The Disconnected Supply Chain: How SCM Software Breaks Your Supply Chain and What You Can Do About It

Enterprise Applications Consulting
Joshua Greenbaum, Principal

EAC
2303 Spaulding Avenue
Berkeley CA 94703
www.eaconsult.com
tel 510.540.8655
fax 510.540.7354
josh@eaconsult.com

Table of contents

Introduction: The Disconnected Supply Chain

More than two-thirds of failed supply chain projects investigated by researchers took place at mid-market companies.

This disconnect has resulted in a set of supply chain solutions that are super-sized, and priced accordingly, and that do not necessarily meet the needs of the companies that have tried to deploy them.

The current state of the supply chain management market is characterized by a growing disconnect between what vendors are delivering and what their customers require. Nowhere is this more evident than in the mid-sized manufacturing and distribution market, where the large SCM vendors have plied a set of wares that are designed for large enterprises – and priced accordingly – but lack the focus on functionality and value that is criteria number one for companies outside the Fortune 500.

This disconnect has taken a disproportionate toll on mid-sized manufacturing and distribution companies: more than two-thirds of failed supply chain projects investigated by researchers took place at mid-market companies. Importantly, small- and mid-sized companies' vulnerability to critical supply chain errors is significantly greater than that of the Fortune 500, and what some researches colloquially refer to as a supply chain "glitch" for a large enterprise can result in a life-or-death situation for a smaller company.

At issue is the combination of cost, complexity, and design that has characterized the top end of the SCM market of the last fifteen years, one that has been dominated by vendors catering to a theoretical supply chain vision often at odds with what can and cannot be accomplished in the real-world of medium-sized enterprises constrained by real-world financial and human resource issues.

This disconnect has resulted in a set of supply chain solutions that are super-sized, and priced accordingly, and that do not necessarily meet the needs of the companies that have tried to deploy them. The price of attempting to use these super-sized solutions can be particularly onerous: in many cases, the annual maintenance cost of these "Big SCM" solutions – and the many ERP solutions that claim to deliver "Big SCM" functionality – exceeds the total cost of a less extensive supply chain solution, one that could meet most if not all of the customer's supply chain requirements.

With software integration making it easier for smaller, best-of-breed solutions to coexist with larger enterprise suites, the pendulum is swinging back in favor of more nimble and functional applications and away from the monolithic suite solutions that emerged in the last wave of technological innovation.

This problem, however, is no longer an inevitable consequence of being a medium-sized company in a large-enterprise software market. The growing realization that much of the top tier of the SCM and ERP software market may not be suited for solving supply chain problems is taking place at a unique inflection point in the industry, one that promises the hope of a solution to this disconnect. With software integration making it easier for smaller, best-of-breed solutions to coexist with larger enterprise suites, the pendulum is swinging back in favor of more nimble and functional applications and away from the monolithic suite solutions that emerged in the last wave of technological innovation.

Taken together, easier and more available integration technology, and the growing frustration with traditional, large-scale SCM solutions, has opened up a new set of choices for manufacturing and distribution companies that require functional excellence in their supply chains. That choice is about deploying real-world supply chain solutions that match the real-world needs of their users, and are sized and priced accordingly. The end of the supply chain disconnect is now a possibility.

This white paper seeks to define this disconnect between large, complex suites and real-world customer needs in terms that the many stakeholders in the supply chain can understand, and show how the disconnect between customer and vendor at the top end of the SCM market need not be the only fate that supply chain software consumers are destined to follow. Using as an example the supply chain solution set from Demand Solutions, St. Louis, MO, this report will show how a specialized vendor, with a focused product and approach to the market, can help reconnect the requirements of the global supply chain to the actual needs of its customers.

The State of The Disconnect: How Solving One Supply Chain Problem Created Another

Global trade has grown at a rate more than double that of the global gross domestic product since the beginning of the current century, according to the World Trade Organization.

Supply chain management has been a problem in search of a solution ever since traders plied the Silk Road in the time of Alexander the Great. Synchronizing supply and demand, ensuring that logistics are cost-effective, and optimizing inventory are problems as old as human commerce.

What has changed, needless to say, is the complexity and scope of that commerce. Global trade has grown at a rate more than double that of the global gross domestic product since the beginning of the current century, according to the World Trade Organization. While the recent recession clearly dampened that growth, there is every expectation that, as with previous recessions, the current recovery will signal a return to a similar relative rate of growth for global trade.

