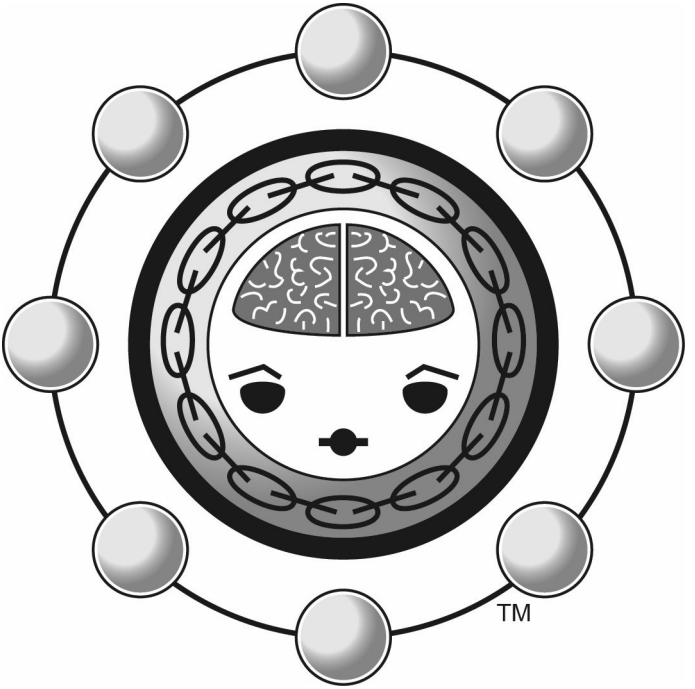
The Shaman's Journal 2015

Lora Cecere

The Shaman's Journal



Printed in the United States of America

First Printing, 2015

ISBN 978-0-9889376-0-4

www.supplychainshaman.com

The Shaman's Journal

Lora Cecere

a.k.a.

The Shaman

Table of Contents

SECTION 5: DRIVING TECHNOLOGY EXCELLENCE

SECTION 1

Race for Supply Chain 2020

Building the End-To-End Supply Chain Vision

Wang Laboratories. Eastman Kodak. Nokia. Blockbuster. Polaroid. Xerox. What do these names have in common? They were once strong brands that could not adjust fast enough to product shifts in the market. It hurts. These were once strong companies with bright futures, but they were rigid and inflexible. As growth slows, and global-infrastructures mature, more and more companies worry that they too will make this list. They are trying to ensure that their names appear in history as "successes" not "brand failures." They want "staying power."

While the last decade was all about marketing and commercial processes, with the digital pivot, the supply chain matters now more than ever. The need is a supply chain

that is more proactive, agile and flexible. Companies need shorter product cycles with easy customization. This needs to happen without deteriorating working capital or operating margins.

This is not today's reality. Leaders struggle with the gaps; yet, ironically in the same breath, companies continue to talk about implementing best practices. They fund investments in legacy architectures (one ERP project after another). In many ways it is ludicrous. In the words of Einstein, "Insanity is doing the same thing and expecting different results." In this post, I want to take a critical look at the current state, and share some advice for companies wanting to build successful end-to-end processes.

Current State

The journey should start with a definition. I define the End-to-End Value Chain as managed flows of products, cash, and information from the customer's customer to the supplier's supplier as defined by the business strategy. It requires the definition of an operating strategy to enable the business strategy.

Today, when companies talk end-to-end, they are usually advocating the automation of flows within their four walls. It has little to do with the customer and the market,

which I think is a missed opportunity. As a result, it is usually cross-functional enablement for the organization, but not an end-to-end journey.

Companies are not happy with what they have today. In surveys, we get three responses to every one response that describes their supply chains as traditional, and reactive. There is great room for improvement. Supply chains respond. They do not sense. The flows are inside-out. The current processes do not allow them to be outside-in. As a result, the supply chain is slow, and out of step with the market.

The answer for many teams is to wave their hands and declare the need for an end-to-end supply chain strategy. They know they need to do something different. If they are lucky, they have leadership support.

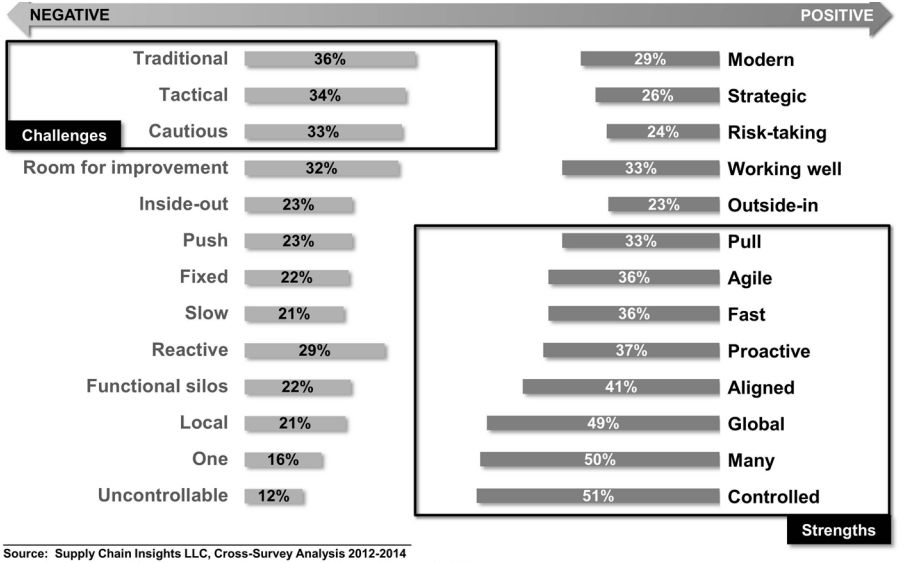
It is not easy. There are many traps. While the intentions are good, if the issues are not addressed, the results are not equal to the promise.

Building the Effective End-to-End Strategy

It happens at least once a week. On a call, the business leader states, "We are on the path to execute an end-to-end supply chain roadmap, and would like to get your insights." I smile, and ask, "How do you define end-to-end?" There is usually push back and surprise followed by silence. In the depth of the silence, I feel like the caller wants to ask, "How can you be a supply chain expert if you do not know what end-to-end means?"

This is the dilemma. While companies believe that there is opportunity to building an end-to-end strategy, there is no standard definition. Each company defines it slightly differently. Most companies finishing a large Enterprise Resource Planning (ERP) project will speak about end-to-end, but really mean transactional efficiency.

Figure1. Supply Chain Descriptors



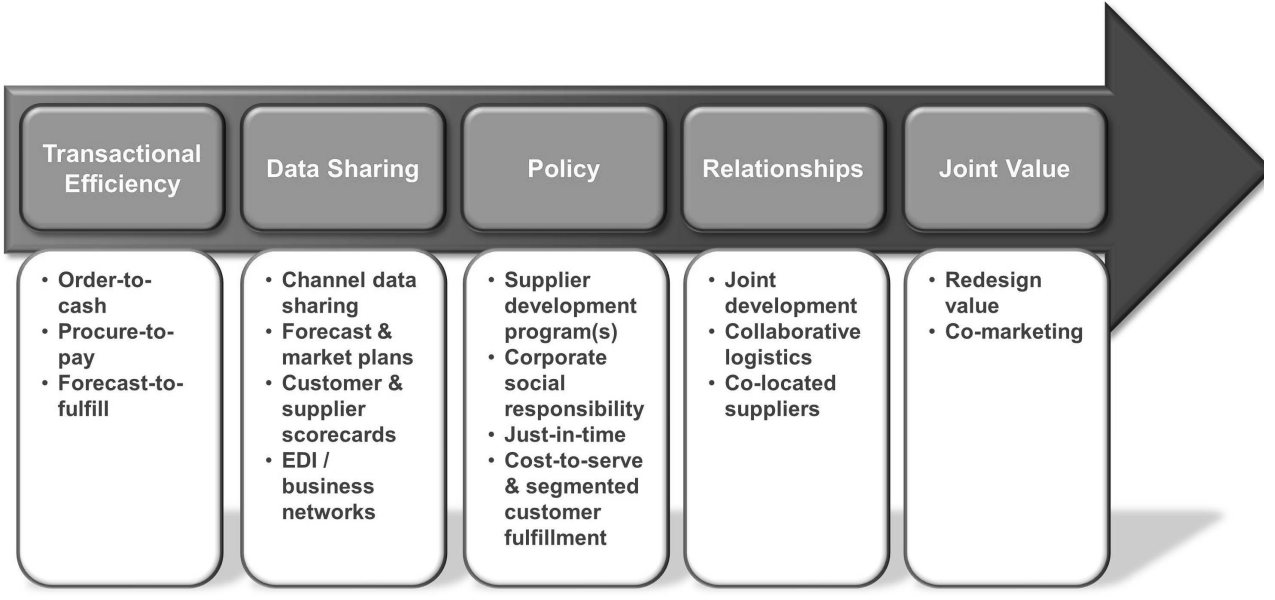
Source: Supply Chain Insights LLC, Cross-Survey Analysis 2012-2014
Base: Manufacturers, Retailers, Distributors, 3PLs answering the question (n=192-278)
For each of the following pairs of words, please pick the one word or phrase that best describes your company's supply chain. SCALE: 5-point scale with one word on either end.

I find that the path to building an end-to-end value network usually goes through five distinct phases: improving transactional efficiency, data sharing, formulation of policy, building relationships and engaging in joint value creation (reference Figure 2). Companies that have cross-functional alignment and clear governance models can make progress faster. When source, make and deliver report to the same organization, progress is quicker. Conversely, companies with traditional management believing in functional silo mentality will have difficulty to move forward. I also find that traditional approaches support functional thinking and do not enable the progress necessary to drive the end-to-end journey.

The leader will find that it is like running a decathlon. Why? The winner of the decathlon does not strive to win each event. Instead, they play to place first overall. Orchestrating the supply chain is similar. The company that plays to win does not strive to have the best manufacturing costs, or the best procurement practices; instead, the team focuses on winning together cross-functionally on a commonly held portfolio of metrics. I advocate a portfolio of growth, cost (EBITDA or operating margin), inventory turns, customer service (on-time and in-full shipments), and Return on Invested Capital (ROIC). This drives markedly different behavior than when a manufacturing organization is incented on the lowest manufacturing costs with the highest Return on Assets. It requires leadership and alignment, and clear definition of goals.

In this process, the paradigms of project excellence and functional supply chain processes are detrimental. When companies optimize the functional response, they sub-optimize overall results. It requires education of the organization and a strong leadership to move past and orchestrate functional targets. When the leader orchestrates, the functional metrics are about reliability with all functions aligning against a common portfolio of metrics.

Figure 2. Maturity Model for the End-to-End Supply Chain



Companies also have to challenge their conventional paradigms about technology. It is not about tight integration. Instead, it is about synchronization and harmonization of data. The value network needs systems that enable one-to-many and many-to-many data models with bidirectional flows. (This is not Enterprise Resource Planning (ERP).) Analytics are the secret sauce. The change happens the fastest when companies are aggressive on the adoption of new forms of analytics.

Over time, the focus shifts from supply chains to value networks. The most progress happens when there is alignment of the financial, commercial and operational teams against a burning platform. To accomplish this goal, training on value chain concepts is necessary to align the commercial and operations teams to a common understanding. This is easier said than done: the organizational barriers are high.

Avoid Nine Mistakes

Sidestep the pitfalls to accelerate progress. In my discussions, I see these nine mistakes often. I share them to provoke new thinking and to help teams avoid a failure:

1. **Lack of goal clarity.** Build your End-to-End Journey with the end in mind. Be clear on the definition of End-to-End. Use the framework in Figure 2, to help drive the definition.
2. **Failure to build a guiding coalition.** To make the shift, the path from a functional orientation to an end-to-end strategy, is fraught with change management issues. There are many. Career paths are functional, and the shifts challenge traditional career ladders. Planners love their spreadsheets. Today, individuals operate in Excel ghettos with maverick behavior. Enlist the help from human resources and actively work the change management issues.

3. **Inability to orchestrate cross-functionally and outside-in.** Companies with the greatest progress have a common leader for source, make and deliver. These leaders orchestrate the trade-offs between functions with a focus on shared metrics. In the most successful organizations, the functional metrics are aligned to reliability while the corporate metrics are a holistic balanced portfolio. The processes are outside-in focused on creating value for the customer. As a result, the end-to-end strategy flies in the face of channel loading, and end-of-the-quarter shipments. Confront these issues early.
4. **Avoid buzzword bingo.** The client that I visited yesterday described their strategy as a new archetype that would enable an agile, proactive, and flexible response. However, when I asked for the definition of an archetype, I could not get one. When I asked for the definition of agility, or proactive or flexible, I got blank stares as if to say, "Aren't these words clear? Why would I need to define this more?" This is usually a major gap for the end-to-end strategy: there is no alignment on definitions. Without definition clarity, the project spins out of control going into different directions. The first step is to get clear on the project charger.
5. **Clear direction. It is not about customer first.** Customer expectations need to be grounded in what is feasible as a reliable, profitable response. I know that it may sound illogical, but companies that have a customer first policy usually have a lower level of customer satisfaction. Great customer satisfaction should never hinge on heroics. It needs to be reliable, consistent and based on profitable policies. Ironically, customer service requires strong discipline.

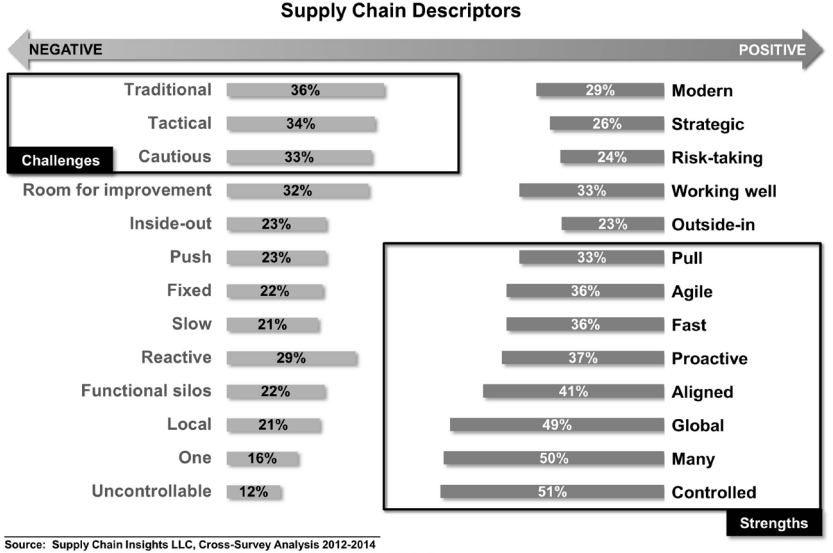
This is inconsistent with many commonly held beliefs.

