Mastering Complexity in Chemical & Materials Distribution

Demand shock tripled a key customer's needs, threatening inventory for other accounts. This case study discusses how a modern data platform transformed a week-long scramble into a proactive, 48-hour solution for **100% on-time fulfillment**.

Strategem AI, LLC partners with chemical/materials distributors and manufacturers to drive fundamental business transformation. We specialize in building unified data platforms and deploying advanced AI workflows, effectively translating raw business data into true **actionable intelligence**. This intelligence directly fuels dramatic improvements in **sales effectiveness**—by equipping sales reps with the proactive insights needed to secure high-value outcomes—and fortifies **supply chain resilience**—by delivering predictive scenario modeling to minimize risk and optimize inventory control. Our advisory empowers clients to achieve proactive fulfillment and establish themselves as indispensable strategic partners. Contact info@strategem.ai today for more information.

STRATEGEM AI

From Demand Shock to Strategic Advantage

The Distributor's Dilemma: A Web of High-Stakes Complexity

In the modern supply chain, the specialty chemical and materials distributor is a critical lynchpin. They are not mere intermediaries; they are partners in formulation, innovation, and production for hundreds of customers. However, this critical role is defined by a landscape of immense and growing complexity.

Consider the profile of a typical distributor in the polymer processing space. The operational foundation rests on managing:

- **A Sprawling Supplier Network:** 20+ suppliers, each with its own relationship, lead times, and communication protocols.
- **A Deep & Nuanced Product Catalog:** Each supplier provides 20-100 SKUs, resulting in a catalog of thousands of distinct grades. These aren't simple commodities; they are highly specific ingredients with precise technical attributes.
- **A Diverse Customer & Application Base:** These materials flow to a wide range of end-uses. The distributor must intimately understand the technical demands of injection molding, film processing, slitting, compression molding, and 3D printing, to name just a few. A material suitable for film may be entirely wrong for molding.
- **A Siloed Internal Structure:** This entire ecosystem is managed by a network of dedicated, highly-skilled teams: Customer Service (CSRs), field Sales, Sales Leaders, Product Managers, Supply Planning, and Technical Service.

Traditionally, each of these teams operates from its own "source of truth"—a CRM for Sales, an ERP for Supply Planning, spreadsheets for Product Managers, and a knowledge base (or personal experience) for Technical Service. When operations are stable, this system functions. But when faced with volatility, this fragmentation creates dangerous blind spots and inefficiencies.

The Challenge Scenario: A 3x Demand Shock

A key customer, a fabricator specializing in injection molding, submits an urgent forecast. They have won a new contract and need to triple their normal demand (a 3x increase) for a set of three specific polymer grades, with delivery required in four weeks. A confident supply plan is requested within one business week.
Complicating the matter:

- **Material A** is sourced from **Supplier 1**.
- **Material B** is sourced from **Supplier 2**.
- **Material C** is sourced from **Supplier 3**.

In a traditional, siloed environment, this request triggers a high-friction, manual "scramble":

1. **CSR** receives the request and forwards it to the **Salesperson**.
2. **Salesperson** calls **Supply Planning** to ask, "Do we have this?"
3. **Supply Planning** checks the ERP. They see on-hand inventory for A, an open PO for B, and low stock for C. They don't have a clear view of "available-to-promise" (ATP) without first checking allocations for other customers.
4. **Salesperson** then emails the **Product Manager** for Materials B and C to check supplier lead times and expedite options.
5. **Product Manager** begins a series of phone calls and emails with supplier contacts, working from their own spreadsheets of pricing and lead times.
6. The **Sales Leader** is blind to the issue until the salesperson escalates it, frustrated by the delay.
7. The **Technical Service** team is completely unaware, yet they may hold the most critical piece of information: a pre-approved, in-stock alternative grade if one of the requested materials is unavailable.

This manual, sequential process is slow, opaque, and fraught with the risk of error. Answering the customer within a week becomes a resource-draining firefight.

The Modern Solution: A Connected & Intelligent Response

A distributor equipped with a modern data, workflow, and intelligence platform transforms this scenario from a crisis into a strategic opportunity. The solution is built on three pillars:

1. The Data Foundation: A Single Source of Truth

The foundation is not just an ERP; it's a unified data platform that connects commercial, operational, and technical data. When the 3x forecast arrives, the system *already* knows:

- **Customer & Commercial Data (CRM):** This customer's complete order history, historical forecast accuracy, and contractual pricing.
- **Inventory & Operations Data (ERP/WMS):** Real-time on-hand, in-transit, and allocated inventory for all three materials. It provides a true "Available-to-Promise" (ATP) figure.
- **Supplier & Product Data (PIM/Procurement):** Current lead times, open POs, and pricing for all three suppliers.
- **Technical Data (Tech Service):** Crucially, the platform has a record of this customer's applications (injection molding) and a list of all *technically approved alternative grades* for Materials A, B, and C.