Meeting Supply Chain Complexity with Software Complexity, Cost, and "Glitches"

As commerce has become more global it has also become more complex, as have the supply chains that feed an increasingly interconnected planet. This increasing complexity on the operational side has led many supply chain vendors to significantly increase the scope of the products they develop in the hope of solving the problems that bedevil all supply chain stakeholders – be they small, medium, or large enterprises.

In the process of attempting a one-size-fits-all strategy, functionality has increased significantly, as well as cost. These highly complex SCM solutions typically attempt to cover a plethora of functional domains, from supply chain network design to vehicle routing. A recent study by the Tulane Consortium for

Many top tier vendors boast of an average selling price in excess of $1 million, and implementations where the SCM license exceeded $10 million have been widely reported in the industry.

Supply Chain Management listed a total of 40 discrete functional areas in the supply chain category – as defined by vendors – with many offering product suites that cover several dozen of these individual functions.

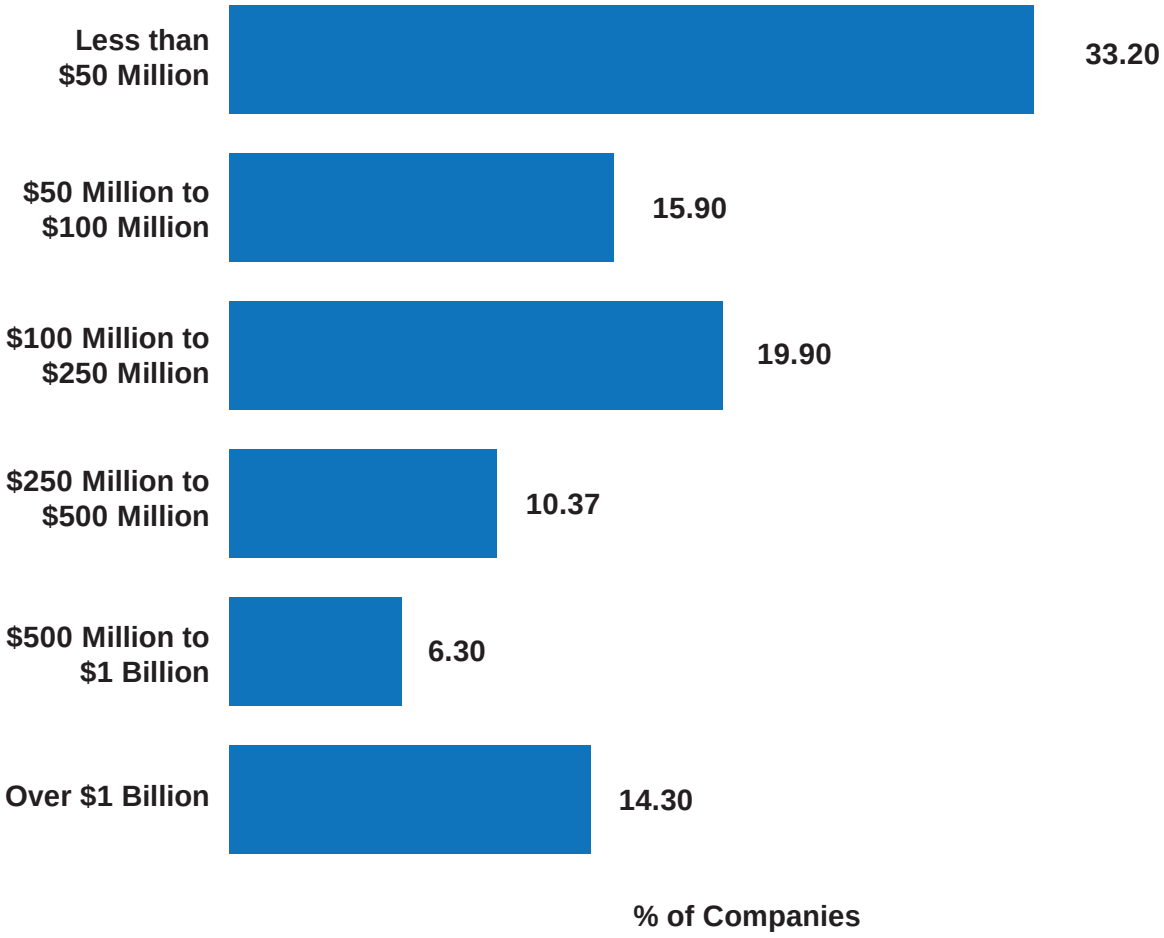
The cost of supply chain software has also increased along with this increase in complexity. Many top tier vendors boast of an average selling price in excess of $1 million, and implementations where the SCM license exceeded $10 million have been widely reported in the industry. As the ratio of license cost to implementation cost is often 1:5 or more, multi-million dollar "Big SCM" implementations have become increasingly common in the last decade.