6. **Lack of governance. Define regional/global governance.** When it is not clear how companies make decisions, employees struggle to make progress and corporate politics abounds. It is the worst form of Muda. The first step in the journey is to define how the process will be governed. This needs to be defined along with the principles to be used to make decisions. Too few companies have done a good job at the definition of governance. Get clear and help everyone to understand how decisions will be made.
7. **Methodology to embrace new technologies. Test and learn.** The greatest value in end-to-end supply chain projects are fueled by decision support technologies, cognitive learning and visualization analytics. These are the infrastructures needed to sense, adapt and respond. They drive agility. These technologies do not come from large and entrenched ERP/APS technology providers. To implement these new technologies, companies need to adopt a test-and-learn strategy. The implementations are not straightforward (like an ERP project). To gain the greatest value, the projects require testing, adaptation, and process modification. Companies often make a mistake of treating these projects as traditional implementations; and as a result, they have a high failure rate.
8. **First things first! Protect your product.** Think hard about the requirements for traceability, serialization, counterfeiting, and brand protection. Regulations are increasing and the rules of the game are changing. Be sure that you are building the capabilities to protect your brand.

9. **Define supply chain visibility.** Supply and demand visibility are key components of an end-to-end strategy, and today's value network is held together through spreadsheets and email. It is not adequate. Map the locations of your second and third-tier suppliers. Think hard about the definition of demand and supply visibility. As shown in Figure 3, realize that in the definition of supply chain visibility there are many components. True supply chain network visibility requires a business network. The most popular and relevant are GT Nexus, Elemica, E2open, and Neogrid. Don't waste your time testing supply chain visibility concepts for the enterprise with EDI providers like IBM (acquired Sterling Commerce) or OpenText (GXS is a wholly-owned subsidiary of Open Text) or the stalled efforts of SAP to make their Ariba assets relevant for today's supply chain.

It is late. I am tired. Sorry if I have rambled. These are my thoughts over a cup of hot tea after a week on the road. I would love to hear yours. Good luck in building your End-to-End Journey.

Figure 3. Elements of Supply Chain Visibility



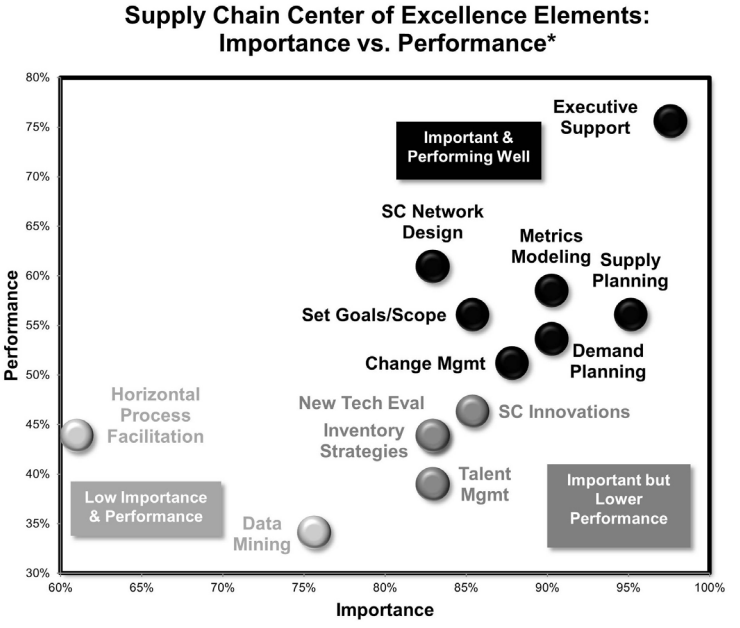
Source: Supply Chain Insights LLC, Cross-Survey Analysis 2012-2014
Base: Manufacturers, Retailers, Distributors, 3PLs answering the question (n=192-278)
For each of the following pairs of words, please pick the one word or phrase that best describes your company's supply chain. SCALE: 5-point scale with one word on either end.

The Journey for Excellence

It is finally springtime in Philadelphia. Yesterday, as I walked the streets on the way to class, I saw flowers for the first time in a year. It was a tough winter. I love spring. It is a time for awakening.

My body is decompressing from travel, but my mind is full of ideas. I have been on the road for the past three weeks speaking at seven events. Travel is both enriching and exhausting. As I walked, I reflected on the many discussions that I have recently had with multiple supply chain leaders on supply chain excellence. Ahead, I have a week of writing. I am busy finalizing a report on the current state of the inventory optimization market, rewriting and updating a report on Sales and Operations technologies, and penning a new report on Supply Chain Centers of Excellence. I have completed two roundtables with supply chain leaders sharing charts like those in Figure 4.

Figure 4. Center of Excellence Elements



Source: Supply Chain Insights LLC, Supply Chain Center of Excellence Study (Oct. 2014 - Mar. 2015)
Base: Manufacturers, retailers, and distributors who sell items they manufacturer, have $500M+ in revenue, have a supply chain center of excellence (n=41)
Q23. In your opinion, how important is it to have each of the following within a supply chain center of excellence? SCALE: 1=Not at all important, 7=Extremely important; Q24. How well does your company's supply chain center of excellence perform on these same elements? SCALE: 1=Poor, 7=Excellent;
*Respondents were asked to answer for the supply chain center of excellence with which they are most familiar. Importance and performance data are those who rated it 5-7 on a 7-point scale (top 3 box)

What am I finding in my research on building Supply Chain Centers of Excellence?

1. **Origin.** Most Supply Chain Centers of Excellence evolved from a multi-year ERP implementation, or the evolution of a strategy to form a global multi-national supply chain. While technology was at the core, the focus quickly shifted to process excellence and metrics alignment.
2. **Charter.** For most companies there is confusion on the charter. While the evolution of supply chain

excellence is forward-looking and visionary, most have defined the Center to focus on expertise or competency. The difference is the assumption that there are 'supply chain best practices'. Surprised? Scratching your head for the difference? A Center of Expertise works on the standardization of best practices, while a Center of Excellence focuses on the improvement of performance. In this world of supply chain practice, where processes are only 30-years old and still evolving, this is a very big difference.

3. **Maturity.** As shown in Figure 4, the processes in the Center of Excellence are the most mature in the areas of network design. There is also an intense focus on the implementation of demand and supply planning. However, the areas of talent development, inventory management, and the implementation of horizontal processes (Sales and Operations Planning, Supplier Development and Corporate Social Responsibility) are less mature. With a looming talent shortage, a focus on building the right organizational DNA is an opportunity for most.
4. **Regional global governance.** Most Centers of Excellence struggle with the issues of global governance. To be successful, it is important to answer the question of, "What is the role of the corporate planning team, and what is the role of the region?" Many learn this too late. Answering this early and often is essential to survival in a sea of corporate politics.
5. **Supply chain excellence work is important.** For companies that have a mature Center of Excellence working on horizontal processes and talent development, there is greater alignment and organizational agility. A focus on excellence is quite different than

> a focus on expertise. I am trying to understand the drivers through my interviews with the leaders.

For most companies, the Center of Excellence had a great start, but struggles in evolution. As a result, it is sometimes the first area cut in a downsizing. The opportunity is to make the Center of Excellence mission critical. Supply Chain Leaders have the opportunity to make it the nucleus of process excellence and drive continuous improvement through testing and learning.

Invention to Innovation

Recently, I spoke at the Chicago CSCMP roundtable event. I love to hear the thoughts from different speakers. At the event, James Rice, MIT, spoke on innovation, and his reflections on Clayton Christensen's 1997 classic business book, the Innovators Dilemma. I, like many of you, read this book when it was published. However, hearing the concepts again, from Jim, sparked some new thoughts.

The premise of Christensen's book is when companies focus on current customer needs, they fail to adopt new technologies or business models that will meet the customer's unstated or future needs. This is disruptive innovation. Kodak was a victim in the film industry. Digital replaced film for photography. I think that IBM, HP, Microsoft, Oracle, SAP and Teradata are victims today in the Information Technology sector. Amazon, Google, and Uber are new commerce platforms.

Christensen's concept is that businesses will reject innovation based on the fact that the customer cannot currently use the innovation delaying the adoption of great ideas. The spark from Invention to Innovation is slow. It requires the early adopter and visionary.

Reflections

In my role as an industry analyst, I have been lucky to attend many great conferences and hear wonderful speakers. One of my favorite speeches, over this 15 year tenure, was listening to Alan Greenspan at the AMR Research IT conference in November 2006. At the time, Alan was frail. He spoke from a chair in a stilted voice with an uneven tempo. There were no polished slides, but his words were brilliant. They remain with me.

Alan spoke on the impact on business economies with the adoption of technologies. He discussed the adoption of the steam engine and the electric motor in the manufacturing sector. Today, we take these technologies for granted, but the electric motor was the genesis of the horizontal manufacturing plant. Prior to the concept of the electric motor, gravity moved materials, and factories were vertical. The differences between labor productivity in a horizontal versus a vertical factory configuration were dramatic; however, the adoption of the electric motor took over ten years.

In my travels in cities, I sit in the backseat of many a taxi cab looking at the landscape of vertical and horizontal

factories and think about the adoption of the electric motor. As I whirl past the factories in the car, it makes me think about the adoption of supply chain planning.

My Journey with Supply Chain Planning

My journey with supply chain planning started quite innocently. I was running a factory, and I made a bet with the production team that I could schedule the lines through a heavy summer period and predict production needs adequately to predict when they could get weekends off to spend with their families. If I won, they would cook me dinner. If they won, I would cook it for them. I built a macro on a spreadsheet to manage cycle stock. I used history to predict the future. Things were simpler then. It was 1988. It was a regional business with a limited product line, and I successfully won the bet.

Through this work, I was noticed by a supply chain planning firm. I was recruited to join Manugistics (now a JDA company) in 1990. At the time, I had never heard of a technology category of supply chain planning. As I read the literature, I felt out of touch and old-fashioned. "How could I not know about supply chain planning software?" I thought. On the plane to my interview, I read everything I could about planning software and thought about the simple spreadsheet challenge that was the genesis of my journey. I wanted to catch-up. I did not realize that I was bridging too very different worlds: a world where the concepts of supply chain planning were a given and the world where supply chain planning was an unknown.

The Manugistics team was an energized culture. Software planning was in the middle of a hype cycle. Those were the go-go years of glory for planning vendors. As a result, many implementations were over-promised, and under-delivered. The software category spun out of control with

the rise and fall of supply chain planning software vendors. However, I survived 19 lay-offs working at a software planning vendor in the first act of supply chain planning.

In the second act of supply chain planning—tightly integrated ERP to supply chain planning—I was an industry analyst. I first worked at Gartner Group and then at AMR Research. I was an avid student of supply chain excellence; and in this role, I watched as best-of-breed solution after best-of-breed solution replaced was with more complicated technology. I was a skeptic. We know now that the tightly integrated supply chain planning solutions are more expensive, with a longer time to value, and lower user satisfaction. However, we did not know it then. Millions of dollars were spent; but to companies' dismay, supply chain planners still plan with spreadsheets. The second-generation systems were difficult to use, supply chain planner turnover was high, and the processes were inflexible.

I am currently working on an in-depth study on supply chain planning benchmarking (publishes in August), and working with the team to analyze supply chain planning adoption. I find it ironic that the supply chain leaders are quite confident in their abilities to plan, but the planners themselves are not. There is a gap. As I work on the data analysis, I cannot help but think about the electric motor, and the adoption of new ways of working. Thoughts swirl in my head. I keep thinking.... "Business innovation, and the rate of business change is happening faster than we can adapt. Technology invention is happening, but the translation to innovation is slow. This is especially true in large companies."

I had a call today with a client that added fuel to my fire when he said, "We did a major re-implementation of supply chain planning three years ago. We made a mistake thinking that we would get the savings for the project on Day Two of the implementation. It has taken us three years

to learn how to plan. Our tools are not the best, but the organization's capability to absorb planning as a concept has been a larger barrier." I smiled. In my analysis of the supply chain planning benchmarking data, I can see it. It is pervasive. The traditional supply chain leader rewards the "urgent" and struggles with the "important." Planners need time to plan. The organization must redefine work processes for a new way of working. It is important work that is not well-understood.

I then think of disruption. The landline phone versus the mobile phone. Digital imaging versus film. The power of computing. The role of connectivity in the rise of the global multinational. GPS navigation. Our progress in adapting supply chain planning to business processes has been so slow, should we abandon evolution and consider new approaches. Can we afford evolution?

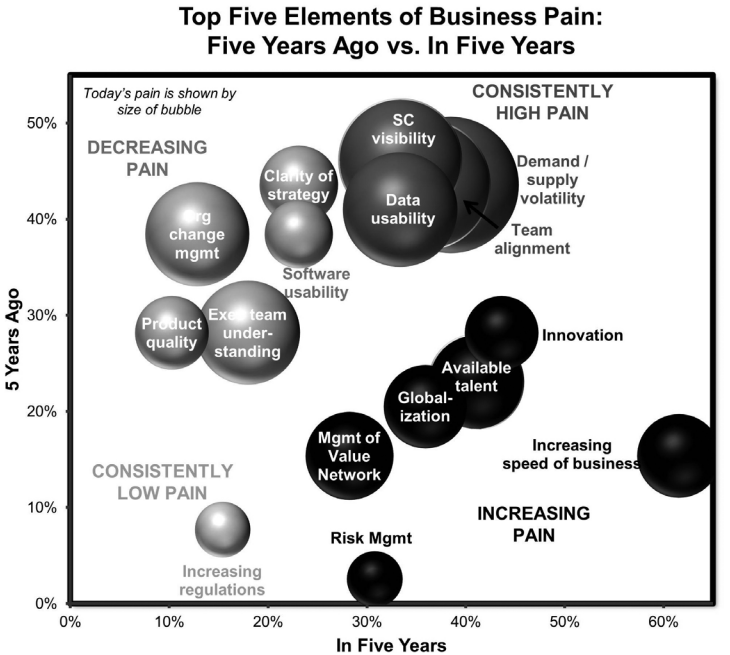
Adopting Invention and Driving Innovation in Supply Chain Planning

The pain, and the reason to change, is rooted in the business. In Figure 5, I contrast the drivers and trends from a recent study. It is a comparison of business pain for the past five years and future five years. Contrast the beliefs over the ten-year spread.

The size of the bubble represents the business pain. Note three trends in this research summary:

1. **Demand and supply volatility is increasing.** Most business leaders do not realize that with the increasing long tail of the supply chain that the forecastability—the ability to forecast the supply chain—is getting worse. As a result, we can push and push on forecasting processes and not drive improvement.

Figure 5. Contrasting View of Business Pain: Comparison of Past Five Years to Future Five Years



Source: Supply Chain Insights LLC, Inventory Optimization Study (February - May. 2015)
Base: Manufacturers, retailers, and distributors who use inventory optimization software and have $250M+ in revenue (n=39)
Q29. When it comes to doing your job, which of the following are your top 5 elements of business pain? Please select no more than five. Q30. What were your top 5 elements of business pain five years ago?
Q31. What do you expect will be the top 5 elements of business pain in five years?

