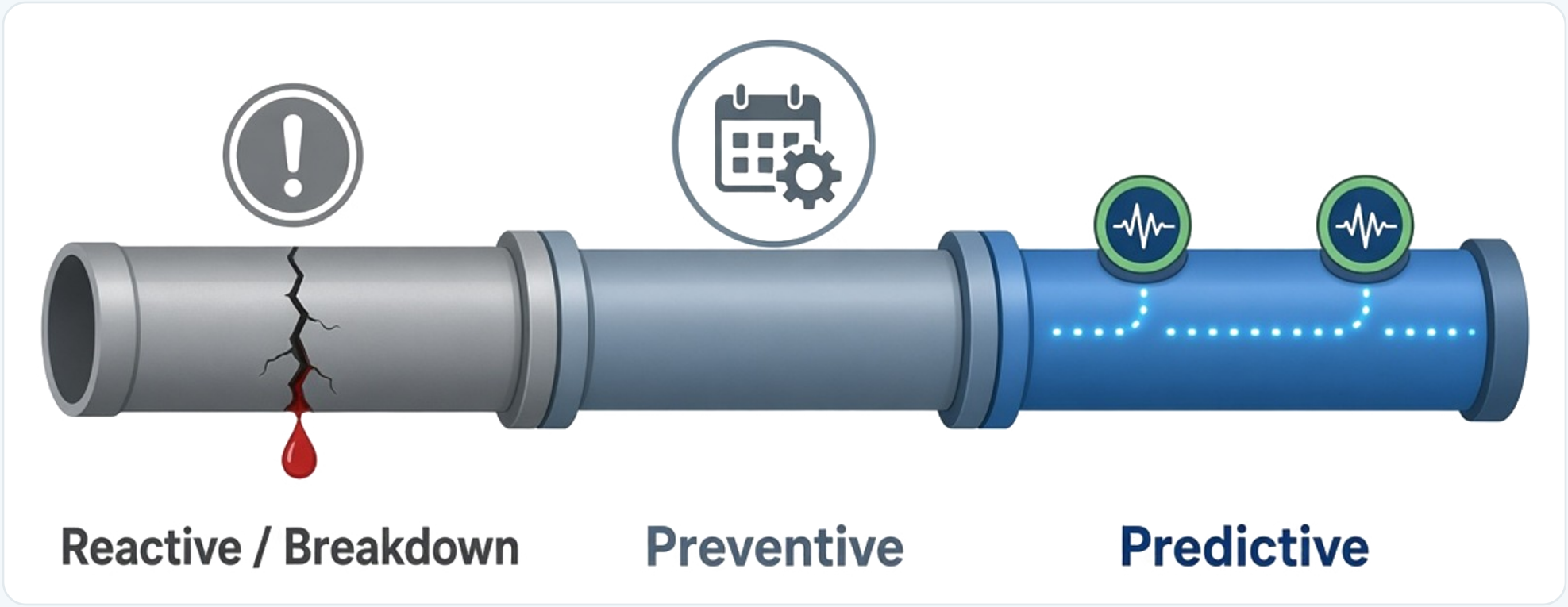


Warehouses under strain show it in frequent physical-vs-system adjustments, dead stock surfacing only at year-end, and reserved quantities tracked on spreadsheets. A connected warehouse replaces all three with real-time visibility, batch-aware picking, and allocation tied to confirmed orders.

> *An inventory figure that cannot answer which batch and for whom is not really an inventory figure. It is an estimate.*

From Reactive to Predictive Operations

Maintenance maturity moves through three stages — each one trading firefighting for foresight.



- **Less Unplanned Downtime**
- **Lower Emergency Spend**
- **Longer Asset Life**

