WHITE PAPER

FIVE SECRETS FOR 21ST CENTURY SUPPLY CHAIN IT

WHAT IT DIRECTORS NEED TO KNOW TO HELP THEIR ENTERPRISE COMPETE IN TODAY'S GLOBAL ECONOMY

SUPPLY CHAIN EXPERT SERIES

EXECUTIVE SUMMARY

This white paper is intended to give IT Directors the inside track on how to modernize their supply chain to meet the challenges of the 21st century.

In particular, it presents five powerful "secrets" that can help you move on from the linear tactics of the past, and take concrete steps toward a more dynamic future.

SECRET #1: THE WORLD OF MANUFACTURING HAS CHANGED, AND YOU NEED TO CHANGE WITH IT

Over the past 25 years, outsourced, multi-tier supply chains have radically changed the face of supply chain management.

SECRET #2: LEGACY PLANNING APPLICATIONS WON'T CUT IT ANY LONGER

Manufacturers are discovering that traditional planning and optimization applications were never designed for today's supply chain challenges.

SECRET #3: YOU DON'T NEED TO "RIP AND REPLACE" YOUR ERP SYSTEM FOR BETTER RESULTS

You invested big-time in your ERP system, and it works; but now it's time to extend it with a new generation of software for the 21st century.

SECRET #4: IN UNCERTAIN TIMES, TRUST IS EVERYTHING

Trust is at the heart of more positive relations between supply chain partners.

SECRET #5: FOR BEST RESULTS, OPTIMIZE YOUR PROCESSES, NOT YOUR PLAN

What to look for in an ideal solution that will move you toward a more mature sales and operations planning (S&OP) process, and a more responsive supply chain.

The rest of this white paper discusses each of these secrets in more detail, and then points to a more ideal solution for supply chain management in the 21st century.

21ST CENTURY SUPPLY CHAIN SECRET #1:

THE MANUFACTURING WORLD HAS CHANGED, AND YOU NEED TO CHANGE WITH IT

Twenty-five years ago, most manufacturers owned their own factories and controlled their own production. They had complete, detailed knowledge of the capacity, schedules, and costs of manufacturing. Companies could adapt quickly to changes in the marketplace and restore the supply/demand balance more easily.

Figure 1 shows the once-linear relationship companies had with their captive factories and sales offices. In the days before e-commerce, consumer demand fluctuated relatively slowly. With complete visibility into their own factories and sales offices, companies could easily find the status of inventory, work in progress, and customer orders currently in the supply chain.

In the years since, a fundamental shift has taken place. More and more design, marketing, and sales take place on home shores, while parts manufacturing and final assembly are outsourced to offshore suppliers.

In fact, 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.[1]

This persistent shift to overseas manufacturing has especially affected the production of consumer electronics. McKinsey Quarterly confirms that "the production of high-tech goods has moved steadily from the United States to Asia over the past decade."[2]

Figure 1: Yesterday's linear supply chain provided complete visibility

1. Stephen Hochman, Jane Barrett, Mark Hillman. "Response Management: Next Wave of Supply Chain Innovation?" AMR Research Alert Article. May 24, 2007, page 1.

2. Ajay Goel, Nazgol Moussavi, and Vats Srivatsan. "Time to Rethink Offshoring?" The McKinsey Quarterly. September 2008.

Figure 2 shows how today's supply chains consist of multi-faceted and globally distributed relationships that exist across different time zones, cultures, and technologies.

On the left is the brand owner, perhaps a typical consumer electronics firm based on the west coast of the USA. The green arrows show predictable and planned exchanges of information such as forecasts, orders, and engineering changes.

The red dotted lines show the unpredictable challenges of today's market, such as short supply, late deliveries, and obsolete inventory.