2. **Executive understanding of the supply chain is a barrier.** The evolution of supply chain processes are only 30 years old, and most executives lack the understanding of the supply chain. Without executive understanding, it is almost impossible to drive cross-functional team alignment. Most companies are stuck in a very 'functional view of supply chain.' I define supply chain management as the processes from the customer's customer to the supplier's supplier. This is a much broader definition than

most organizations endorse. Today, 32% of companies have source, make and deliver reporting to the same organization, and the gaps in alignment between operations and commercial teams are large.

3. **The rate of change in business is accelerating.** Note the far right bubble. The rate of business change is what worries me. It is the genesis of this article.

I then think back to Alan Greenspan's discussion of the electric motor, and I think, "How can we accelerate technology adoption? What can we do to spark invention into innovation? Why are we stuck in planning processes?" I think that the traditional paradigms defining supply chain planning need to be questioned.

Invention into Innovation in Planning

I spoke at a conference on the use of advanced analytic techniques and the future of planning. I was deep in thought. Supply chains do not play by the rules, however, our current systems are programmed to direct outcomes based on fixed, and inflexible rules. As a result, the systems cannot adapt.

Our current processes motivate planners to touch data. We encourage the building of Excel labor ghettos despite the fact that companies cannot adequately manage the nonlinearity of the supply chain as a complex system in an Excel spreadsheet.

So, I don't think we move to the future through evolution. Instead, I think that we have to embrace new technologies as disruption and drive innovation. Can we use technology to plan and redesign work processes for planners to give us insights? Let me give you two examples of technology invention in demand sensing and how we could use it to drive innovation.

Most companies want to be demand driven. They want to better translate demand into supply. I am convinced that we cannot get there through traditional forecasting processes and rules-based consumption in traditional Advanced Planning Solutions. My reasoning? Forecasting is a tactical process to look at changes in the market over a long-term duration of months and years. It was never designed to be a short-term process to drive replenishment.

With the evolution of Distribution Requirements Planning (DRP), and the building of the first generation of integrated supply chain planning tools, a monthly forecast was chunked into daily requirements through rules (termed rules-based consumption). This design was driven by technology limitations in the software and computing processes in the 1990s. It was not an ideal design. As most people realize, the market is too dynamic to accomplish this through fixed rules. As a result, this logic is flawed. We can never get this right.

In 2003, short-term forecasting approach using pattern recognition was invented by Terra Technology to replace rules-based consumption. It is marketed as demand sensing. The company has 19 customers. The invention was pattern recognition to sense short-term demand and replace traditional logic, but the innovation to drive business results is slower. Teams struggle with traditional definitions of forecasting (concepts like one-number forecasting, collaborative forecasting and tightly integrated demand planning into ERP), and have been slow to adopt demand sensing. Market confusion also reigns with many vendors adopting the term demand sensing. The market confusion slows adoption. While other companies attempted to introduce demand sensing applications, the Terra Technology application is the clear winner to drive business results.

In 2013, Enterra Solutions introduced the use of advanced math coupled with artificial intelligence to

drive learning engines using rules-based ontologies and cognitive computing. The invention is a supply chain planning learning system. The innovation is happening at visionary companies. However, in the adoption of cognitive computing, companies struggle with conventional thinking. Our minds are hardwired to think about statistics and optimization. Learning that statistics may not be sufficient is difficult for many. For example, we have hardwired simple rules of "single ifs to simple then" logic statements because of technology limitations. We have tried to make the business work based on fixed rules in solutions like ATP, supply chain visibility, and demand insights that constrains the outcome. The Enterra solution couples a rules-based ontology to a learning engine and advanced math to enable continuous systems learning adaptation of rules. The ontology learns process relationships and then drives better outcomes.

It is clear: both of these techniques are improvements to the 1990s definitions of Advanced Planning. They should be used together by early adopters. Invention should spark innovation, but our fixed paradigms limit our ability to see "what could be." Instead, I think that we should embrace these new technologies as disruption.

Why Disruption?

In food and beverage companies, I think that we are at a supply chain crisis. Consumers do not trust big brand supply chains to deliver healthy food. They are walking with their feet to fresh and prepared foods. Demand is plummeting, and becoming more complex. Buying patterns are changing quickly, and the insights are multi-dimensional. So, do food and beverage companies have the time to allow an invention to spark to become a gradual innovation (e.g., like the electric motor)? Or should they embrace these technologies as

disruption and stabilize their investments in traditional and more legacy approaches? My answer is disruption.

In 2008, I was asked to visit DuPont to talk about demand sensing. In the height of the recession, the corporation was struggling to read market demand. Their major supply chains of automotive and housing took a rapid downturn and it took the company too long (six to eight months) to read market demand. Why so long? Syndicated data sources have a three to four week latency with the market and the time for an organization to model syndicated data to understand market trends will take another four-to-six weeks. When the results are analyzed, good news travels fast in companies, but bad news travels slowly. What tends to happen in a market downturn is disbelief. Marketing and sales design incentives to close gaps, and the organization starts sledding. What does this mean? Here is the scenario. The company misses the first quarter goals. The difference is applied to the second quarter. Promises are made by sales and marketing to execute new demand shaping programs—price, promotions, distribution incentives—to drive demand. It takes twelve-to-fourteen months to read the market; and by this time, the third quarter is missed. The gap is then applied to the fourth quarter. Inventory piles up and revenue gaps are closed by pushing product into the market. This can only happen for a short period before plants are closed, lay-offs occur and major businesses are gutted. This was the case for DuPont in 2008.

This week, I saw a presentation of the new project, "One DuPont" which is built upon the use of SAP SCM 7 and tight coupling of traditional APS concepts to DuPont budget. I shook my head. The concepts of demand sensing, demand translation and demand insights are absent in the vision. The budget is not market demand. As a result, I expect to visit DuPont in the next market downturn. Let's just hope that they can make it that long.

So, what would I do? In an SAP shop, I would stabilize the investments in SAP APO or SAP SCM 7. I would use SAP APO only as a system of record. I would redefine demand processes as more than forecasting. I would purchase a robust demand forecasting tool—JDA, Logility, SAS, or Terra Technology—and compliment it with new approaches to sense and translate demand. The new forecasting tool would write to the SAP system of record. I would abandon the use of the SAP APO DP optimizer(s).

My focus would then be on demand sensing. I would also use sentiment analysis (The reading of unstructured customer data—social data, rating and review information, blogs and warranty data.) and mine insights weekly (tools like SAS text miner and Clarabridge) and share them in cross-functional reviews of S&OP execution (break the organization free of marketing and sales bias).

I would abandon the traditional concepts of one-number forecasting, tight coupling of the demand signal to the budget and collaborative demand planning. Instead, I would focus the demand planning processes to be market-driven and outside-in. To accomplish this, I would connect the sentiment insights, and couple them with weather data, market insight data (price, basket and competitive data), along with syndicated data/focus group data into a rules-based ontology to drive market insights that can be fed into forecasting and demand sensing technologies. Why? The processes of marketing and sales are too slow and have too much bias for this fast moving world. Product lines and markets today are just too complex.

These are my thoughts. I think that planning—especially the processes of demand—requires a disruption. When markets shift, time is our enemy.

SECTION 2

Building the Right Organizational DNA

Supply Chains by the Numbers

Tomorrow starts a new year.

It will take me a while to adjust. Intellectually, while I will know the year has changed, I will screw up, time and time again, by writing 2014 on documents for many, many months. I drift in time. For me tonight, sitting, facing the city skyline in the dark, 2015 sounds so far in the future; but, I know that it is just over the horizon.

I take the years that end in the numbers five and zero a bit more seriously than other years. These are a mark in time, a rite of passage, and a good time to reflect. When 2015 rolls in, for me, it will mark a decade of quantitative research focused on understanding the evolution of supply chain management. So, in this blog post, I would like to reflect on what I have learned in this process.

Insights on Supply Chain Organizations

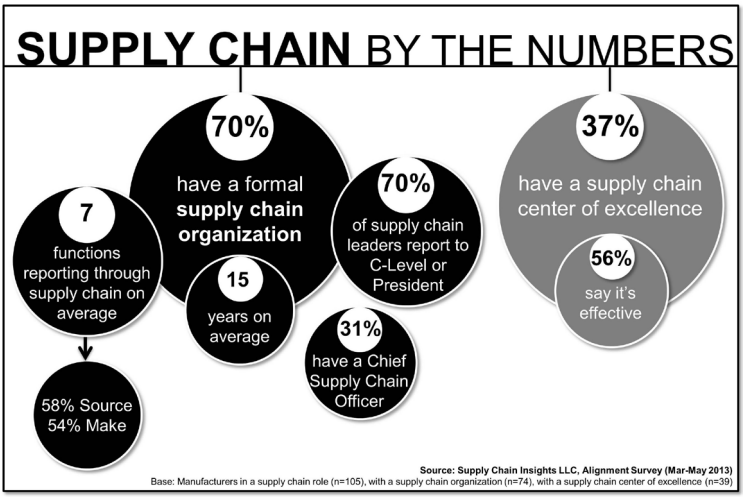
In the early years, there were no supply chain organizations. I like many other gray-haired supply chain professionals reported through a functional organization like manufacturing or transportation. For me, it was manufacturing. I proudly wore my red hard hat, yellow jumpsuit and tan safety shoes in a world of rhythmic machinery and constant manual scheduling. I loved to open the doors of the factory floor and hear the hum of production. I liked belonging to an organization that made things. It was a special club. This all changed.

In the mid-1980s, leaders like Colgate, Intel, and Procter & Gamble defined supply chain organizations where source, make and deliver functions reported through the same organization, and had a common leader. Today, we know that when these organizations defined with a focus on end-to-end processes there was better alignment, agility and resiliency in balance sheet results. They were pioneers: the exception, not the rule.

For the majority of companies, the supply chain organization is now 15-years old. It has seven functions reporting through the supply chain leader. The reporting of manufacturing and procurement organizations through the supply chain leader has the probability of the flip of a coin. There is only a 50% chance that manufacturing or procurement is one of these functions reporting through the supply chain organizations. Even today, most organizations are still very functionally defined. We are still very early in the definition of end-to-end supply chain excellence.

However, ever so slowly, things are changing. Today, roughly one in three companies has a Chief Supply Chain Officer (CSCO). While these positions look very different—varying by culture and structural definition—we can clearly see supply chain is rising in importance. There was no CSCO in the 1980s or 1990s. They first appeared on the scene in 2005. Today, the role is growing in stature and acceptance.

Figure 1. Supply Chain by the Numbers



To drive progress, one in three companies also has a supply chain Center of Excellence. Organizational success is not guaranteed. Today, only slightly more than 50% rate these organizations as effective. Why? At first these numbers surprised me. I thought that they would be higher. So, we started digging into the research to gain an understanding. In our studies, we found that it comes down to the tug of war between functional excellence and the definition of end-to-end processes. They are quite different, and many companies have not defined supply chain excellence sufficiently to enable success. In addition, we find that the Center of Excellence will fail if:

- **There is not the right balance between push and pull.** The highest rated Supply Chain Centers of Excellence let themselves get pulled into the business based on business demand. They do not make the mistake of forcing themselves on business leaders.

- **It does not serve the business.** Many Supply Chain Centers of Excellence become academic and irrelevant. To be successful, the center needs to serve the business and help to align tactics to achieve business strategies.
- **Cannot stay relevant.** The Center of Excellence must have a stake in the game and carry a portion of the business goals. It cannot be relevant if it is a part-time, or understaffed, superfluous organization.

... this is the last blog of 2014. It is my 300th blog post on the Supply Chain Shaman. Four years of writing has passed quickly. Tomorrow night, I will raise a toast to my readers.

All the best to you in the New Year!

An Open Letter to the CFO

For most, it is the end of the quarter. While for others, the end of the fiscal year is looming. The end of any fiscal period is a good time to take stock, and reflect. So, I thought, what would be a better time to write an open letter to the CFO? My goal is to help companies perform better in future quarters by improving alignment.

Let me share some background. Four years ago I was in Europe attending a conference. I walked into the event early, before my speaking slot, and sat down to listen to the CFO of Samsung Europe wrap up his speech about his supply chain. After his presentation there was a facilitated networking session on the role of the CFO in supply chain. Animated dialogue followed. For many, the tension between the financial and supply chain teams is contentious.

Never one to sidestep a good argument, I sat back and watched a fascinating debate between attendees on the role of the CFO in driving supply chain excellence. Some were disparaging feeling that their CFO was too heavy-handed in managing operational processes. Their point of view was that the CFO became the self-proclaimed protectorate of the balance sheet. The attendees believed that they did not need a big brother. Instead, they wanted team work and joint ownership of fiscal results.

Others contended that their issue was that the CFO did not know enough about the supply chain. The business pain was dictation of unrealistic targets and continued manipulation of the balance sheet at the end of the fiscal period. In my work with clients, I find that both issues are real. As a result, to celebrate the end of the fiscal period, I have penned an open letter to the CFO:

Dear CFO,

Congratulations on reaching another milestone and posting new results for a new quarter. I hope that they met your expectations. For many, there are issues.

Today, in this world of rising commodity prices, and scarce resources, supply chain performance matters more than ever. If you are like most CFOs this week, frustration abounds. Growth is difficult with stalled financial results. Supply chain capabilities disappoint.

You are not alone. Most companies are stuck. In our research for the book Supply Chain Metrics That Matter, we find that this is the case for 90% of companies. While companies want to improve costs and inventory, most are going backwards.

You can help. Here we offer five thoughts that defy convention. What can you do? Here is our advice:

1. ***The supply chain is a complex system with increasing complexity.***

   Each company has its own unique potential. To improve the supply chain, you need to increase the potential of the supply chain to perform. It is analogous to athletic

training. Every athlete performs at their own potential. This is the case with your supply chain. Just as an athlete needs strength, balance and flexibility, so does a supply chain....