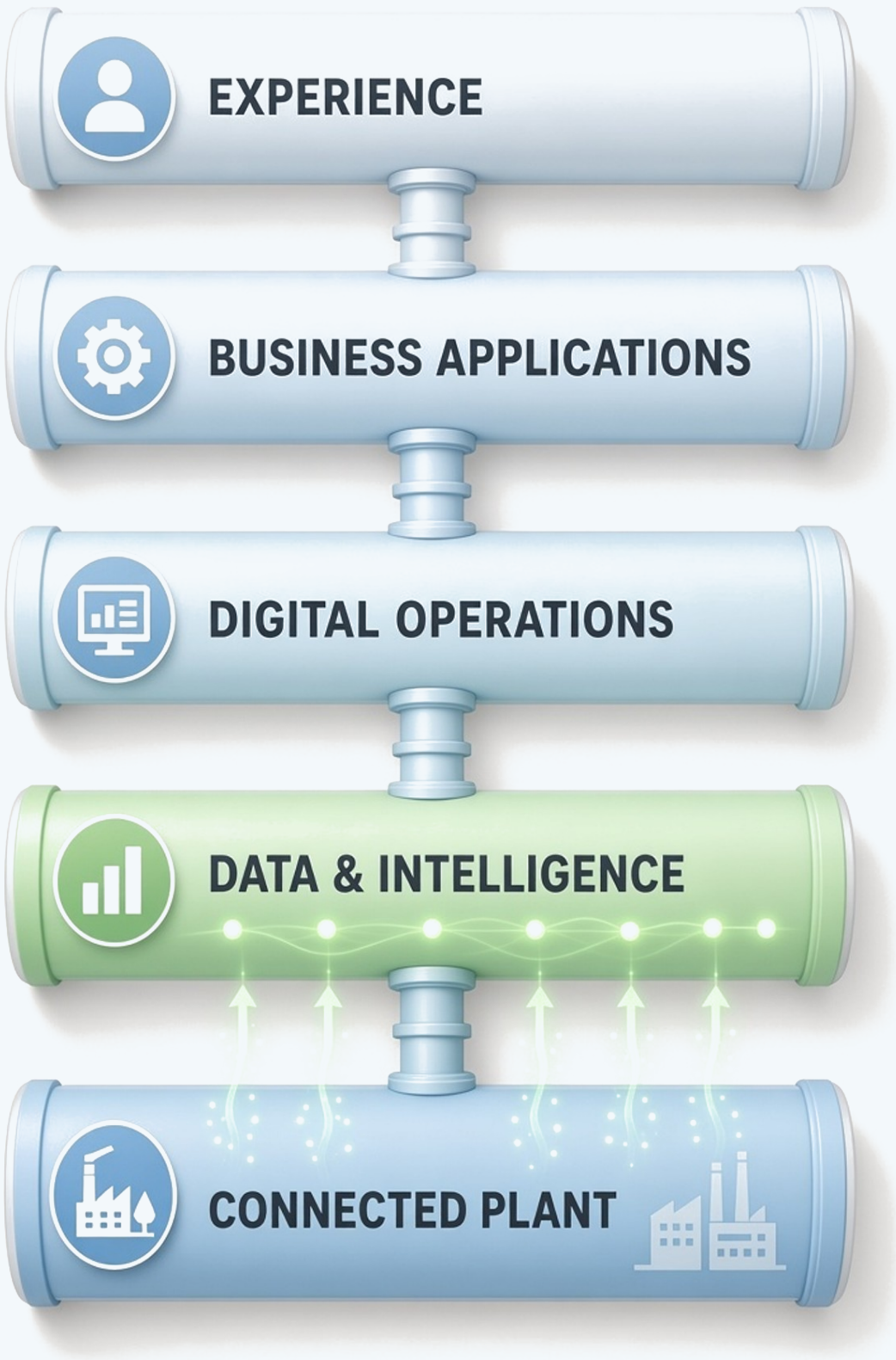
OVERALL EQUIPMENT EFFECTIVENESS (OEE)

Availability × Performance × Quality = OEE

A single measure giving management a common language for machine-level performance across every plant.