Risk has increased significantly as the scope and importance of supply chain software has grown. A study by Vinod R. Singhal and Kevin B. Hendricks, professors at the Georgia Institute of Technology and the University of Western Ontario, respectively, describe an industry rife with supply chain "glitches," problems that not only result in operational problems within customers' supply chains but also result in lower stock prices and lost value for the companies that experienced these supply chain problems.

Not only did reports of supply chain problems increase dramatically as the use of SCM software grew, but the "glitches," as studied by Singhal and Hendricks, occurred predominantly at supply chain customers with sales revenues of less than $250 million, an indication of the relative vulnerability of small and medium-sized companies to this problem (see figure 1 next page). These supply chain problems were exacerbated by the tendency of investors to punish these companies proportionally more than they did large enterprises also reporting supply chain problems, according to Singhal and Hendrick.

Supply Chain “Glitches” Are Proportionally More Common Among Small and Mid-Sized Companies

Figure 1: Sales Volume of Companies Experiencing Glitches at Time of Glitch



Source: Supply Chain Management Review, Vinod R. Singhal And Kevin B. Hendricks

55 percent of the i2 customers interviewed did not believe they achieved a positive ROI …and only 18 percent saw those savings as justifying the cost of the system.

The ROI Disconnect

The supply chain disconnect isn't just about expensive software, supply chain glitches, and lower shareholder return, however. There also is a serious problem about return on investment (ROI), particularly for large SCM suites. A study by Nucleus Research, which surveyed 22 customers of supply chain suite vendor i2, showed a dismal ROI picture for what was at the time the market leading SCM suite.

The average license cost of the i2 customers surveyed was $1.8 million, consistent with the industry's reported average deal size. The customers Nucleus surveyed spent an average of $7.18 million over three years for their overall systems, including hardware, software, and personnel costs.

With those costs as a backdrop, the report's findings on customer ROI are damning: 55 percent of the i2 customers interviewed "did not believe they achieved a positive ROI from their i2 deployment." And while there were some positive aspects to these i2 deployments – 64 percent reported inventory cost reductions as a result of their use of i2, for example – only 18 percent saw those savings as justifying the cost of the system.

The Nucleus Research report on i2 tells the story of a single vendor, but it is emblematic of a host of ERP and SCM vendors that have brought to market large, expensive, and functionally-rich supply chain suites over the last decade. While there are many success stories for the i2's of the world – bear in mind that the Nucleus data indicate the 45 percent of the customers surveyed achieved some ROI – the majority of Big SCM implementations have been plagued by cost-overruns and implementation delays without necessarily delivering the improvements in overall supply chain functionality that the industry has promised its customers. As the data from Singhal and Hendrick show us, SCM problems in the mid-market outstrip those of the large enterprise market by a factor of two to one.

Fixing the Disconnect: Keeping It Simple, Usable, and Cost-Effective

Demand Solutions' Advantages over "Big SCM" Suites

Focus on High-need Supply Chain Functions

Ease of Use

Designed for Easy Integration Into Existing Business Practices and Models

Easy to Implement and Adapt to Changing Business Requirements

Easy to Integrate with Existing ERP Systems

Low-cost and Measurable ROI

While the top end of the SCM market has been the scene of a massive disconnect between users and vendors, smaller and more specialized SCM companies have been able to deliver a functional scope and return on investment that is in sharp contrast to that provided by the top tier, SCM suite vendors.

One such vendor, Demand Solutions of St. Louis, MO, has been solving the supply chain problems of its customers by delivering a product set that its customers, in a series of interviews with EAC, see in a very different light than customers of i2 and other suite vendors. These interviews show a solution that can deliver a high degree of functionality without being excessively complex or costly, providing both a rapid return on investment as well as a system that is highly adaptable to changes in the business or economy.