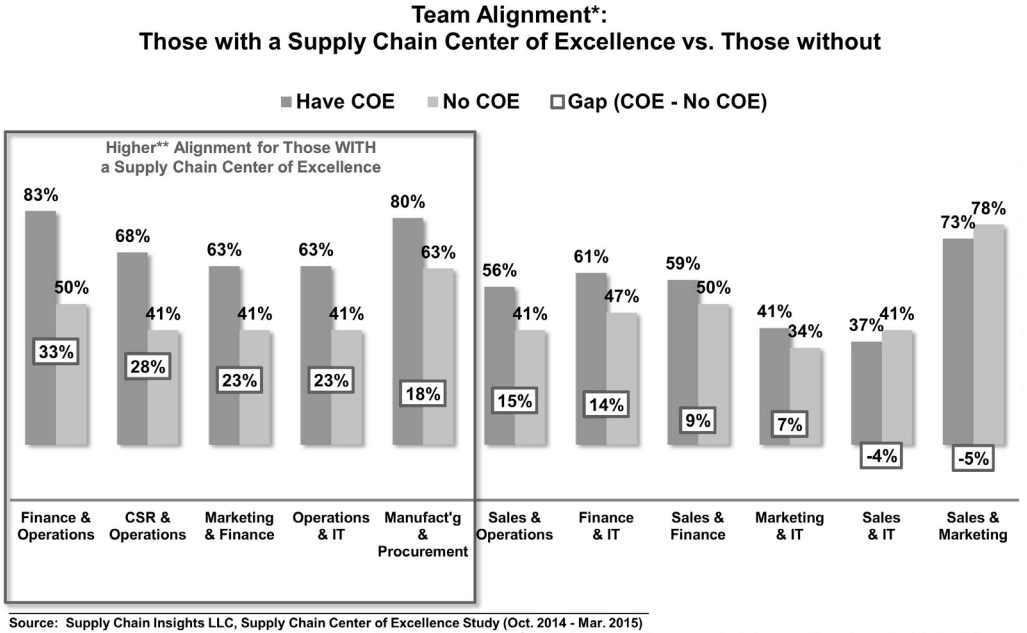
This is an important concept that is largely ignored by many consultants. Be wary in setting targets. While many consultants will wave their hands and promise improvements in costs and inventory through projects, take pause. Instead, invest in a network design group to understand your potential. Model the dynamics of your supply chain and gain an understanding of the nonlinear relationships between cost, customer and inventory. You cannot get this same understanding of looking at the supply chain in a spreadsheet.

When you invest in a Supply Chain Center of Excellence to model and define supply chain processes to build organizational alignment, ask the team to use supply chain network design models to determine what is possible in the supply chain. Use this data to set realistic targets and goals. When this happens, as seen in Figure 2, companies improve alignment between operational and financial teams.

Every time that you set artificial targets that are not in alignment with the potential of the supply chain, you will throw the supply chain out of balance and reduce the overall potential. Let us give you some examples.

- ***Unchecked rise is complexity.*** *As growth has slowed, many companies have added items and services to try to stimulate growth. This adds to supply chain complexity and will reduce the potential. So, as you rationalize product offerings and go-to-market strategies, model the impact of complexity on customer service, inventory and costs.*
- ***Avoid artificially constraining inventory levels.*** *We know that it is tempting to want to reduce inven-*

Figure 2. Organizational Alignment Improvements with a Center of Excellence



Source: Supply Chain Insights LLC, Supply Chain Center of Excellence Study (Oct. 2014 - Mar. 2015)
Base: Manufacturers, retailers, and distributors who sell items they manufacturer, have $500M+ in revenue – have a supply chain center of excellence (n=41), do not have a supply chain center of excellence (n=32)
Q41. In your opinion, how aligned do you believe each of the following pairs of teams are at your company? SCALE: 1=Not at all aligned, 7=Extremely aligned
*Data show those who rated it 5-7 on a 7-point scale (top 3 box); **Higher than group indicated at 90% or higher level of confidence

tory to make quarterly results, but please use restraint. Inventory is the most important supply chain buffer for demand and supply volatility. For most companies, demand and supply volatility is increasing. As a result, if inventory is arbitrarily reduced you can hurt the company's ability to meet orders. This will throw the supply chain out of balance. The longer the supply chain, the more difficult it is to regain balance. It can take weeks and months if the supply chain is complex.

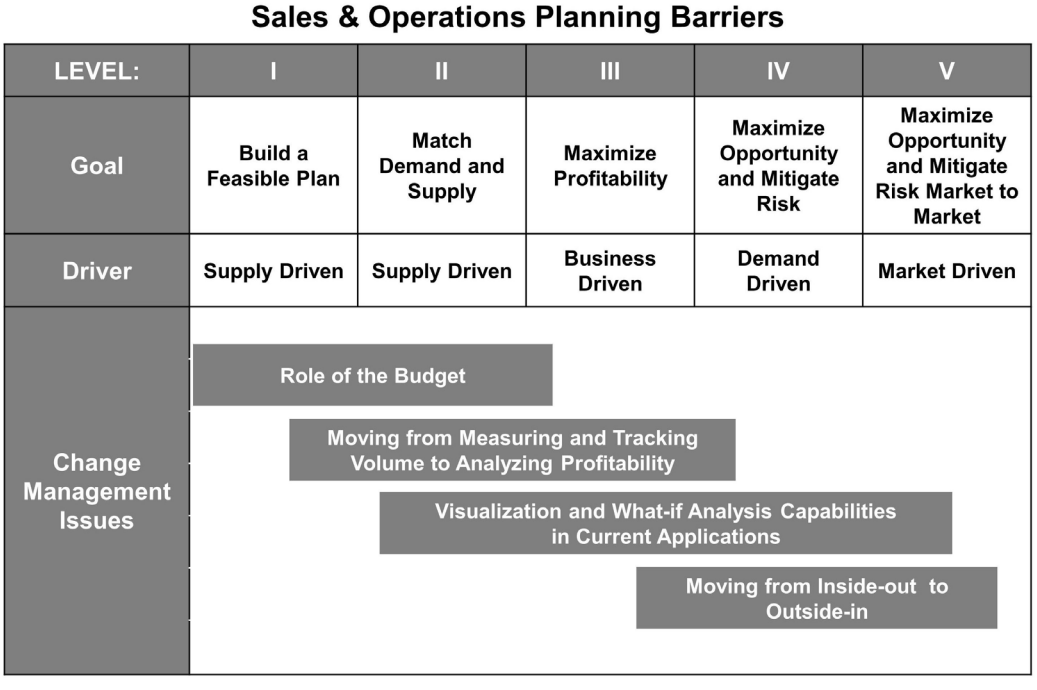
- ***Be careful on pushing into the channel to meet quarterly commitments.*** *It is also very tempting to push inventory into the channel at the end of the quarter to meet financial commitments. This can also throw the supply chain out of balance. Instead of reactive, knee-jerk reactions, your supply chain results will be higher if you can work with the team on a monthly basis and improve cross-functional processes like new product launch, revenue management, Sales and Operations Planning (S&OP) and supplier development, launch, revenue management, Sales and Operations Planning (S&OP) and supplier development.*

  So, just as an athlete trains to improve potential, and understands that they must recognize the constraints and limitations of their body, we would like for you to apply the same concepts to your supply chain. Partner with an active group within your organization to design the supply chain and improve supply chain potential.

2. Rethink the role of the budget.

The financial department uses the budget as a control mechanism to allocate resources and set targets. We all know—based on shifts in the market potential and shopper preferences—that things change. As a result, the budget is out-of-date when built. As a result, use the

Figure 3. S&OP Change Management Issues



S&OP process as an input for budget revisions, but do not constrain the S&OP process based on the budget.

Our advice is simple:

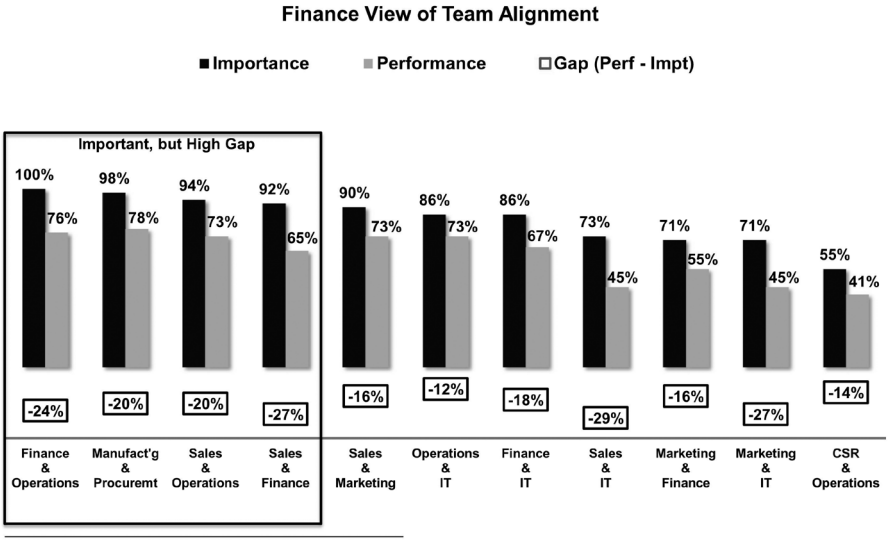
- ***Be careful. Be market-driven.*** *Never constrain the S&OP and supply chain processes by the budget. Instead, use market signals (sell through and competitive information) to understand true demand and then use network design tools and the planning processes to update budget goals.*
- ***Understand the options. Focus on "what-if" analysis.*** *While good news travels fast within the organization —success in new product launch or market launch— bad news travels slowly. Sales and marketing are slow to admit market failure. As a result, look for early warning signals and understand your options based on "what-if" analysis. Select planning technologies based upon "what-if" analysis. Only 33% of companies have this capability.*
- ***Sidestep functional goals.*** *Functions compete. They are not aligned. Only 12% of companies can see total costs. Go beyond the budget discussion and drive team work to ensure that the company can work together to minimize total costs while improving customer service and inventory levels.*

3. Alignment.

While all groups will speak about the need for alignment, the gaps in functional team alignment are felt more intensely by the supply chain leader than by you. Try to help, by driving an understanding of what is possible in the supply chain when managed as a complex system.

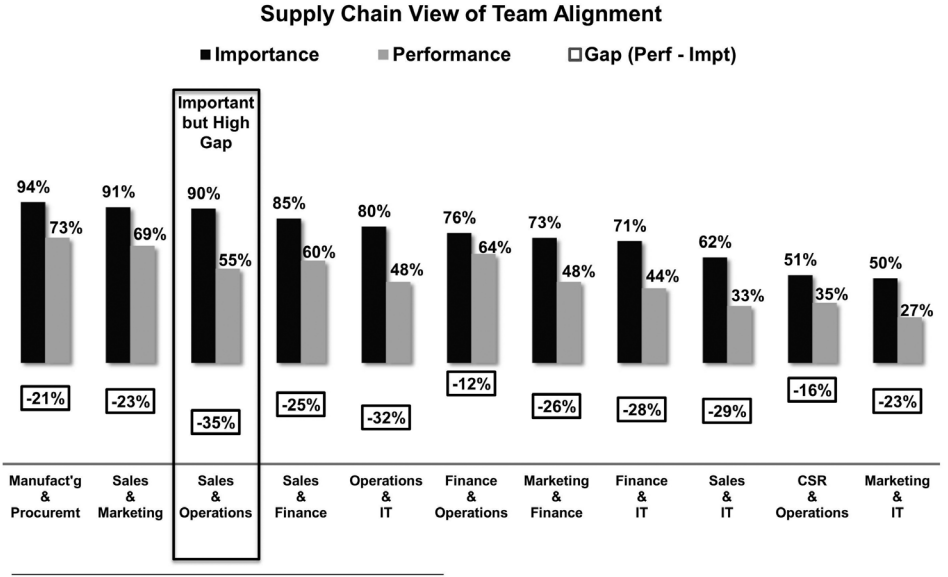
Contrast the gaps of the two roles. The supply chain leader feels the lack of functional alignment more than you do. Try to be supportive.

Figure 4. Finance View of Functional Alignment



Source: Supply Chain Insights LLC, Alignment Survey (Mar - May 2013)
Base: Manufacturers – Finance (n=49)
Q22. In your opinion, how important is it for each of the following pairs of teams to be aligned within your company? SCALE: 1=Not at all important, 7=Extremely important
Q23. How aligned do you believe that these same pairs of teams actually are with your company? SCALE: 1=Not at all aligned, 7=Extremely aligned
Showing: % rated 5-7 on 7-point scale

Figure 5. Supply Chain View of Functional Alignment



Source: Supply Chain Insights LLC, Alignment Survey (Mar - May 2013)
Base: Manufacturers – Supply Chain (n=105)
Q22. In your opinion, how important is it for each of the following pairs of teams to be aligned within your company? SCALE: 1=Not at all important, 7=Extremely important
Q23. How aligned do you believe that these same pairs of teams actually are with your company? SCALE: 1=Not at all aligned, 7=Extremely aligned
Showing: % rated 5-7 on 7-point scale

4. Rethink cash-to-cash targets: The role of inventory and the role of payables.

Over the last decade the average company has dramatically improved employee productivity, and driven reductions in cash-to-cash metrics. However, employee productivity has not translated into operating margin and many of the shifts of Cash-to-Cash (C2C) are not beneficial to improving supply chain performance. Artificial targets for inventory will hurt your supply chain, and lengthening payables will have long-term impact on supplier viability. Most of the progress in cash-to-cash is the result of lengthening payables. This is analogous to taking heroin. Pushing costs and waste backwards in the supply chain gives you short-term results with long-term negative impacts. Own your supply chain and build resilience. Remember that this is a marathon, not a sprint.