The Connected Manufacturing Operating Model

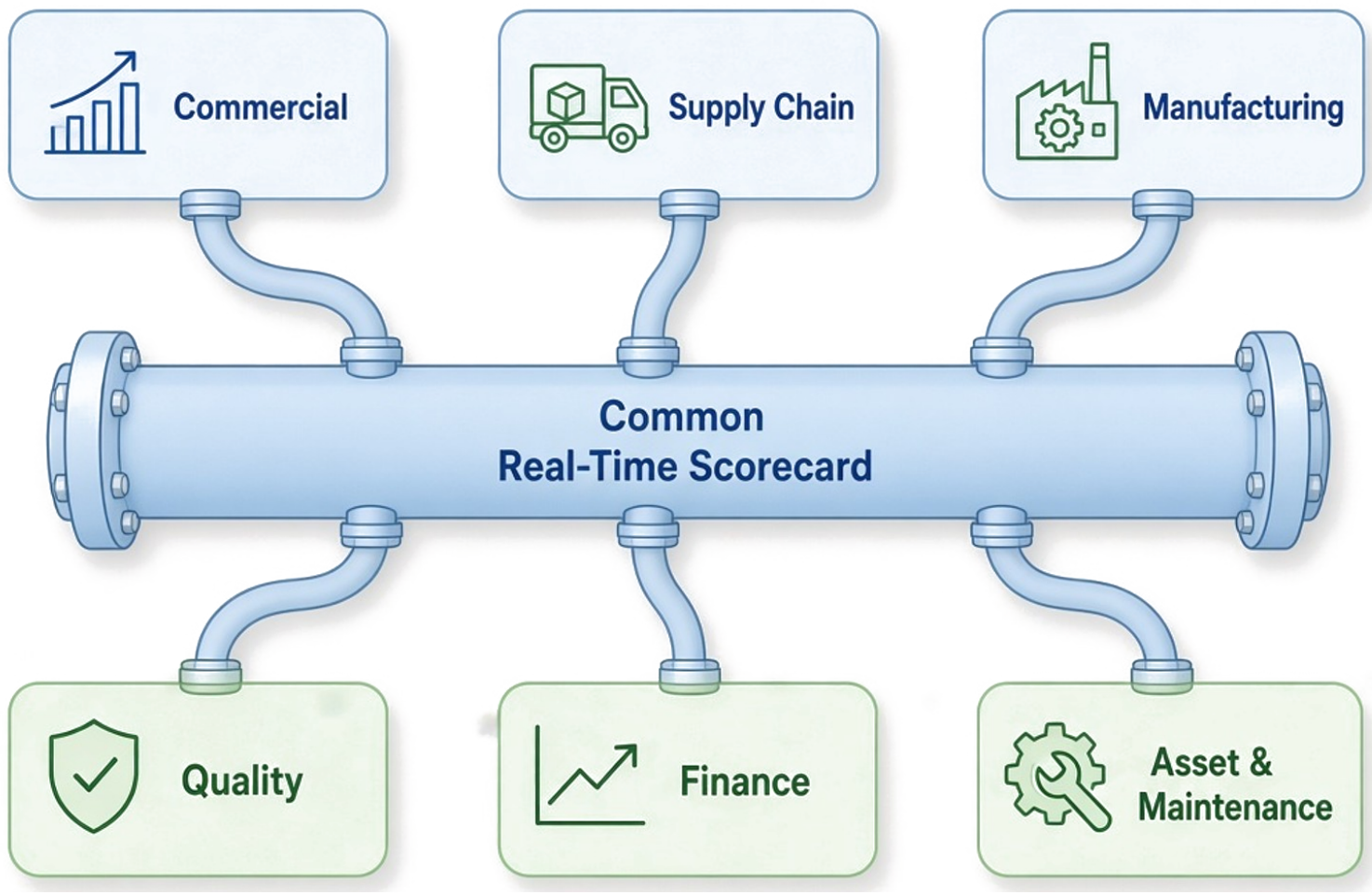
Each layer can be strengthened independently — data generated at the plant layer becomes the raw material for the intelligence layer above it.



A digital manufacturing platform is not a bigger ERP system. It is the point where operational data becomes an operating advantage.

What Should Management Measure?

A common, real-time scorecard across every operational domain — not disconnected monthly reports.



Commercial — Order fill rate, forecast accuracy, revenue mix

Supply Chain — Material availability, planning cycle time, supplier OTIF

Manufacturing — OEE, changeover time, scrap and shooting-waste rate

Quality — First-pass yield, rejection rate, trace-back time

Finance — Product margin, working capital, cost variance

Asset & Maintenance — Downtime, MTTR/MTBF, maintenance cost per unit

The value of this scorecard is having every metric derived from the same transactions that run the business — refreshed continuously.

THE BIG QUESTION

Can You Connect the Journey From Polymer to Pipe?

- Material
- Movement
- Transformation
- Money
- People

To Know More

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What's the biggest visibility gap in your operation?

Let's talk in the comments.