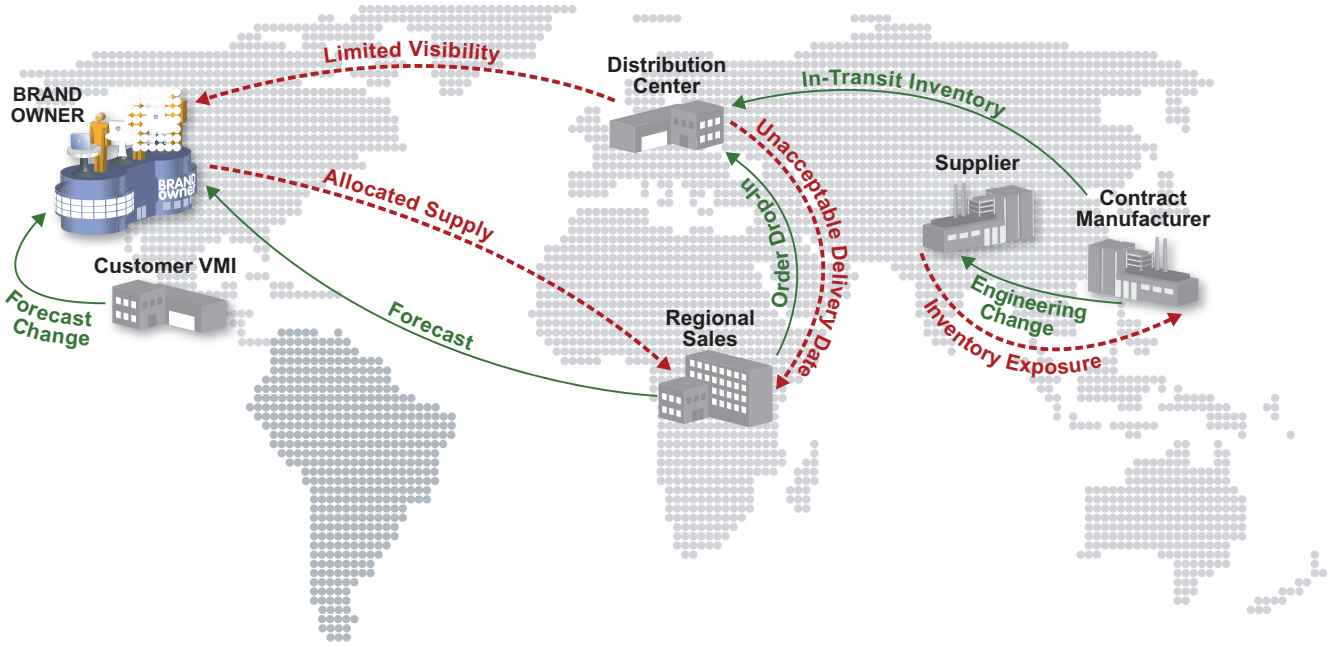
Many manufacturing firms now have little visibility or control over their supply chain partners. And that means less agility to respond to any changes in supply or demand.

With limited visibility into the operations and constraints of third-party partners, it becomes more and more difficult to make decisions or take action on urgent demand spikes, natural disasters, or a component approaching obsolescence.

Add in today's erratic spikes in commodity and oil prices and the unpredictable behavior of consumers, and you have what some supply chain experts call "a perfect storm."[3]

This storm threatens to sink any manufacturer that doesn't adapt to these fundamental changes.

Figure 2: Today's outsourced, multi-tier supply chains



3. Dan Gilmore. "The Supply Chain Perfect Storm." Supply Chain Digest. 26 June 2008. retrieved January 13, 2009 from www.scdigest.com/assets/FirstThoughts/08-06-26.php?cid=1772

21ST CENTURY SUPPLY CHAIN SECRET #2:

LEGACY PLANNING APPLICATIONS WON'T CUT IT ANY LONGER

Legacy planning systems—such as APO, i2, JDA, and Oracle Applications—designed in the 1980s and 1990s have not kept up with the challenges of the 21st century.