EAC's interviews with Demand Solutions customers reveal six reasons why these customers see their vendor's supply chain solutions as significantly different from the solutions offered by the major SCM suite vendors:

- Focus on High-need Supply Chain Functions
- Ease of Use
- Designed for Easy Integration Into Existing Business Practices and Models
- Easy to Implement and Adapt to Changing Business Requirements
- Easy to Integrate with Existing ERP Systems
- Low-cost and Measurable ROI

A Focus on the Fundamentals of Supply Chain Management

While Demand Solutions cannot deliver the breadth of functionality that a big SCM suite offers, the fact that the company focuses on the key Supply Chain

"It's easier to do problem–solving in Demand Solutions than in any of the other [large suite] systems...It's not fancy, but it gets the job done."

Anupam Singh, inventory planning manager at RoomStore

"Demand Solutions is very elegant, and easy to install...If you are looking for something that is very effective without being very expensive, Demand Solutions is the company. It's one of the best solutions on the planet in terms of cost and value."

Greg Lenard, Director of Supply Chain at Ace Hardware

Planning domains of forecasting, replenishment, requirements planning, and sales and operations planning enables customers to meet their needs with a product set that isn't overwhelmingly complex. Anupam Singh, inventory planning manager at RoomStore, a furniture retailer based in Richmond, VA, voices a common opinion among Demand Solutions customers: "It's easier to do problem–solving in Demand Solutions than in any of the other [large suite] systems," says Singh. "It's not fancy, but it gets the job done."

That doesn't mean that Singh believes Demand Solutions lacks the functionality needed to run a complex supply chain, however. Prior to working for RoomStore, Singh managed supply chain forecasting for a major national consumer electronics chain that had tried unsuccessfully to deploy a large SCM suite, despite a two-year effort. "If we had a simple solution like Demand Solutions we could have been able to accomplish what we needed. There is no reason why you couldn't have taken Demand Solutions and implemented it there," Singh reports.

That sentiment is echoed by Greg Lenard, Director of Supply Chain at Ace Hardware, which used Demand Solutions for over ten years. "Demand Solutions is very elegant, and easy to install," Lenard said. "If you are looking for something that is very effective without being very expensive, Demand Solutions is the company. It's one of the best solutions on the planet in terms of cost and value."

The finite scope of functionality offered by Demand Solutions was also important for Ventura Foods, which would have been ill-prepared for a large-scale, company-wide implementation, according to Prashant Sanghvi, director of logistics for Ventura, a food manufacturing and distribution company based in Brea, CA. "There was a lot of culture and history here, a full-blown, massive supply chain planning implementation wouldn't have worked," Sanghvi said.

That doesn't mean Ventura's needs weren't extensive. The company has ten manufacturing plants, and eleven distribution centers, and has close tie-ins to over a half-dozen third-party logistics (3-PL) providers. Nonetheless, a large SCM suite would have been overkill for Ventura, according to Sanghvi. "We didn't need something very complex, but it had to allow us visibility and consistency."

Ease of Use and Support for the Customer's Business Practices

"My parent company is moving to" a top tier SCM suite. "To do what I am doing, they have teams of 4-6 people. I am doing it alone and part time. We can be very effective with relatively few resources."

Planning manager for the overseas subsidiary of a large, multi-national energy company

The comprehensiveness of the Demand Solutions product set is matched by an ease of use and support for business practices that was also noted by the company's customers. For all of the customers interviewed by EAC, this ease of use and adaptability helped customers match their Demand Solutions implementations to their specific business needs, as opposed to having a vendor's process or methodology "forced" on their users, as is the practice with many large SCM suites.

In particular, the ability of Demand Solutions to be usable to a wide variety of end users without requiring extensive training or a high degree of technical sophistication was an important factor for RoomStore. "We needed something that was simple to navigate and simple to use and gets the job done," said Singh.

The ease of use of Demand Solutions also translated into high levels of productivity relative to other solutions that customers had used previously or were familiar with. "My parent company is moving to" a top tier SCM suite, said the planning manager for the overseas subsidiary of a large, multi-national energy company that is using Demand Solutions. This customer, who asked to remain anonymous, uses Demand Solutions to manage stocking requirements for an office that is relatively isolated from corporate headquarters.

"To do what I am doing, they have teams of 4-6 people. I am doing it alone and part time. We can be very effective with relatively few resources."

Easy to Implement, Manage, and Adapt to Changing Business Requirements

All customers reported relatively short implementation times and a high level of satisfaction with how well the implementation project met their expectations. Ongoing maintenance and support also got high ratings from the customers. "I know from experience that the more complex the installation, the more complex the system is to run," said Ventura's Sanghvi. RoomStore's Singh agrees: "The

Demand Solutions ability to integrate readily with existing back–office systems obviates the suite advantage by delivering a level of interactivity between the Demand Solutions products and third party applications that is comparable to what an SCM suite can offer.

fact that I don't have to go to IT when something isn't working right is a huge win for me."

