



Response Management: Next Wave of Supply Chain Innovation?

Thursday, May 24, 2007

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Traditional closed-loop planning and execution may well be yesterday's news. Thanks to globalization, product proliferation, and channel consolidation, discrete manufacturers find themselves in a new era of surprise and compromise. In response, a few demand-driven leaders have stepped outside the black box of one-number planning systems and built complementary competencies in speed of collaborative response.

This isn't just happening on the shop-floor where real-time enterprise manufacturing intelligence (EMI) investments have claimed a significant share of manufacturing software spending for several years. Those outside the enterprise, such as suppliers, contract manufacturers, and third-party logistics companies, are also looking beyond their traditional comfort zones.

On the battleground as well as in the AMR Research Manufacturing Peer Forum, they call it "triage." The defining vendor in this area, **Kinaxis**, simply calls the category Response Management. Whichever name you choose, those that develop and deploy this distinct class of capabilities report step-function improvements in cost and time to resolution of high-visibility judgment calls.

Billions on the table

This isn't a secret: global supply chains are under extraordinary stress. Affirming the trend, a comparative analysis of findings from a 2006 AMR Research study on supply chain strategy and the U.S. Bureau of Labor Statistics, U.S. discrete manufacturers have more than \$300B in at-risk firm orders.

In the trillion-dollar U.S. high-tech industry, for example, we see the following:

- Order fill rates are a mere 76%.
- Fewer than 47% of product launches are successful.
- Inventory is stuck in a buyer-versus-supplier shell game. Because of the lean initiatives of its major accounts, one top contract manufacturer reports inventory turns have dropped to 8 from 13 in just the past 18 months.

Underlying the stark numbers is a fundamental change in the business environment. From 1990 to 2000, technology-industry productivity rose by a whopping 31% per year, riding on the back of a confluence of multiple once-in-a-lifetime windfalls. But then the world changed.

What changed?

In spring 2001, an economic asteroid hit. Appetite for technology in particular collapsed, product commoditization accelerated, and entire industry subsectors went dark. As companies strove for advantage and customers took advantage of their new-found buying power, the following occurred:

- **Enterprise became multi-enterprise**—A 2006 AMR Research study of contract manufacturing trends found that 92% of companies outsourced some of their production, with 40% projecting they will outsource more in the next two years.
- **Product variety increased**—According to a 2004 APQC study, while new product introductions shrank slightly as a percentage of total revenue between 1990 and 2004, product modifications increased a staggering 80% in the same period.
- **Product lifecycles shrank**—Consumer electronics prices on **PriceSCAN.com** now drop 35% every six months. Cell phone lifecycles are down to three months. Apparel lifecycles are as short as two weeks.
- **Channel power advanced**—After 20 years of industry dominance, chip-making giant **Intel** is no longer the sole supplier to computer makers **Dell** and **Hewlett-Packard**. Leading cosmetics maker **Revlon** reports that **Wal-Mart** now accounts for a whopping 30% of revenue. Generic pharmaceuticals now compete for shelf space in almost every major over-the-counter drug category.

In the face of heightened complexity and risk, a few leaders decided analytical precision was, in many cases, less important than the speed and integrity of the collective tradeoff. For high-impact decisions, managers felt an urgency to complement automation with team insight.

Where traditional systems fall short

Our research shows conventional technology hasn't met the need. Consider the following:

- **Advanced planning**—Automated algorithms are tailor made for low-value-intensity, high-complexity decisions. But collective judgment becomes an essential complement in context-rich decisions (for example, will this irate customer defect if I don't pay \$500,000 in expediting costs?).
- **Spreadsheets**—Standalone spreadsheets are pervasive precisely because of the limitations of closed-loop planning. The problem, of course, is that spreadsheet flexibility quickly devolves into multiple versions of the truth.

- **Business intelligence (BI)**—As with spreadsheets, BI dashboards put decision control back in the hands of people. But BI tools are structured for insight, not execution. In the face of difficult real-time tradeoffs, yesterday's snapshot of read-only analytics leaves a wide gap between awareness and confident action.

In environments where decisions are high in risk and complexity, many find they need systems for collective risk tradeoff and response (see Figure 1). Whether the risk takes the form of a forecast spike, a component approaching obsolescence, a sales order shortfall, or more strategic sales and operations planning (S&OP) or network commitments, discrete manufacturing clients increasingly place a premium on the ability to see, study, and simulate alternate resolutions before pulling the decision trigger on a major tradeoff.