5. Fund future investments.

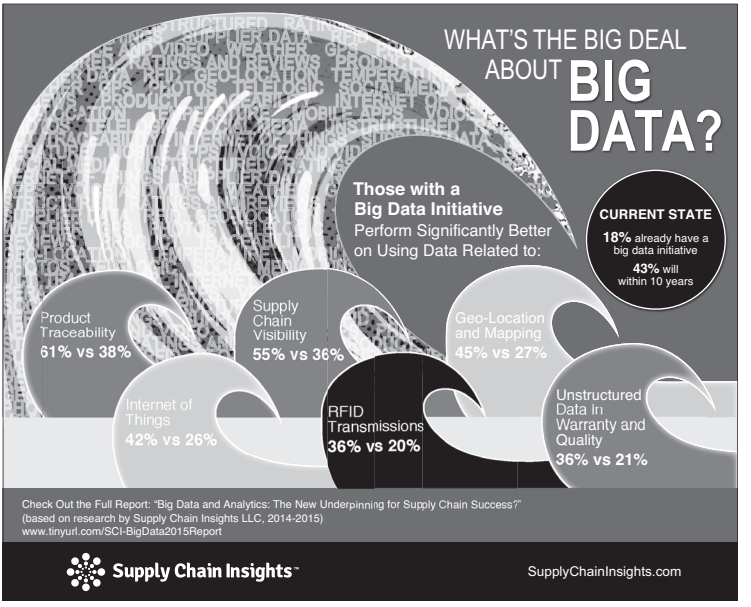
Historically, investments in supply chain were deeply rooted in transactional systems. Enterprise Resource Planning (ERP) evolved to improve the speed of Order-to-Cash and Procure-to-Pay processes. Last decade's investments in ERP were essential to build the global multinational and ensure rigor and consistency in balance sheet reporting. The future of tomorrow's supply chain hinges on taking advantage of unstructured data. Breakthrough innovation will happen through the use of a variety of data sources—examples include sensors, streaming data, Internet of Things (IOT), pictures, weather data, geolocation data/maps, telematics, and sentiment data. The use of these new forms of analytics requires investment in new forms of analytics that do not come from the traditional ERP vendors. If you want to drive innovation, relax the dictate within the organization to stick to an ERP standard. Welcome the age of big

Figure 6. Overall Industry Performance

Industry Snapshots (2000-2013)						
Industry	**Year-over-Year Revenue Growth**	**Operating Margin**	**Inventory Turns**	**Cash-to-Cash Cycle**	**Revenue per Employee (K$)**	**SG&A Ratio**
General Merchandise	**20%** ↑143%	**0.06** ↑31%	**6** ↑15%	**3.4** ↓82%	**328** ↑67%*	**23%** ↓2%^
Apparel Retail	**19.4%** ↑103%	**0.11** ↑18%	**5** ↑124%	**72** ↑15%	**304** ↑48%*	**27%** ↓6%^
Apparel Manufacturing	**14.7%** ↑329%	**0.11** ↑64%	**4** ↑165%	**125** ↑16%	**344** ↑388%*	**26%** ↓98%^
Pharmaceutical	**12%** ↑56%	**0.22** ↓11%	**3** ↓16%	**222** ↑69%	**501** ↑84%*	**27%** ↓3%^
Beverage	**11.4%** ↑160%	**0.17** ↑134%	**7** ↑14%	**58** ↑33%	**58** ↑0.05%*	**26%** ↓63%*
Medical Device	**11%** ↑200%	**0.16** ↓25%	**2** ↓11%	**197** ↓38%	**326** ↑44%*	**34%** ↓1%^
Chemical	**8.5%** ↑159%	**0.09** ↑23%	**5** ↑28%	**96** ↑1989%	**499** ↑51%*	**15%** ↓35%^
Grocery	**6.3%** ↑160%	**0.13** ↑17%	**16** ↑31%	**12** ↓60%	**355** ↓97%*	**14%** ↑7%*
Consumer Packaged Goods	**6%** ↑96%	**0.14** ↑73%	**5** ↑36%	**81** NC	**508** ↓66%*	**26%** ↓18%*
Food	**4.9%** ↑87%	**0.11** ↓23%	**7** ↑35%	**43** ↓11%	**470** ↓100%*	**20%** ↓15%^

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2013
Industry average comprised of public companies (Combined Food & Beverage industry: NAICS 3112% where % is any number from 0-9, 311320, 311520, 311821, 311941, 312111), (Chemical industry: NAICS 325188 & 325998), (Consumer Packaged Goods industry: NAICS 3256% where % is any number from 0-9), (Medical Device industry: NAICS 339112), (Pharmaceutical industry: NAICS 325412) reporting in One Source with 2012 annual sales greater than $5 billion
*Calculated from 2002-2012 due to data availability; ^Calculated from 2003-2012 due to data availability; NC=no change

Figure 7. Big Data Infographic



data and partner with your supply chain organization to drive new insights.

We share a recent infographic for your consideration on this hot holiday weekend.

Good luck on your next quarter. These recommendations will take a while to materialize. Expect to see results within a couple of quarters, but the research supports that it works.

Driving Organizational Alignment

In supply chain strategy documents, terms like alignment, agility, responsiveness, and flexibility dot the page. At a principle level everyone agrees with the concepts. In meetings, groups nod their heads that the strategy is correct. However, at a practical level companies struggle with the implementation of strategy due to a lack of definition. It is not easy.

In my work with organizations I ask companies to be patient and remember that we are on a journey. Most are forging new ground. The average supply chain organization is 15-years old, and the practice of supply chain management is just 30-years old. The practices are still emerging and have morphed dramatically over the course of the supply chain leader's career.

Looking Back at History

For perspective, let's look back at history. In the beginning, the emerging supply chain concepts focused on functional excellence. The goal was efficiency. In discrete industries the early supply chain organizations reported to procurement. In contrast, in the process industries the supply chain organization reported to manufacturing. Today, while companies speak the words 'end-to-end supply chain management', there is a functional quagmire. The organization lacks alignment, and tragically the supply chain often becomes another function—another area in the building with a nameplate—within a misaligned culture. The more

a company pushes functional excellence and efficiency, they encounter even greater issues with alignment.

In our research on organizational alignment we find that the alignment gaps are felt differently across the organization. The CSCO, CIO and CFO have very different views. The CSCO feels the issues of alignment acutely; whereas, the CFO and CIO do not. As a result, the CSCO's efforts to drive alignment can fall on deaf ears. While we have proven in our research that Sales and Operations Planning (S&OP) maturity helps to close the gap between operations and commercial teams, we have been actively studying organizational dynamics to try to determine other techniques that can help. The goal of this post is to share recent research on the impact of the Supply Chain Center of Excellence on alignment.

Some Background: What Are the Signs of Organizational Maturity?

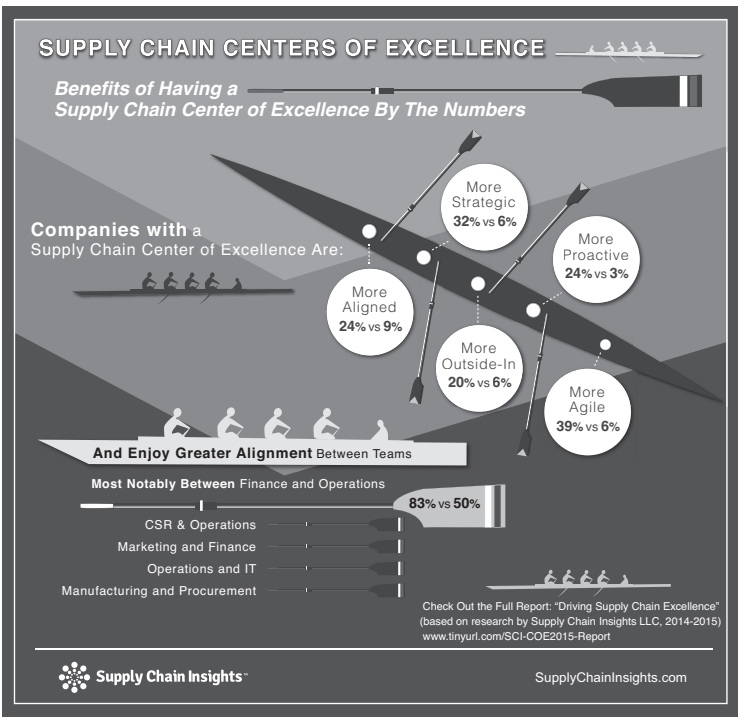
Organizations are at different levels of maturity. Over the course of the last decade companies have moved at different rates to align source, make, and deliver processes to report to a common leader. Based on our research at Supply Chain Insights, today 34% of supply chain organizations have source, make, and deliver reporting through a common organization. This is a sign of organizational maturity. When there is a common reporting strategy, progress in metrics performance at the intersection of operating margin and inventory turns is faster.

Another sign of organizational maturity is an effective supply chain Center of Excellence. While the Center of Excellence has many definitions, and comes in many shapes and forms, today 40% of supply chain organizations in companies greater than $5 billion have a Supply Chain Center of Excellence. While the concept is vogue, effectiveness varies.

Today, only one in two companies believes that their Center of Excellence is effective.

A common characteristic of a successful Center of Excellence is a core competency to actively design the supply chain. When this happens the company can greatly improve organizational alignment. The greatest impact is between the supply chain organization and the finance group. As a result, the company is more agile and proactive. In Figure 8 we summarize this recent research on Supply Chain Centers of Excellence maturity.

Figure 8. Benefits of Having an Effective Supply Chain Center of Excellence



In essence, an effective Center of Excellence helps to orchestrate and coordinate functional goals. I liken this to a decathlon. How so? Let me explain. The decathlon athlete knows they must target to be in top placement, but not the best in all of the events, to win. The development of this strategy happens over many months and years based on training with a coach. The decathlon athlete enters the stadium with a plan: predetermined goals.

I believe the journey for supply chain excellence is analogous. The research supports that a company cannot be the best in costs within all functions and deliver the best total results. Instead, it requires the orchestration of tradeoffs between the functions. The culture needs to be one of coordination and cooperation, and against a carefully crafted design. It is not easy, and the journey is fraught with issues.

Wanted: Supply Chain Architects

Forty years ago, as a chemical engineering student, I learned the tedious craft of chemical plant design. It was a world of heat exchangers, distillation columns, reactors, tanks, pumps, valves and dryers. I liked the classes, and would spend hours talking to my professors about the design of the factory. Getting good at factory design is a merit badge of sorts for the chemical engineer.

When I moved into industry, and the real world, I managed engineering teams. In this position, we designed real-world plants. It was usually a team effort stretching over years. Each project would usually have a cool name, and management exposure. The placement of equipment and personnel was carefully crafted through revision-after-revision as the factories moved from design to operation. Designing a factory is serious work. It is now part of my DNA.

Let me start with a true confession: I am a manufacturing gal at my core. It is in my blood. I wore safety shoes and hard hats for over 15 years. There are still bunions on my feet from the rubbing of the steel plates on my toes. I relished the sound of a manufacturing line when I opened the door of the factory in the morning, and I liked managing inputs so that we could maximize outputs. I also liked seeing people grow and building teams in the process. Manufacturing is the foundation of my interest in supply chain management.

Supply Chain and Design

In manufacturing, I became good at labor bargaining. I worked at union and non-union plants and being a no-nonsense gal, that loved to argue, I ended up negotiating

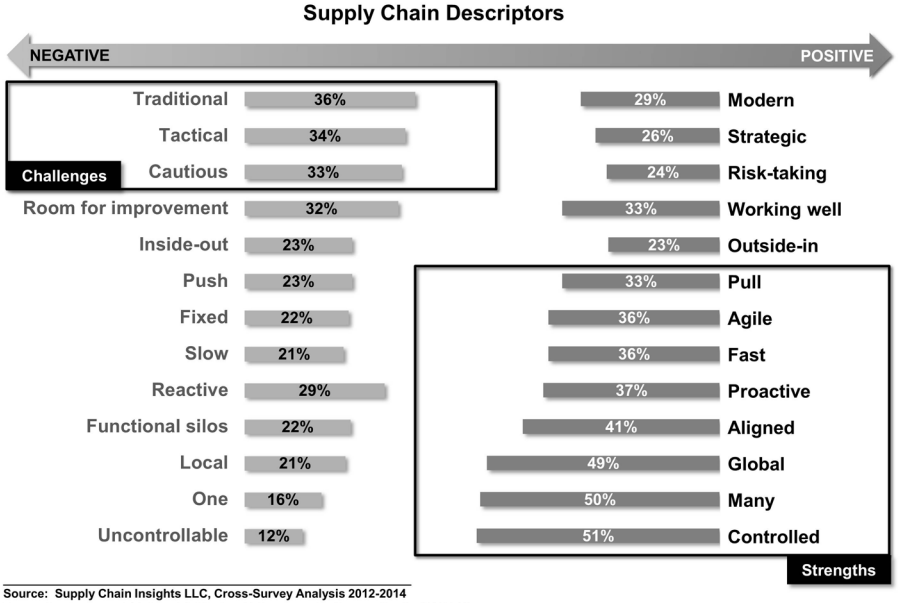
third and fourth-step grievances. So when the warehouse team threatened to unionize, I transferred into a distribution, warehouse environment. This was the beginning of my journey from manufacturing to understanding larger supply chain concepts. The year was 1985. It was a foreign world. I knew nothing about the world of logistics, inventory management and order optimization. It was on the job learning, and I felt that I was drinking from a fire hose.

...the processes were quite different then. Warehouse Management and Transportation Management were in their infancy. I helped to implement early versions of Distribution Requirements Planning (DRP). (I know.... I am showing my age.)

Let me continue with my story. I managed distribution centers for the next 15 years. Much to my chagrin, when I entered into the world of supply chain, the processes of source, make and deliver were usually not designed. Instead, they just happened. Over time, companies acquired assets. It was hard for me to rationalize the world of manufacturing that was deliberate and designed versus the emerging practices in supply chain.

The conversations were vastly different from the world of manufacturing. How so? Let me explain. The focus in supply chain groups was not on how to design the operations so that they were more effective; instead it was about the use of best practices to maximize the value of what we had. It bothered me then, and still does today. I think that supply chain design is at the center of a great supply chain, and the best processes are deliberate and intentional. It should not be functional, with a narrow focus on a singular function like manufacturing or transportation. Instead, I think that it needs to be holistic to balance the trade-offs of source, make and deliver together. This is difficult for the average company since only one in two supply chains have source, make and deliver reporting through the same organization.

Figure 9. Descriptions or Metaphors Which Describe Today's Supply Chain



Source: Supply Chain Insights LLC, Cross-Survey Analysis 2012-2014
Base: Manufacturers, Retailers, Distributors, 3PLs answering the question (n=192-278)
For each of the following pairs of words, please pick the one word or phrase that best describes your company's supply chain. SCALE: 5-point scale with one word on either end.

I find it ironic. Companies talk about the need to be proactive, and agile. However, by and large, they are not. Why? I think that the gap starts with the lack of design. Most have inherited supply chains that they try to run efficiently with the lowest cost per case. Based on the corporate strategy, the most efficient supply chain—with the lowest cost per case—may not be most effective. In fact we find, that it seldom is, as shown by the recent data from our surveys at Supply Chain Insights.

As shown in Figure 9, one in two leaders today think that the supply chain processes aren't adequate. I think that changing this picture requires intentional design. From the research, we know that when organizations have source, make and deliver reporting to the same leader, that supply chain performance improves (intersection of operating margin and inventory turns). In addition, we can see from the research, that when companies focus on the design of supply chains, that supply chain agility improves and there is better alignment in the organization between finance and operations. It is statistically significant.

Getting from Here to There

Supply chain design looks very different by company. There are different levels of maturity. Today, three out of four companies greater than $10 billion have a network design group that averages seven people. So, how do companies get good at supply chain design? Where are the supply chain architects of the future? This shift will not happen overnight. It is about changing traditional paradigms and building the processes to make design a priority. This is the goal of this blog.

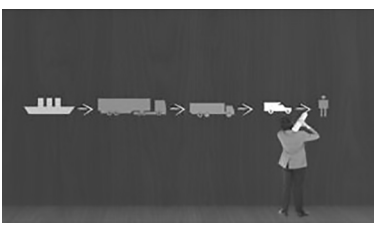
For clarity, let's start with a definition. For the purposes of this article, I define the processes of network design as the use of analytic tools to model and optimize the supply chain.

The work can use multiple technologies and combine cognitive learning, simulation and optimization. I find that companies move through a five-stage maturity cycle. In short, I don't think that we spend enough time designing our supply chains, much less our value networks.

Stage 1: What Are the Right Bricks and Mortar?

The earliest form of network design is a focus on the bricks and mortar. The focus is where are the right locations for factories and distribution centers? The focus is on the physical flows of supply chain. This analysis is ad hoc and is usually stimulated by the launch of a new product or a shift in capacity. The design efforts are usually coordinated by a central group like a Center of Excellence.