Demand Solutions also proved highly adaptable to Ventura's specific business requirements. The company was able to change the data structure in Demand Solutions to reflect the specific kinds of product analysis that Ventura needed to run its business.

Similarly, the ability of Demand Solutions to meet important business requirements was given high marks by other customers. At RoomStore, this meant supporting the company's efforts to run a very lean inventory without eating into safety stock. For the energy company cited above, the ability to support an increasingly flat management structure has made Demand Solutions even more valuable in the recent recession as the business has reacted to changes in demand, staffing, and management structure.

Easy to Integrate with Existing ERP Systems

Ease of integration is another key factor in the high level of user satisfaction with Demand Solutions. The company's track record of co-existence with a wide range of ERP and other back-end systems is an important component of the products' ability to compete with SCM suites, which tend to emphasize the integration they provide between their own modules as an important competitive factor: Demand Solutions ability to integrate readily with existing back–office systems obviates the suite advantage by delivering a level of interactivity between the Demand Solutions products and third party applications that is comparable to what an SCM suite can offer.

This relative ease of integration was important to Ventura, Sanghvi said. The company uses forecasts from Demand Solutions Forecast Management to feed a third party demand sensing tool. The results of the analysis from the third party tool are fed back into Demand Solutions Requirements Planning. A similar integration between Demand Solutions and a logistics solution helps RoomStore ensure that its truck shipments are as full as possible.

Key ROI Results for Cross Section of Demand Solutions Customers

Inventory Management:
"Significant" (Ventura)
Excess Inventory Buy-

Back to Supplier:
$5.7 million in first 6 months (US Autoforce)

Warehouse/DC Management:
$50,000 to $100,000 per plant (Ventura)

Inventory Turns: Improved
7-8 % for First Three Plants Implemented (Ventura)

Low-cost and Measurable ROI

For Demand Solutions' customers, the functionality mentioned previously comes without the financial burden that typifies large SCM suites and many point solutions as well. In every interview with EAC, Demand Solutions customers stressed that their implementations were extremely cost-effective and helped generate a rapid return on their investment.

Demand Solutions reputation in this regard was a major factor in Ventura's selection of the products, according to Ventura's Sanghvi. "From a price point, they were in a range that could generate a quick ROI," said Sanghvi, who has seen some very large supply chain implementations from top tier suite vendors, but when those top tier implementations "get to the nitty-gritty ROI, they don't pan out as expected."

Ventura's return on its Demand Solutions investment can be seen in two key areas. The first is in managing the intra-company branch transfers between its many distribution centers This part of the business showed a significant return on Ventura's investment in Demand Solutions Requirements Planning.

Ventura has also seen a significant ROI from using Demand Solutions to manage its shipping costs. The key goal in shipping is to ensure that every truck is as full as possible, which not only optimizes freight costs but also ensures that loading and offloading are done as efficiently as possible. This in turn lowers labor costs and makes the overall warehouse environment more efficient. The impact of Demand Solutions at a single Ventura plant was between $50,000 and $100,000 in the first year.

Inventory turns at Ventura have also improved, which is particularly important in a business where product freshness is an important quality issue. The initial Demand Solutions implementation yielded a 7-8 percent improvement in inventory turns in the first three plants that implemented the solution. "As we go from this to the 10th plant, the total impact will be dramatic," said Sanghvi.

The relative low cost of Demand Solutions makes Ventura's ROI much higher than it would be for other solutions, Sanghvi explained. "We believe for the cost of maintenance on one of these other systems, we get Demand Solutions."

"We believe for the cost of maintenance on one of these other systems, we get Demand Solutions."

Prashant Sanghvi, director of logistics for Ventura Foods

Room Store has also seen a rapid ROI for Demand Solutions. Inventory was reduced almost immediately – "that is huge in this economy," said Singh – and RoomStore was able to ensure that purchase orders were getting to its supplier in rapid enough fashion to prevent delays. "Most suppliers work for multiple retailers. Hence the timing of placing orders becomes crucial to reserve production space. If I don't get the Purchase Order out in time, some other company will get that production slot, and my orders will be delayed for months."