The breakthroughs: glass pipelines and spreadsheets on steroids

Building on the metaphor of connected workbooks, a distinct class of response management systems allows for rapid sensing and resolution of major business tradeoffs. Six different operations executives interviewed for this research offered three key breakthroughs from response management pioneer Kinaxis:

- A "glass pipeline," which is a secure pipe that connects data and decisions across heterogeneous ERP systems and enterprise firewalls
- "A super-scalable, nonrelational database model" and "resolution engine" that allows decision makers to take virtual copies of very large data sets and try out different scenarios
- A very simple "active spreadsheet" that builds off role-based workbook templates and allows synchronization through configured "business process trees"

Those that use Kinaxis report spreadsheet-like speed and flexibility without the nightmare of e-mailed spreadsheets, version control, and disconnection from real-world execution.

While difficult to draw direct financial correlations, consider these points:

- **Lucent Technologies** used Kinaxis as the core engine to track and draw down inventory liabilities to \$1B in 2006 from \$6B in 2000.
- Semiconductor equipment maker **Teradyne** reports that Kinaxis helped reduce order-to-quote processes to 8 hours from 2 weeks, inventory liability on high-value parts by more than 25%, and lead times from 10–15 weeks to 0–3 weeks.
- Companies like **Honeywell** and **Solectron** also report substantially faster time to decision on core strategic planning processes like S&OP.

Lucent's story

The Lucent story, although now several years old, is particularly staggering in its significance.

The 2001 market crash ravaged the telecom equipment business probably more than any other industry. With \$6B in excess inventory on the books, Lucent needed visibility into what it could sell—and quickly. The company used Kinaxis Live Scorecard functionality to give visibility to three critical metrics: clear to build, clear to ship, and clear to sell.

With Kinaxis, the company reached back into the parts inventory of its four top manufacturing partners, connecting unused materials and capacity to sales opportunity. According to Arvind Ballakur, Lucent's senior manager for supply chain networks, inventory carrying cost at the time was roughly 2%, or more than \$100M per day.

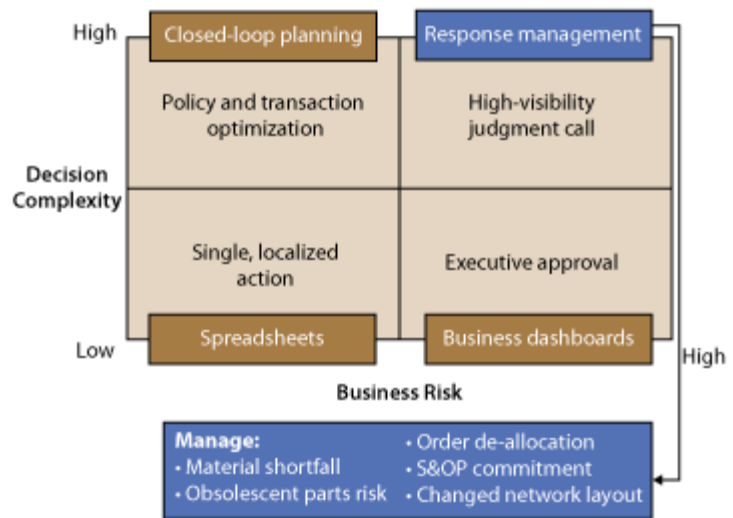
Using rapid scenario planning, the Kinaxis suite served up scenarios to maximize the sales of parts, materials, and capacity that the company and its suppliers had on the books. According to Mr. Ballakur, the 360-degree view of liability and opportunity saved the company roughly 50% to 60% of its carrying cost per quarter.

Others we interviewed report similar breakthroughs, albeit on a smaller absolute scale. But all commented on the distinctive ability to see and address risk more effectively through this new breed of flexible, team-machine processes.

Conclusion

Amongst demand-driven leaders, the pursuit of perfectly optimized forecasts and supply plans can no longer be the end game. In high-volatility, supply-constrained businesses, the new basis of competition is the ability to

Figure 1: Human input required for the complex, high visibility decisions



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Source: AMR Research, 2007

peer faster than your competitors into the black box of multiple planning and execution processes, running offline scenarios that give collective, rapid visibility to financial and service impact of a short list of viable decision alternatives.

While the concept of real-time predictive intelligence isn't new inside the four walls of manufacturing, this form of risk triage may well be the next wave of supply chain innovation. Do you agree? Let me know what you think—shochman@amrresearch.com.

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