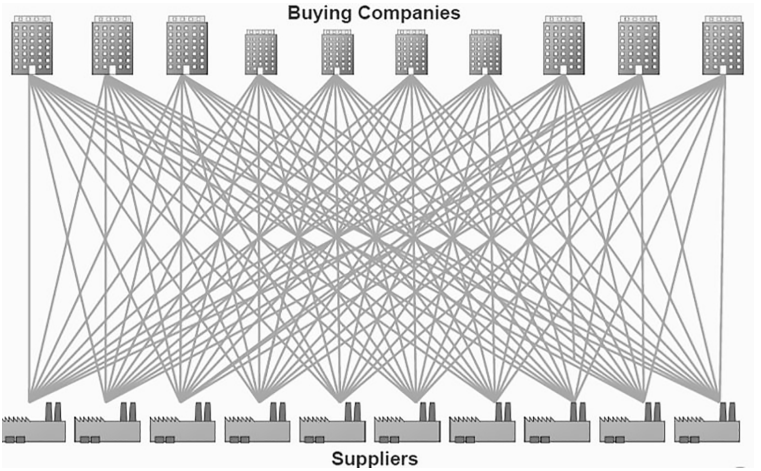
Stage 2: All About Transportation.



In this phase of network design, the focus is functional. It is usually driven by the logistics and transportation functions. The focus is to rationalize the flows from the

distribution center to the customer. The flows are typically linear and the analysis is on alternate modes and best shipping lanes. This work is typically periodic to accompany a freight bid or an end-to-end project.

Stage 3: Building Effective B2B Networks.



At this level of maturity companies are looking at the complexities of supply networks—manufacturing outsourcing, supplier development, and the management of complex distribution, or demand networks—customer shipment alternatives, distributors, and free trade zones. The focus is on the definition of business policy. It is often stimulated by failure. The projects explore the alternatives for risk management, tax efficiency, social responsibility, and the complexities of outsourcing. The growth of e-commerce puts pressure on networks for a quicker and more accurate response. Companies need multi-tier Available to Promise (ATP) and real-time inventory management. Network complexity grows quickly which rules out many of the available technologies. In this work, the use of linear optimization (which usually is about

averages) is augmented with simulation to test network feasibility (the ability of the network design to manage demand and supply volatility). However, the work is still periodic. It is not an embedded systemic enterprise process management. Network complexity grows quickly which rules out many of the available technologies. In this work, the use of linear optimization (which usually is about averages) is augmented with simulation to test network feasibility (the ability of the network design to manage demand and supply volatility). However, the work is still periodic. It is not an embedded systemic enterprise process.

Stage 4: All About Flows.

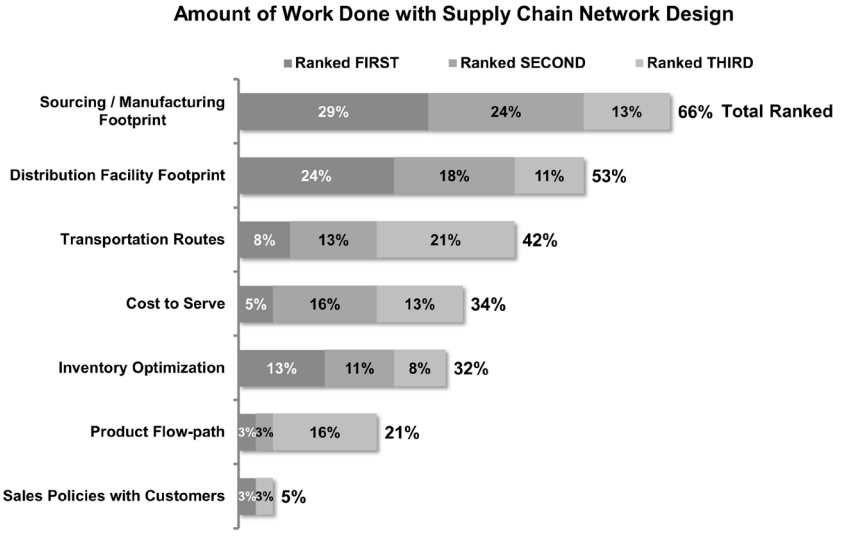
In the next phase and evolution of design maturity, companies realize that product flows are only a piece of the puzzle. There are more flows than materials to make products. In this evolution, cash, information, and inventory flows grow in importance. At this stage, network design efforts become an enterprise-class process with a monthly analysis of the network. This is often coupled with Sales and Operations Planning (S&OP) processes. Terms like push/pull decoupling points, form and function of inventory, and buffer analysis become a part of the lexicon. (For more on this level of sophistication on inventory management check out our recent inventory management report.) Companies like Cisco Systems, Intel, Hewlett-Packard, and Seagate are at this level of sophistication.

Figure 10 is a good overview of the current state of network design in the industry.

Stage 5. What Should the Network Be?

In the last and final stage of network design maturity, the focus is on a clean sheet of paper. The question is "not to optimize what exists, but to develop a roadmap of what

Figure 10. Focus of Network Design



Source: Supply Chain Insights LLC, Supply Chain Center of Excellence Study (Oct. 2014 - Mar. 2015)
Base: Manufacturers, retailers, and distributors who sell items they manufacturer, have $500M+ in revenue, have supply chain network design (n=38)
Q39. Please rank the following items in terms of how much work is done with supply chain network design. Give a "1" to the type of work done MOST, a "2" to the type done SECOND most, and so on. If no work is done, give it a 0.

should exist." This work is useful to baseline the current state of the business and brainstorm higher levels of performance. In this analysis, the evaluation of partnerships and design partners is holistic optimized from the customer's customer to the supplier's supplier. The focus is on value, and understanding supply chain potential. While this may seem academic, it is very useful for an executive team to see the difference between an "efficient network that operates at the lowest cost per case", a "responsive network that can shift with the quickest cycle time to market demands", and an "agile network that can deliver the same cost, quality and customer service levels given the levels of demand and supply volatility." These are three different designs. While executive leadership teams will often use these terms interchangeably, seeing the impact on a geographical map for a global network stimulates a different level of dialogue. It is an awakening. Why? Executive teams are guilty of using these terms frequently without realizing the difference. Seeing the difference in a tangible network design stimulates a new discussion. Good luck on your journey!

Have You Given Your Planner Some Love Today?

The Supply Chain Insights Global Summit is a week away. We are currently tabulating the results to publish the report, "Top 15 Supply Chains to Admire." In this report, we track the progress on balance sheet performance of companies by peer group and chart the relative improvement for the period of 2006-2013. This work has taken us two years to finish.

As I look at the results—and reflect back on my ten years of experience as an analyst with these companies—I find the differences between a leader and laggard boil down to five things: supply chain leadership, talent management, active design of the supply chain, strong horizontal processes, and being good at supply chain planning. While consultants and

technology providers may preach that you need the latest and greatest technologies, I often see companies implementing the wrong technology, doing it badly, and sending them backwards. Supply chain leaders that make the biggest difference build supply chain potential and make small, incremental progress over time.

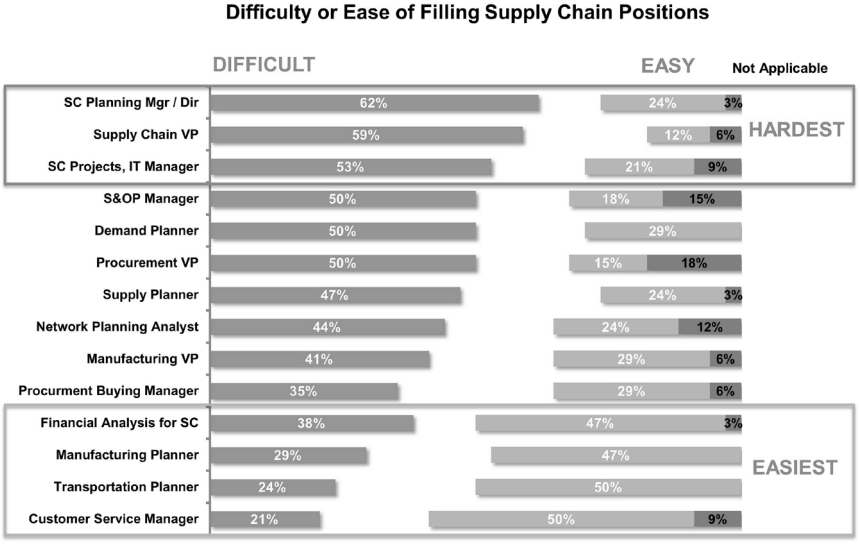
A Closer Look at Supply Chain Talent

For most, supply chain talent management is challenging. In the recent report that we completed, Supply Chain Talent - A Broken Link in the Supply Chain, we shared data from a recent study that only one in three companies today thinks that they are managing supply chain talent effectively. When I look at the performance data, I think that it matters.

Talent management is not trivial, and supply planning is at the nexus of the talent problem. Today there is a shortage of mid-management supply chain talent; and as shown in Figure 11, some of the toughest positions to fill are in the area of supply chain planning. Supply chain planning requires a good understanding of the business, strong influence skills and deep analytic capabilities. These are hard to build, and the loss of a great planner can hurt.

Job satisfaction for supply chain planners is low. As a result, companies are churning planners—they are moving from one company to another. Due to the unique skill mix, it is difficult to recruit supply chain planners. Which makes me wonder, if we gave our supply chain planners more good old-fashioned love, would we have fewer open positions? And, if the position was more desirable, would the job have higher satisfaction causing others within the company to want to do the job more readily? I think so. Here I share my point of view.

Figure 11. Supply Chain Talent



Source: Supply Chain Insights LLC, Supply Chain Talent (2012-2014)
Base: Manufacturers in Supply Chain Management – 2014 (n=34)
Q14. How difficult do you believe it is for your company to fill each of the following supply chain-related positions? Your best estimate is fine.

What I See in the Data

From time to time at Supply Chain Insights, we do quantitative assessments of individual companies to understand the dynamics within the supply chain organization. These are private studies that we do for clients, and we keep the results of these studies confidential. However, time after time, we see a consistent theme in the data. Supply chain planners do not feel appreciated.

The job is tough and the obstacles are many. Here are the seven issues that we see most frequently:

1. **Changing priorities.** It is hard for a planner to keep up with ever-changing priorities. Planning takes time and the use of optimization requires a clear objective function. With conflicting and ever-changing priorities, it is hard to do.
2. **Rewarding the urgent.** No Time for the Important. Most organizations reward the fire fighters. Planning requires a focus on the important and allowing planners time to plan. Culturally, this is a tough shift.
3. **Giving planners time to plan.** Good planning takes time. When an employee is always fighting fires, they do not have the time to plan.
4. **Making their positions meaningful.** At the end of the day, when we turn out the lights in our offices, we all want to think that we make a difference. Supply chain planners want their work to be used. They want to make a difference. Too few companies actually use their plans to make better decisions. The degree of this gap has grown greater in my time as an analyst. The good have gotten very good, and the average companies have gotten worse.

5. **Giving planners technologies that are easy to use.** The right supply chain planning tools have the right data model that is set up to adequately model the environment, and the planners are supported by easy-to-use business intelligence tools. As you can see in our reports on technology satisfaction, Voice of the Supply Chain, and Maximizing the ROI in Supply Chain Planning, both are an issue right now.
6. **Creating the right work environment.** Politics, and the lack of understanding of the basics of supply chain, are issues for supply chain planners. The planners see the gaps in the organization first, and they need leadership to help drive alignment.
7. **Clarity of career paths.** In the early days of creating a supply chain planning group, the positions were entry-level and there was high turnover. In the companies that do it well, there are established career paths that reward planning.

What I Hear in Discussions

When groups are doing well, you don't hear stories like these:

- "Yesterday, I presented the demand plan to my boss. He asked me to go back to my desk and create a better plan. When I asked him to define a "better plan," he said that it would be one that showed the company growing with less demand error. When I asked him how to do this, he said just work on the plan and make it better. I shook my head. I cannot change the basics of the business."
- "Good news travels fast in our company, and bad news is seldom communicated. So, when we run a demand plan on market data and see that products are not selling, our jobs become very uncomfortable."

- "My boss criticized our work today on the demand plan stating that the demand error was too high. He mentioned to one of my colleagues that he wanted to recruit a new demand planning team to reduce the error. He just does not understand that the demand error is characterized by market conditions and what you are selling in the market. He thinks that he can just get a new team and that the demand error will magically go away."
- "My general manager believes in having a high bias. He thinks that if you forecast high that you are going to sell more, then you will sell more. When I tried to explain the issues with over-forecasting on waste and inventory obsolescence, he was dismissive. We have to keep two sets of 'internal books'. One set has the marketing and sales bias and the second has what we think that we are really going to sell."
- "We are always on the hot seat. Whatever goes wrong, it is attributed to issues with the demand plan. I often feel that we are the scapegoat."

Unfortunately, we hear these stories more than we'd like. So, on this sleepless morning, as I sit in Stockholm trying to recover from jet lag, I want to ask you a question. Have you given your supply chain planner some love today? If not, why not stop by their office this morning and make the first step. I think that it matters.

SECTION 3

Lessons in Leadership

Campbell's Soup

Over the course of the last two years at Supply Chain Insights, we developed a methodology to gauge supply chain improvement. The name? It is the Supply Chain Index.

Why an Index?

We have found that supply chain metrics are gnarly and complicated. During the last two months, we have been interviewing supply chain leaders to get their views on the methodology.

We believe that a supply chain leader is defined by both the level of performance on the Effective Frontier (balance of growth, Return on Invested Capital, Profitability and Inventory Turns) and driving supply chain improvement. We think that it requires both together with excellence based on a peer group comparison.

In this blog post, we share an interview with Dave Biegger, SVP of Campbell's Soup. Dave spoke on his journey along with other supply chain leaders at the 2014 Supply Chain Insights Global Summit.

Background on the Supply Chain Index

During the period of 2006-2012, Campbell Soup Company outperformed its peer group on the Supply Chain Index. The Index is a methodology developed by Supply Chain Insights LLC, in cooperation with the Operations Research Team at Arizona State University (ASU), to gauge supply chain improvement. In the Index, corporate progress is calculated on balance, strength and resiliency improvements. The balance factor tracks progress on both year-over-year growth and Return on Invested Capital (ROIC), and the strength factor is based upon improvement in both operating margin and inventory turns. Resiliency is the tightness of the pattern, or the reliability of operating margin and inventory turns results. Together, the three factors form the Supply Chain Index.

The methodology is based on three principles. The first is that the supply chain is a complex system that has increasing complexity. It needs to be managed holistically as a system. The second principle is that the supply chain needs to be managed cross-functionally, end-to-end, from the customer's customer to the supplier's supplier; and as such, it cannot be viewed as just another function. The third principle is that the supply chain is a significant contributor to corporate performance, and that supply chain improvement can be tracked and measured based upon public financial statements.