These apps were never designed to support the current state of manufacturing, so today's rapid, unexpected changes from remote supply chain partners and customers are beyond their capacity.

Legacy planning systems simply can't deal with today's global, outsourced, multi-tier supply chains. They were intended to perform complex computations with a reasonable level of exceptions to create an accurate forecast. They were never designed to manage the massively outsourced environment of today.

And companies are noticing the limitations of these systems.

A recent AMR Research survey showed that "although 82% of consumer product companies have implemented demand planning, 74% supply planning, and 58% available-to-promise (ATP) technologies, they lack fundamental capabilities to adapt to increasing demand variability."[4]

Legacy planning systems simply can't deal with today's global, outsourced, multi-tier supply chains... And companies are noticing the limitations of these systems.

The fatal flaws of legacy planning applications

Here are some of the key design drawbacks of legacy planning applications:

1. They are used by a small number of planners huddled in a back room, who do not seek transparent input from all stakeholders
2. They are designed around a single enterprise focus, not the multi-player reality of today's supply chains
3. They produce plans based on extremely complex models that are difficult to adjust to rapidly changing conditions
4. They depend on the accuracy of a mathematical model, which cannot capture perfect information from all sources across today's supply chains
5. They are based on a batch process run once a month or once a week, not as-needed to deal with changing events
6. They produce a single plan, not several what-if scenarios for stakeholders to discuss

These legacy tools are built around a top-down mentality, an unrealistic assumption of complete visibility into the supply chain, and a preoccupation with finding perfect models rather than managing complex business relationships.

And since it takes so long to generate a plan, these plans simply can't keep up with today's daily changes in demand and supply.

That's why managers working the supply chain either use the plan as a best guess, and do the rest of the "real" work on spreadsheets; or they abandon the plans altogether and work strictly with spreadsheets.

In a recent survey, the Aberdeen Group confirmed that most enterprises admit they have insufficient technology to support their current supply chain challenges.

4. Lora Cecere and Heather Keltz. "Is Your CP Organization Ready for Rising Demand Variability?" AMR Research. May 12, 2008.

"Despite more than three-quarters of respondents saying that technology is highly important to S&OP success, the level of technology support for S&OP processes remains dismal," says this report. "Only 14% of companies say that their current S&OP technology fully meets their needs for sales and revenue planning, and only 15% say it fully supports demand collaboration."[5]

Legacy-based planning applications were useful in the slow-moving and predictable environment of yesterday. But these legacy tools can no longer keep up with the fast-moving, unpredictable, and outsourced supply chains of the 21st century.

It's time to move on to a new generation of tools designed for today.

The ERP system isn't the real problem. The real problem is that many legacy planning tools have been added onto these ERP systems, and these add-ons have now outlived their usefulness.

21ST CENTURY SUPPLY CHAIN SECRET #3:

YOU DON'T NEED TO "RIP AND REPLACE" YOUR ERP SYSTEM TO GET BETTER RESULTS

How urgent is the need for more up-to-date supply chain tools?

According to one consultant from Forrester Research, if companies don't do something about supply chain management soon, the only solution may be a complete replacement of their existing IT systems.

"Saddled with inflexible and heavily customized legacy systems, countless supply chain operations are urgently in need of a largescale IT modernization and transformation," says Forrester's Patrick Connaughton. "Some have flat out reached a point where they can no longer compete or expand globally without a complete rip and replace of their systems."[6]

But your enterprise has likely invested millions of dollars in your ERP system and the associated configuration, customizing, and training. And your ERP system is likely still handling all the essential jobs it was originally designed for: taking, making, shipping, and accounting for customer orders.

So your ERP system isn't the real problem, and ripping it out is probably overstating the case.

The real problem is that many legacy planning tools like APO, i2, JDA, and Oracle Applications have been added onto these ERP systems, and these add-ons have now outlived their usefulness.