2. Workflow Automation: Connecting the Teams

The customer's request is entered, and the system's intelligence flags it as an anomalous spike (+200% over 6-month average). This *automatically triggers* a parallel, not sequential, workflow:

- **Trigger:** Demand spike identified.
- **Action 1 (Sales/CSR):** A task is created in their dashboard to "Acknowledge & Confirm" the demand with the customer, providing immediate high-touch service.
- **Action 2 (Supply Planning):** A "Scenario" is auto-generated. The planner's dashboard immediately shows a "what-if" analysis:
    - **Material A:** On-hand inventory can cover 100% of the new demand.
    - **Material B:** On-hand + open POs will leave a 40% shortfall.
    - **Material C:** Expediting an existing PO is required.
- **Action 3 (Product Manager):** Receives a targeted alert: "Demand spike for Material B & C. Requesting supplier expedite confirmation for PO #XXXX and PO #YYYY." This allows them to focus their supplier conversations immediately.
- **Action 4 (Technical Service):** Receives an alert: "At-risk fulfillment for Material B. Customer's approved alternative, 'Material B-ALT' (from Supplier 4), has 100% availability."

3. Intelligence Capabilities: From Reactive to Proactive

This is where the distributor wins. The teams don't just have data; they have answers.

- **Scenario Modeling & Impact Analysis:** The Supply Planner doesn't just see the *problem*; they model the *solution*. In a central "scenario room," they model options in minutes, not days. Crucially, the system analyzes the *downstream impact* of each option on the entire customer portfolio:
    1. **Option 1: Expedite All.** Fulfills 90% of the order but with a 2-week delay on Material B and $X in expedite fees. **Impact:** No impact on other customers.
    2. **Option 2: Partial Shipment.** Fulfills 100% of A and C on time, with B on backorder. **Impact:** No impact on other customers.
    3. **Option 3: Propose Substitution.** Fulfill 100% of A and C, and substitute the at-risk Material B with the pre-approved Material B-ALT, allowing 100% on-time fulfillment.
        - **Intelligence Check:** The system instantly runs an "impact analysis" on the 'Material B-ALT' inventory. It confirms that committing this stock *will not* impact any other open orders.
        - **Proactive Alert:** It *also* flags that this large draw-down will put future, un-forecasted orders for 'Material B-ALT' at risk. It automatically creates a

task for the *entire* sales team to "Proactively manage accounts using Material B-ALT," providing a prioritized list of the top 5 customers who regularly buy it. This allows Sales to manage expectations with other key accounts *before* they place an order and discover a stockout.

- **Prescriptive Recommendation:** The system flags Option 3 as the optimal solution, balancing customer satisfaction (OTIF) and margin, while also providing the necessary alerts to manage other accounts.
- **Leadership Visibility:** The Sales Leader sees this high-value opportunity on their dashboard, tracking its progress from "New" to "Solution Proposed." They also see the proactive alerts being sent to the rest of the sales team, ensuring full visibility and alignment.

The Outcome: A Strategic Partner

Instead of a week-long scramble, the Salesperson, Supply Planner, and Product Manager meet *once*. They have a complete, data-backed view of the situation.
Within **two days**—not a week—the Salesperson contacts the customer with a clear, confident, and proactive message:

"We've received your increased forecast and are excited to support your new project. We can fulfill your demand for Materials A and C as requested. For Material B, we have a 40% shortfall on that specific grade from Supplier 2. However, our records show your application is also approved for Material B-ALT, which we have in-stock and can supply for 100% on-time fulfillment. Can we proceed with that substitution to ensure your production line starts on time?"

The customer, who was expecting a delay, is met with a proactive solution. The distributor hasn't just *sold* a product; they have *solved* a complex production challenge. This single interaction solidifies their role as an indispensable strategic partner, all enabled by a foundation of connected data, automated workflows, and actionable intelligence.

Mastering Demand Shock: The Intelligent Distributor

From Crisis to Control in Materials Supply Chain

Traditional Model (5-7 Day Scramble)

Siloed & Sequential Process:

1. CSR ➡️ Salesperson ➡️ Supply Planning (wait)
2. Planning ➡️ Product Manager ➡️ Suppliers (wait)
3. Technical Service is **unaware**. No proactive alternatives.

- Fulfillment relies on manual ERP checks.
- No immediate Available-to-Promise (ATP).
- High risk of errors and costly expedited shipping.
- No time to manage *other* customers' expectations.

Modern Solution (Response in 2 Days)

Connected & Parallel Workflow:

1. Demand Spike ⚡ Auto-triggers tasks for ALL teams simultaneously.
2. Scenario Model runs: Checks impact on **other** customers instantly.
3. **Technical Service** immediately suggests pre-approved alternatives.

- Instant Available-to-Promise (ATP) modeling.
- Teams focus on **solutions**, not data hunting.
- Proactive management of *all* accounts to prevent future stock-outs.
- Solution proposed to customer in under 48 hours.

The Three Pillars of Intelligent Distribution

1. Data Foundation

A **Single Source of Truth** connecting all commercial, operational, and technical data.

- Real-time Available-to-Promise (ATP)
- Integrated Supplier Lead Times
- Technical Alternative Grades List

2. Workflow Automation

Automated triggers based on anomaly detection to initiate **parallel** team response.

- Auto-generated Supply Planning Scenarios
- Product Manager Supplier Expedite Alerts
- Technical Service Solution Alerts

3. Intelligence Capabilities

Prescriptive insights to manage the full portfolio, transforming Sales' role.

- Downstream Impact Analysis (Other Customers)
- Prescriptive Solution Recommendations
- Proactive Sales Management Tasks

The Strategic Payoff

2 DAYS
Time to Propose Solution

→

100%
On-Time Fulfillment Rate

Customer receives a solution, not an excuse. Distributor becomes an indispensable partner.