On July 24, 2014, I interviewed the Campbell's team, under the leadership of Dave Biegger, SVP of Global Supply Chain, to gain insights on the Index, and their journey. Dave

Figure 1. Food and Beverage Company Performance on the Supply Chain Index for the Period of 2006-2012

Company	2012 Revenue (USD billions)	Balance		Strength		Resiliency		Index	
		Score	Ranking	Score	Ranking	Score	Ranking	Score (0.3B+0.3S +0.3R)	Ranking
Campbell Soup Company	7.2	0.32	5	0.02	11	0.33	5	6.3	**1**
Hershey Company	6.6	0.43	2	0.01	12	0.60	8	6.6	**2**
Diageo plc	17.0	0.18	8	0.00	15	0.08	1	7.2	**3**
Nestle SA	98.3	-0.09	15	0.04	7	0.32	4	7.8	**4**
H.J. Heinz Company	11.6	0.09	10	0.03	10	0.51	7	8.1	**5**
Maple Leaf Foods Inc.	4.9	-0.01	11	0.50	1	1.42	16	8.4	**6**
Glanbia plc	2.8	0.39	4	0.10	6	1.71	18	8.4	**6**
General Mills, Incl.	16.7	0.41	3	-0.01	16	0.64	10	8.7	**8**
Coca-Cola Enterprises Inc.	8.1	0.20	7	0.34	2	5.33	21	9.0	**9**
Molson Coors Brewing Co.	3.9	0.15	9	0.20	3	1.96	19	9.3	**10**
SABMiller plc	21.8	-0.08	13	0.03	8	0.76	11	9.6	**11**
The J.M. Smucker Company	5.5	0.28	6	0.01	13	0.79	13	9.6	**11**
Mead Johnson Nutrition Co.	3.9	-0.08	14	-0.04	19	0.32	3	10.8	**13**
Carlsberg A/S	11.5	-0.18	18	0.17	4	1.21	15	11.1	**14**
Hillshire Brands Company	4.0	1.66	1	-0.03	17	2.48	20	11.4	**15**
The Coca-Cola Company	48.0	-0.11	16	0.01	14	0.61	9	11.7	**16**
Anheuser Busch InBev SA	39.8	-0.12	17	0.11	5	1.62	17	11.7	**16**
PepsiCo	65.5	-0.27	19	-0.03	18	0.39	6	12.9	**18**
ConAgra Foods, Inc.	13.4	-0.33	20	0.03	9	0.85	14	12.9	**18**
Kraft Foods Group Inc.	18.3	-0.61	21	-0.08	20	0.11	2	12.9	**18**
Kellogg Company	14.2	-0.05	12	-0.08	21	0.79	12	13.5	**21**

Source: Supply Chain Insights, Corporate Annual Reports 2006-2012

joined Campbell Soup Company in 2005 after a 24-year career in product supply at Procter & Gamble. Dave asked his team to join him for the discussion.

Here are the notes from that discussion:

What has Campbell's done to demonstrate such strong performance over the last 6-year measured period?

Eight years ago, we started with a focus on Total Delivered Cost (TDC) and elevating our cost savings program performance, as well as eliminating sub-optimized cost efforts that might have helped in one specific area, but hurt our overall performance. We took a holistic approach to accomplish this goal by developing training programs and tools to ensure that all employees had an accurate picture of total cost and how to drive improvements. We built these into continuous improvement programs such as Lean Six Sigma, while also setting goals to drive breakthrough cost savings to supplement continuous improvement savings.

I strongly believe diversity of experience and thought leads to improved performance. This is why our next step was focused on building an effective supply chain team by developing people and leveraging their talent. We wanted to create the best mix of people with the right skills and experiences and put them into the right positions. The key was to build upon the tremendous experience that already existed within Campbell, as well as attract great talent from other world-class companies and supply chain organizations. That blend has been key in helping us to make significant improvements.

Any time you make a significant change or improvement, it's essential to understand the culture of your organization when developing an approach. At the beginning of this journey, we tended to behave more in silos in parts of the company, both across the plant network and across functions. This obviously made it more challenging to implement new concepts in a standardized way and to reapply great solutions. It became clear at the time that starting small with pilots to prove concepts was an important way to build support and alignment at Campbell's. We began with a focus on operational reliability; making products right the first time with no waste in a reliable manner. We needed to ensure that we had a strong and predictable base capability to build upon. This work was organized under an Operations Excellence program, a pillared approach supported with clear leadership and matrix teams. Our next focus was to introduce produce-to-demand as an operating strategy, or the implementation of demand-driven concepts. We've made great progress, and I am proud of how well the organization now works together through improved communication and shared resources. We simplified our SC strategy and communicated in a straightforward, one-page document that laid out primary goal areas. Our intention was to maintain

constancy of purpose and continuity. These strategy areas remain important today, while our priorities and tactics evolve as we make progress.

How did you approach your cost savings program?

As with all supply chain organizations, when we focus on big cost opportunities, we normally deliver savings in those areas. But we created a model to ensure that we were systemic and structured in how we approached cost savings. To drive the sustainable savings program at a best-in-class level, and to ensure that we could reduce costs faster than the cost of inflation, we implemented specific standards. In our program, cost avoidance, while desirable, does not count towards the metric. In addition, a one-time cost savings does not count either. As a team, we agreed to count only recurring savings that offset inflation. Our aim was to maintain a 3 to 3.5 percent savings as a percent of year-over-year total delivered costs. We set a goal that 50% of our target would come from continuous improvement and the other half would come from breakthrough innovation and thinking. We've developed a clear model with specific accountabilities to ensure success in delivering strong cost savings performance year after year. Our approach simply breaks accountabilities and goals across the areas of Manufacturing, Logistics/Network Optimization and Ingredients/Packaging.

What have you learned?

It's important to recognize the interdependencies of capabilities and programs. Each focus area alone is important and can bring great value; but, if key focus areas and programs are managed together holistically versus independently, the opportunity becomes much greater. Campbell's programs included Operations Excellence to build a

strong base, Network Optimization, Product and Process Simplification, Visibility/Orchestration of the SC network (including S&OP), and implementing an operating strategy consistent with Demand-Driven Supply Network capabilities. As we improve in each of these areas, we also open up opportunities in the remaining areas.

As we became more efficient with our assets and began building more flexibility into our plants, we improved cost and service results, along with creating an opportunity to streamline operations, which fell under our Network Optimization program. This has led to almost a 50% reduction in the number of plants across Campbell's global footprint, and although each decision has been difficult, the cost impact has been significant and important.

Through our common platform/postponement initiative, we simplified product designs by eliminating non-value-added flavors or ingredient dice sizes. This also improved the consistency of our product quality, reduced costs and inventory, and enabled improved reliability through the resulting simplified process. This is challenging work because it is highly dependent on cross-functional collaboration. We would not have succeeded without a team effort across R&D, the business leaders, and SC disciplines of engineering, procurement, and manufacturing. This dedicated team of 20, a majority being R&D resources, was self-funded due to its ability to quickly drive savings. Most important about this effort was that we were clear on our principles that quality was more important to us than cost. This meant that every change we made had to result in equal or better quality at equal or lower cost.

In addition to quality, we've created capabilities that will support improved customer solutions and enable growth for the business. Flexibility is not just about asset rationalization, but also about unleashing growth in different product formats, packaging sizes, etc. It's not just flexibility within

the line, but across the entire production system. After five years, we've nearly completed implementation of our simplification effort, Soup Common Platform, which consisted of three phases:

1. Start with formula (recipe) simplification.
2. Focus on process simplification (We were able to eliminate unnecessary processes, which not only made it easier and more cost effective to make the product, but also improved quality by minimizing the impact on ingredients through the process).
3. Equipment and plant design (Our focus was on the plant of the future. We reduced 40 percent of assets and still make the same amount of product with greater flexibility. Our final implementation of this program is happening next year).

We started these improvement efforts in the center of the supply chain with an emphasis on building manufacturing capability, reliability and flexibility. We now have the ability to focus more on materials management and suppliers upstream, and distribution and customer solutions downstream, to drive optimization. While we are nearing the end of our work on the Soup Common Platform, we continue to focus on strengthening relationships and ensuring greater cooperation with our suppliers and customers.

Were there any improvement efforts that did not go well?

One of our opportunity areas was to improve our planning processes and make the proper investment in Advanced Planning Systems. We needed to make the investment because our system was aging and we wanted to invest in a way that supported our demand-driven agenda. However,

we simply attempted to do too much too fast, expecting we could quickly move ahead with integrated planning. S&OP also presented challenges, but we have since changed to a more structured approach to drive greater business ownership. While the implementation was a challenge overall, we've moved beyond it.

Over the last year, we focused on ensuring that our systems and tools were delivering as expected. On the S&OP side, we haven't done anything that's drastically different from all the textbooks. Where we've put particular emphasis and made a step change was in adapting the culture to have a shared understanding of how we run the business. S&OP success depends on a strong culture that supports a cross-functional process. We have a good cooperative effort and understanding from marketing, sales and supply chain on how to make decisions that ensure the success of S&OP. We continually reinforce this within our culture, as well as maintain ongoing process improvement.

Why do you think Campbell's will fall on Index ratings in the future?

We had about seven consecutive years of constant improvement in our supply chain at Campbell, across virtually every result area. While I was surprised to see us at the top of the list for that period knowing there are so many strong supply chain organizations in our industry, it also matched what we had been experiencing with all of the results improvements we had delivered. Assuming the measure is generally effective at recognizing improvement, I have to assume we will fall on the list over the next few years. Some of the decline in ranking will be due to the issues I mentioned above with the planning system implementation and the impact that had on results. The bigger impact will come from a conscious choice we made. As part of our Network

Optimization program, we consolidated our supply chain network in the U.S. last year. While the driver for this move was excess capacity, as well as a compelling cost savings benefit, we also knew there would be a two-year hit on our inventory performance until the flexibility was created at other sites to allow the inventory levels to fall and resume the improvement trend we had been following. Finally, we all understand that margin is not fully controlled within supply chain. We have two things that have challenged margins recently at Campbell:

1. Mix due to the addition of recently added high-growth business acquisitions that come with a lower margin rate
2. Trade investments that will return to more historic levels in the future.

As we move past some of the challenges we had over the past year or two, and return to the inventory improvement path we had been delivering, I expect that we will see solid improvement in Index ratings.

If you had to do it all over again, what would you do differently?

We have enjoyed excellent results over most of the last several years, but there are a few things I would change if we could go back. We tried to do too much too fast. As a team, we committed to implementing demand planning and supply network planning all within the same year, followed by inventory optimization and demand sensing. We also underestimated the organizational investment it would take to achieve our desired results. In the end, we experienced important learnings, built critical capabilities, and will now be able to generate more results improvements in the future

because of that effort. More broadly, we could have been more balanced in our approach to integrating an already aggressive supply chain agenda with a rapidly increasing product innovation agenda.

Despite some of our recent challenges, we feel very good about the contributions that the supply chain team has made at Campbell for a meaningful stretch of time. Without a longer-term vision, and a willingness to take risks by embracing big opportunities and committing to big results improvements, we would have only made incremental progress. If I had to simplify what has been most important for us, I would say the two keys have been people (leadership) and an integrated approach. It's no surprise that strong leadership and great people make the difference, especially when the organization is engaged and collaborating both within the supply chain and across all other functions. The power of an integrated approach, connecting multiple complex improvement efforts, has clearly driven much stronger results progress than we would have seen from independently driven initiatives, even if all had been successful individually.

Conclusion

As we can see in Figure 2, the impact of Campbell's aggressive supply chain projects in 2012-2013, in conjunction with some changes in the business, as Dave predicted, had a deleterious impact on Campbell's rankings on the Supply Chain Index.

The good news is that the team was aware of the results and feel that they have righted the ship in 2014. The lessons of the team in the trials and tribulation of building supply chain excellence apply to all. It takes many years to build a culture to improve supply chain excellence, and many well-intended technology or plant design projects can quickly take a supply chain team off guard. Luckily for Campbell,

Figure 2. Supply Chain Index Rankings for 2006-2013

Company	2013 Revenue (USD billions)	Balance		Strength		Resiliency		Index	
		Score	Ranking	Score	Ranking	Score	Ranking	Score (0.3B+0.3S +0.3R)	Ranking
Hershey Company	7.1	0.28	2	0.02	11	0.54	7	6.0	**1**
Diageo plc	17.9	0.05	6	0.00	14	0.08	1	6.3	**2**
Kraft Foods Group Inc.	18.2	-0.20	17	0.19	3	0.27	2	6.6	**3**
Hillshire Brands Company	3.9	5.82	1	0.52	1	2.36	20	6.6	**3**
H.J. Heinz Company	11.5	-0.13	13	0.05	8	0.51	6	8.1	**5**
The J.M. Smucker Co.	5.9	0.06	5	0.03	9	0.73	13	8.1	**5**
Coca-Cola Enterprises Inc.	8.2	0.09	4	0.24	2	4.98	21	8.1	**5**
General Mills, Inc.	17.8	0.15	3	0.00	15	0.65	10	8.4	**8**
Nestle SA	99.4	-0.14	14	0.03	10	0.36	5	8.7	**9**
Anheuser Busch InBev SA	43.2	0.00	8	0.18	4	1.51	18	9.0	**10**
Molson Coors Brewing Co.	4.2	0.04	7	0.15	5	2.06	19	9.3	**11**
Mead Johnson Nutrition Co.	4.2	-0.04	10	-0.05	20	0.32	3	9.9	**12**
Carlsberg A/S	11.8	-0.10	12	0.12	6	1.15	16	10.2	**13**
Kellogg Company	14.8	-0.05	11	0.02	12	0.73	12	10.5	**14**
The Coca-Cola Company	46.9	-0.29	18	0.00	13	0.61	9	12.0	**15**
PepsiCo	66.4	-0.18	16	-0.01	17	0.55	8	12.3	**16**
ConAgra Foods, Inc.	15.5	-0.41	20	0.09	7	0.77	14	12.3	**16**
SABMiller plc	23.2	-0.14	15	-0.01	16	0.69	11	12.6	**18**
Campbell Soup Company	8.1	-0.86	21	-0.02	18	0.33	4	12.9	**19**
Maple Leaf Foods Inc.	4.3	-0.01	9	-0.16	21	1.28	17	14.1	**20**
Danone SA	28.3	-0.31	19	-0.05	19	1.05	15	15.9	**21**

Source: Supply Chain Insights, Corporate Annual Reports 2006-2013

this supply chain team had the right stuff to self-correct and put the supply chain back on course.

I have found it intriguing to look deeply at the results of all public companies over these periods and reflect back on the work that I have done with many of them over my 12 years as an analyst. I firmly believe that supply chain matters to corporate performance, and I am proud that I can now tell the story. I had a call this morning with a group of financial investors that are adopting the Supply Chain Index in their rankings, and Supply Chain Management Review in the fall will feature a monthly article on industry sector results. We look forward to connecting with you and your team as the concepts take hold.