Why your ERP can't talk to my ERP

Most supply chain partners are using one ERP system or another. So if the goal is to have better information on orders, inventory, and work in progress at your supply chain partners, the question may arise, why not just exchange data through EDI or XML?

The trouble is, your global supply chain partners likely aren't using the same ERP system (or the same version) as your firm.

5. Nari Viswanathan. Based on a survey of 140 enterprises in June and July 2006, reported in "Technology Strategies for Integrated Business Planning Benchmark Report". Aberdeen Group. July 2006. Retrieved January 13, 2009 from: http://www.hitachiconsulting.com/files/pdfRepository/RA_IntegratedBusinessPlanning_NV_3298_nl.pdf

6. "Supply Chain News: Companies Need to Re-Architect Supply Chain Application Portfolios, Forrester Research Says" Supply Chain Digest. July 1, 2008. Retrieved January 13, 2009 from http://www.scdigest.com/assets/On_Target/08-07-01-4.php?cid=1778&ctype=content

And even if your partners agreed to export compatible ERP data from their system and you managed to import it into yours, this would likely create havoc.

ERP systems aren't architected to handle multiple enterprises, and the imported data would most likely ripple through your system and into your own financial reports.

The system would interpret your partners' data on orders, inventory, and work in progress as though your enterprise owned all the materials and product involved in each stage of production. In this age of tight compliance rules, no public company can afford that risk to their financial reporting.

The challenge is to get better visibility into your partners' ERP data without adversely affecting your own ERP data, or compromising any security and regulatory requirements.

A truly 21st century supply chain system would avoid this problem by pulling data from multiple systems (including ERP), provide tools for analyzing it, and deliver a single version of the truth to many parties to support collaborative supply chain management.

An ideal system would allow users to perform ad-hoc analysis to respond to unexpected situations. These "what-if" scenarios would reveal the outcome of various decisions without disturbing any current ERP data.

If this system were available on-demand through the web, your enterprise could continue to leverage its investment in your ERP system, without needing any additional on-site hardware or software, any expensive consulting for system integration and testing, or any additional demands on the IT team for support or training.

This kind of 21st century supply chain balancing system would provide a powerful update, with no need to "rip and replace" your ERP system. The new system would simply supplement and update the add-on planning modules that can no longer handle today's increasingly complex supply chains.

21ST CENTURY SUPPLY CHAIN SECRET #4:

IN UNCERTAIN TIMES, TRUST IS EVERYTHING

Supply chain experts have identified four major stages of development in supply chain management, with each stage showing a more advanced level of maturity:

- Stage 1: Marginal
- Stage 2: Rudimentary
- Stage 3: Classic
- Stage 4: Ideal

A defining characteristic of maturity is the level of trust that exists between business partners. Trust is a key element because it demonstrates integrated business planning in the supply chain.

Dr. Larry Lapide, Research Director at MIT's Center for Transportation and Logistics, originally developed this four-stage maturity model to identify the key phases in process innovation and change.[7] Others have since expanded and commented further on this model.

7. Larry Lapide. "Sales and Operations Planning Part III: A Diagnostic Model." Journal of Business Forecasting. Spring 2005. pp 13-16. Retrieved January 13, 2009 from: http://ctl.mit.edu/public/jbf_spring_2005.pdf

Here are some key characteristics of each stage:

Stage 1 or Marginal is characterized by informal and sporadic planning, with little or no integration between demand and supply planning. At this stage, trading partners relate as adversaries, focusing on price and volume alone. Each tries to push all risk onto the other.

In terms of technology, there is a proliferation of spreadsheets, many built by re-keying data from other systems. Communication is done with a flurry of e-mails, faxes, and file-sharing. Data security is practically nil.

Stage 2 or Rudimentary sees the beginning of some formal planning. But demand and supply plans are still developed in separate silos, with each organization using a standalone planning system. Manufacturers try to optimize supply chains with incomplete data.

An ideal system would allow users to perform ad-hoc analysis to respond to unexpected situations. These "what-if" scenarios would reveal the outcome of various decisions without disturbing any current ERP data.