"We paid for the tool in the first month after we implemented," Singh adds.

The return on investment seen by US AutoForce, an aftermarket auto-parts supplier, didn't just benefit the company, according to Randall Groh, vice president of product marketing for US AutoForce, based in Wisconsin. The company's initial deployment of Demand Solutions was able to pinpoint almost $20 million in inventory that was either obsolete or not in high enough demand to be stocked. Based on its new inventory reports, AutoForce was able to return almost $6 million of that inventory to its suppliers in the first six months.

But, perhaps more importantly, US AutoForce was able to use its new forecasting and planning system to work more closely with its top suppliers, even as it was asking them to take back millions in unsold inventory.

"One of the complaints we had from our suppliers was our fill rates," Groh explained. "I got the buying group for tires to use Demand Solutions first. We took the results to our suppliers and said 'we could improve our fill rates for your lines, but here's the help we need.' "

Not only did the supplier agree to buy back the excess inventory, "we now share our purchase plan with them every month so they can use it in their forecasting," Groh said. "It was a win/win for both of us."

Conclusion: How To Reconnect the Supply Chain

Focus on discrete problems and discrete solutions, as opposed to looking at the supply chain as a single, very large system that requires an equally monolithic piece of software in order to run efficiently.

The contrast between the experiences of Demand Solutions customers and those of i2 and the anonymous victims of supply chain glitches, as noted by professors Singhal and Kendricks, show that the supply chain disconnect need not be inevitable. A product set that provides much-needed functionality in a highly consumable fashion can break the pattern of cost-overruns, project failure, and missing ROI that has typified the SCM market for too many years.

However, taking this path in meeting the needs of the global supply chain requires a company to step back from the "Big SCM" hype that has dominated the market in recent years. Instead, decision makers should take a more analytical approach to understanding the supply chain problems that need fixing and the options available to remediate those problems. This means focusing on discrete problems and discrete solutions, as opposed to looking at the supply chain as a single, very large system that requires an equally monolithic piece of software in order to run efficiently.

It also means engaging more with key stakeholders at the supply chain operations level in order to make sure that the solution to be implemented meets requirements "on the ground" as well as in the executive suite. Too many times SCM buying decisions are about meeting corporate requirements that have little to do with day-to-day supply chain operations. The resulting disconnect is a common reason why overall costs are out of line with requirements and measurable ROI is largely impossible to achieve.

Ensuring that the supply chain solution is a good fit from a structural and human capital standpoint is also important: as noted above, supply chain projects often fail because the software requires an organizational and management structure – as well as an end-user skill set – that simply doesn't exist. All too often the

Even a more modest “Big SCM” implementation that was more in line with the $1.8 million average deal size would still require an annual maintenance fee that would be larger than the average total cost of both purchasing and installing Demand Solutions at a typical customer site.

pursuit of supply chain perfection – as defined by a Big SCM vendor – ends in cost overruns and a negative ROI.

This brings us to a discussion of the issue of total cost of ownership. Considering the assertion by numerous Demand Solutions customers that their solution is considerably more cost-effective than that provided by a big SCM suite, the relative high cost of these solutions needs to be called into question. It’s important to note that the costs paid by “Big SCM” customers aren’t just at implementation time. A hypothetical $10-$15 million suite solution would require an additional $2.2 million in annual maintenance payments, not to mention the tens of millions in implementation costs and on-going IT personnel costs. Even a more modest “Big SCM” implementation that was more in line with the $1.8 million average deal size would still require an annual maintenance fee that would be larger than the average total cost of both purchasing *and* installing Demand Solutions at a typical customer site.

Finally, whereas a few years ago the promise of easy integration between the many moving parts of a supply chain solution was used to justify at least some of the premium paid by Big SCM customers, the integration to third party products like Demand Solutions is now easy enough to have removed integration cost as a barrier. This ease of integration allows customers to put smaller systems and point solutions back on the table as part of their supply chain solutions portfolio, and further favors the cost-effectiveness of products like Demand Solutions with respect to its Big SCM rivals.

All this means that the disconnected supply chain, which was once the norm, need not be the inevitable consequence of implementing a supply chain solution. The right-sized product at the right price, one that is well-suited to solving the specific problem at hand, can and will deliver the return on investment that has been so elusive for the customers of the top tier SCM solutions. Supply chain problems are complex, but that’s not a reason for implementing complex software. Not as long as companies like Demand Solutions are able to offer an alternative to these large and costly supply chain suites.