Some co-operation is starting between partners, but it's still driven by one-time orders and short-term profits. Some information is exchanged through EDI and Web portals.

The Marginal and Rudimentary stages have clear limitations for supply chain partners, and do not foster strong relationships or any joint risk/reward behaviors.

Stage 3 or Classic displays formal planning that follows APICS or other best-practice guidelines. Regular meetings are attended by cross-departmental participants. Demand- and supply-side software and processes are integrated, and plans are aligned within the enterprise.

More co-operation between supply chain partners is evident, and secure data channels are created. While the Classic stage shows more trust and shared responsibility, it is still far from a completely responsive supply chain.

Stage 4 or Ideal signifies an enterprise that has achieved fully integrated supply-demand planning with event-driven S&OP meetings. System alerts tell everyone involved when any serious supply-demand imbalance is detected.

At this stage, the manufacturer has access to data from trusted customers as well as suppliers, and this data is integrated with internal planning systems, so that S&OP plans are aligned both internally and externally.

Fully collaborative planning with supply chain partners creates a shared risk/reward, with scenarios optimized between partners for mutual long-term benefits. The enterprise is truly responsive and adaptable, and it continuously creates value with partners throughout the supply chain.

This final stage demonstrates the highest level of trust among all business partners. Partners work together and model alternate scenarios to help decide what's best for everyone. This creates an atmosphere of high trust and a win-win situation that means better results for all parties.

The key to evolving along this path is trust. The benefits are better relationships with supply chain partners, and better longterm profits.

Building this trust requires developing a more sophisticated IT system that can provide all in-house team members, and all external trusted partners, with a single view of the supply chain, updated constantly in real-time. Making the investment to evolve is worth it.

21ST CENTURY SUPPLY CHAIN SECRET #5:

FOR BEST RESULTS, OPTIMIZE YOUR PROCESSES, NOT YOUR PLAN

Today's global, outsourced, multi-tier supply chains require a new class of software that goes beyond legacy planning.

Today's integrated supply chain demands 21st century sales and operations planning, an emerging genre sometimes called "response management."

It's past time trying to optimize your plan; it's time to optimize your processes.

Companies today need technology that provides quick decision support for managers seeking to maintain an effective balance between demand and supply.

In particular, IT Directors should look for three key strategic elements:

1. Agile response. This allows S&OP team members to react in a timely manner and move toward event-driven planning
2. Live collaboration. This creates an online forum where human intelligence can help capture all the nuances of business partner relationships
3. Flexible "what-if" testing. This allows decision-makers to weigh the consequences of various decisions more precisely, with all the information they need at their fingertips

WHAT TO LOOK FOR IN A 21ST CENTURY SUPPLY CHAIN MANAGEMENT SYSTEM

On a more tactical level, the ideal "response management system" for a manufacturing firm provides all these critical features:

- Personal alerts that enable each user to define the precise conditions and thresholds where they should be notified to take action
- Active spreadsheets that enable teams to view, share, and manipulate live data with real-time analytics through a familiar spreadsheet interface
- Live scorecard that can quickly rank and align an unlimited number of alternatives with corporate goals and KPIs for best results
- Resolution engine that drives collaborative action by simulating, sharing and reviewing options in real-time between team members, and across the supply chain
- Source system agnostic so it can quickly access and deal with data from any existing ERP or legacy planning system
- Web-based access for anywhere, any time access with a minimal learning curve
- No costly integration, since this new application can extract data from any ERP or planning system on-the-fly. Building the links between systems will take a few weeks of configuration. Once in place, these links will run continuously to gather data, and channel it into the next generation application
- Small IT footprint that requires next to no investment in on-premise hardware, and no added support from your IT team
- Quick startup, low risk, and fast time to results for a rapid ROI

Companies today need technology that provides quick decision support for managers seeking to maintain an effective balance between demand and supply.

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