L'Oreal

In the process of compiling the Supply Chains to Admire report for last year's Supply Chain Insights Global Summit, the research team at Supply Chain Insights calculated the rate of supply chain improvement of companies by industry for the periods of 2006-2013 and 2009-2013. We wanted to see which companies were driving the fastest rate of improvement on the Supply Chain Metrics That Matter. We studied this pre- and post-recession.

To validate our assumptions, we shared the data with supply chain leaders to get their feedback. In this process, we asked L'Oreal to comment on how they drove greater improvement than their peer group in cost and Return on Invested Capital (ROIC) in the cosmetics and beauty category. We compare the results in Figure 3.

The Supply Chain Index is a methodology to gauge supply chain improvement. Supply Chain Insights developed the Supply Chain Index in 2013. We find it is relatively

Figure 3. Supply Chain Results Beauty Category

Analysis for Supply Chains to Admire							
Company	Ranking on the Supply Chain Index (2006-2013)	Operating Margin		Inventory Turns		Return on Invested Capital	
		2006-2013	2009-2013	2006-2013	2009-2013	2006-2013	2009-2013
Estee Lauder	1	0.11	0.11	2.08	2.07	11.2%	11.4%
Kao Corporation	4	0.09	0.09	4.53	4.65	7.9%	7.4%
Beiersdorf AG	1	0.11	0.11	3.08	3.10	10.0%	9.9%
Avon Products	2	0.08	0.07	3.73	3.68	8.6%	6.3%
L'Oreal SA	1	0.16	0.15	3.13	3.13	9.8%	10.3%
AVERAGE	--	**0.11**	**0.11**	**3.31**	**3.33**	**9.5%**	**9.0%**

Source: Supply Chain Insights, 2006-2013 and 2009-2013

easy to drive supply chain improvement if you are a low performer like Estée Lauder. However, it is tougher for an industry leader like L'Oreal. Note that they are pushing progress faster than their peer group and outperforming in all areas except inventory turns.

If L'Oreal had performed above the industry subsegment for inventory turns, they would have made the list for the Supply Chains to Admire for 2014.

I was introduced to Richard Markoff is L'Oreal's Corporate Director of Supply Chain Standards, based in Paris, by Barry Stewart of L'Oreal Canada. After reviewing the results of the Index and the work that we are doing for our third book *Supply Chain Leadership Matters*, Richard agreed to coordinate a joint interview with the global head of Supply Chain, Emmanuel Plazol.

Richard has worked in Operations and Supply Chain for L'Oreal for over 20 years, starting in Canada, followed by roles in France and the United States. His experience spans the entire value chain from supplier relations through industrial planning, distribution to customer service and

collaboration. He is now based in Paris and serves as Supply Chain Standards & Audits Director, helping to drive L'Oreal's supply chain excellence through definition and communication of best practices. A Canadian citizen, Richard has a degree in Chemical Engineering and an MBA in Supply Chain Management.

Emmanuel has been working in Supply Chain for L'Oreal for over 20 years, starting in France followed by ten years in New York where he led the Supply Chain for L'Oreal North America. Emmanuel returned to Paris three years ago to head the Corporate Supply Chain for L'Oreal. His experience spans the entire value chain. Here I share their story.

At a high level, L'Oreal sells products in 130 countries with annual sales of €23 billion globally. The company operates 153 distribution centers and 39 manufacturing locations. The company has a strong commitment to the environment with significant reductions of carbon, waste, and water by internal teams over the past ten years.

Worldwide, there are 7,500 supply chain professionals. The organization is very matrixed and both Emmanuel and Richard agreed that it is a unique culture. Each leader reports to two or three 'bosses'. The goal is to have local talent. They find people with a passion for beauty (This is something that every gal appreciates). In the process, there is a heightened focus to find people with strong communication and influence skills.

The complexity in the business is high. Within the last 12 months, 50% of the L'Oreal products were new introductions. The company is pushing growth at a rate of 3-4%. The strategy is to grow in new markets, widen channel distribution (deep trade programs), and build e-commerce channels. As a result, the rhythms and cycles of the supply chain are faster than ever before. For the supply chain leaders, the lines between channels are blurring.

Defining Supply Chain Excellence

When I asked Emmanuel to define supply chain excellence, he responded, "This is a good question. My goal is to be integral to the business. We have customers. We have sales and finance teams and supply chain people. We win when we work together to focus on customer service. If we are successful, we will be the preferred partner of beauty products in our business."

The company has a stretch goal to deliver higher service levels than ever before. Within the last eight months, both Richard and Emmanuel believe that they made substantial progress, and as a result, within the organization the commercial teams are more open to partnering. The team built credibility by managing cost and inventory while driving higher levels of customer service.

When asked how this happened, Emmanuel responded, "It has been about conscious choice and changing the mindset of the organization. It is this awareness that we changed drastically. Three years ago, the supply chain was something you had to have. Our concern was if we do not change the mindset, we would not deliver. So we asked ourselves, 'What does it mean to deliver the right service? What does it mean to have the general management recognize us as a business partner?' We built a road map from there."

As we talked, I loved the stories. One example was the journey to improve forecast accuracy. Over the last five years, L'Oreal improved forecast accuracy by 11%. They train their teams every two years, and they believe that it is about the execution of successful programs, not tools. The CEO is very supportive. When a country struggles to deliver on the forecast accuracy goal, he will even send a personal note to the region!!!

To make these accomplishments, they focused on culture and talent development. They changed the profile of

the team, including senior executives in each region. The goal was to include the supply chain in decisions of how they did business. Bringing people with the right approach with the customers and the sales people and showing that the supply chain helped to build the guiding coalition.

How have you driven costs faster than your peer group?

The focus is on executing the road map. Both Richard and Emmanuel recognized that it takes time to put in an organization. The right organization is close to the markets and connects the right information to the factories. The focus is on a customer-driven road map. The design is for processes for end-to-end Sales and Operations Planning (S&OP), and adding new master data tools. When it comes to the reduction of costs, the focus is on cost-to-serve. Only 1% of companies have successfully implemented cost-to-serve analysis. When asked how, the response was, "If you show a general manager that his sales is not performing, and the cost to a customer is out of control, it helps to get things back in line. We focused on inefficient orders, reducing backorders and eliminating point-of-sale materials."

Understanding the Culture

Flexibility is part of L'Oreal's DNA. The organization moves rapidly based on the needs of its customers. The goal is to build an organization for life and embrace entrepreneurship. They adapt by region. For example, the luxury division in Japan does not have the same needs as the customer service division in Brazil. The goal is to do different, well, based on a common backbone of capabilities.

"The Body Shop is a standalone division. As of today, every division that we have, they are mature by themselves. Luxury division has one catalogue and the same product

globally. The mass market is more regional…once by country. Globally, for all of these divisions you need to understand the needs of our customers and the constructs of the factory."

When asked to comment on the cultural DNA, they responded, "We take the time to communicate what you want to do. It takes a concerted effort to make sure that everyone understands what they need to do. Sometimes people will go faster building an organization, and it is important to ask yourself, 'Why are we organized this way?' It is an environment of continual change. For example, it is difficult to implement new tools on an old organization. When we move to a more modern process, or organization, we need to bring new tools to understand that everyone knows what they do. It is very important to bring people with you. You need to understand what they do, and the tools they use, and ensure they understand their role in the global organization."

L'Oreal does not work with rigid things. The cultural DNA is more network and the people. Richard and Emanuel remind themselves and their organization continually that L'Oreal is a marketing company, and that they cannot forget that they are foremost a marketing company. They commented that they continually ask, "How can we serve the brand? What do we do to fuel the brand?" Their goal is to have everyone actively engaged, while encouraging everyone to follow their passion and conviction, while being resilient, but not stubborn. Everyone in the organization has many degrees of freedom. If you have a good idea at L'Oreal, you can try it; and if it works, the company will celebrate the win. As a matrixed organization they take advantage of the non-linearity. The belief is that it allows the team to think about all of the different aspects of the organization.

When asked about Supply Chain 2020, they responded, "To succeed, we need to put a lot of passion into our positions. It is not only about time, but it is your intuition and your gut. If you are passionate then other people will

follow you. 2020? The team for me is the most important thing. Our customers drive the design of our organization. L'Oreal's organization shifts as customers morph. In a few years, the segmentation that we have will be different. Retail, e-commerce, and Omni-channel and multi-channel, and the organization is ready for that. We can anticipate this change, but what is next in digital? The consumers of our product are in the computer. I am still outside the computer. The more digital we are, the more information that people want on our products. Supply chain is integral to the business strategy."

My Take

Without a doubt, L'Oreal is a supply chain leader in the beauty category. The cultural dynamics and descriptions contained in this case study speak volumes of how a supply chain leader closed the gap between operations and commercial teams and led a supply chain transformation. Some of the elements are remarkable. For example, only 1% of companies effectively implement cost-to-serve analysis; and it is the first time, in my history as an analyst, that I know of a CEO sending personal letters to the divisions on forecast accuracy. The performance improvements over the past six years speak volumes. Bravo! C'est fantastique! It makes me love my favorite brand of Kerastase that much more!

Seagate

Many companies talk about supply chain excellence, but most leaders struggle to define it. As a goal, it is easier to say than to define. One supply chain leader, in a discussion last week, likened supply chain excellence to fitness. His reasoning? He saw fitness as a goal to work for, and he acknowledged that you can get fitter; but he believed that the state of fitness is elusive. His belief was that fitness, as a goal, is hard to reach. He felt that supply chain excellence was analogous. We agree.

We want to help. One of our goals is to capture and share the stories of supply chain leaders. Our first step was to define the leaders. How? In our work on the Supply Chains to Admire report, we tracked the progress of manufacturing, retailing and distribution companies for the period of 2006 to 2013 and 2009-2013. We then rated companies on their ability to manage and improve a portfolio of metrics: operating margin, inventory turns and Return on Invested Capital

Figure 4. Performance of High-Tech and Electronics Supply Chains for the Periods of 2006-2013 and 2009-2013

Analysis for Supply Chains to Admire								
Company	Ranking on the Supply Chain Index		Operating Margin		Inventory Turns		Return on Invested Capital	
	2006-13	2009-13	2006-13	2009-13	2006-13	2009-13	2006-13	2009-13
Alcatel Lucent SA	1	7	-0.10	-0.05	4.7	5.0	-5.9%	-2.7%
LG Electronics Inc.	2	19	0.03	0.02	7.7	7.9	4.4%	3.2%
Lexmark International Inc.	3	2	0.08	0.09	7.5	7.7	8.5%	8.2%
EMC Corporation	4	8	0.14	0.16	7.2	7.3	6.4%	6.8%
Cabot Microelectronics Corp.	5	1	0.14	0.15	4.0	3.7	7.3%	7.5%
Seagate Technology PLC	6	24	0.07	0.06	11.0	11.7	9.3%	8.5%
Emerson Electric Co.	7	6	0.14	0.13	6.6	6.9	10.7%	10.0%
Samsung Electronics Co. Ltd	8	15	0.10	0.12	8.2	7.5	10.9%	12.0%
LG Corp.	8	22	0.12	0.16	15.2	19.8	9.2%	9.8%
Seiko Epson Corporation	10	13	0.00	-0.01	5.1	4.6	-0.9%	-1.7%
Apple Inc.	11	16	0.25	0.30	61.9	69.9	16.8%	19.6%
Cisco Systems	12	13	0.22	0.21	10.8	11.6	10.1%	9.0%
Kyocera Corporation	13	8	0.08	0.07	4.0	3.9	3.2%	2.9%
Bosch Ltd	14	4	0.16	0.15	4.6	4.7	8.9%	7.4%
Ericsson	14	4	0.09	0.06	5.1	5.14	6.3%	4.4%
Vtech Holdings Ltd.	16	17	0.13	0.12	6.0	5.6	22.9%	22.1%
Applied Micro Circuits Corp.	17	18	-0.45	-0.51	4.5	4.8	-28.0%	-38.0%
Bang & Olufsen A/S	17	10	0.01	-0.04	3.1	3.0	1.5%	-3.0%
LSI Corp.	19	23	-0.20	0.01	5.8	6.1	-7.6%	2.7%
Logitech International SA	19	21	0.05	0.01	5.9	5.7	6.4%	0.6%
Motorola Solutions Inc.	19	3	0.07	0.11	4.7	5.0	3.8%	5.1%
Western Digital	22	25	0.10	0.11	13.6	11.9	13.9%	11.2%
AVERAGE	--	--	0.06	0.06	9.7	10.2	5.4%	4.5%

(ROIC). Based on the analysis of supply chain improvement (as measured by the Supply Chain Index) and supply chain performance, we ranked the supply chain leaders by industry. The results for the high-tech and electronics industry is shown in Figure 4.

To make the Supply Chains to Admire list, a company had to score above average of their peer group for supply chain improvement as measured by the Index, and drive performance above average in the portfolio of metrics for operating margin, inventory turns and Return on Invested Capital (ROIC). While we often see companies performing well in one of the three metrics, we believe that supply chain excellence is defined by ability to drive improvement on the portfolio—all three metrics together.

It is a story of when the going gets tough, the tough get going. In the period of 2006-2013, the high-tech and electronics supply chains had more demand and supply volatility than process supply chains; yet, the number of companies making the cut for the Supply Chains to Admire list is higher in the high-tech industries than in the process industries of chemical, consumer packaged goods and food and beverage manufacturers. Apple, Cisco Systems, EMC and Seagate make the list in high-tech and electronics while Intel and TSMC make the list in the semiconductor industries.

To understand Seagate's journey we interviewed Joan Motsinger, Vice President of Global Operations Strategy, at Seagate Technology. Before taking her current position she served in several capacities including Seagate's product design and manufacturing facilities in the U.S. and Singapore. Specific responsibilities have included Product Modeling and Design, Component Process Engineering, Offshore Product and Subassembly Operations, Product Line Management, and Supply Chain Development and Operations. Joan holds Bachelors of Science degrees in Mathematics and

Mathematics/Computer Science and is a graduate of Harvard's Program for Senior Executives.

The questions are in bold and Joan's answers are underneath each question:

How have you defined supply chain excellence?

Our journey for supply chain excellence has changed and evolved over time. We have gone through many stages. When I think back, at the beginning of the decade, it was about designing the product for manufacturing. Prior to that, the priority was chasing lower cost labor in manufacturing and supply chain. Those had a finite length of improvement.

First Phase: 2002-2006

The focus then shifted to matching demand and supply. We were an early adopter of the E2open technology and we experimented on building B2B networks early in 2004. In our value chain, our supply chain is the buffer or the flex-point of the industry. Our first strategy was to align our suppliers by giving them visibility (through technology) to understand the demand signal directly and respond with JIT levels in support of our factories. What emerged was a complex set of supply partners that together with Seagate could meet the changing and growing demand.

Second Phase: 2006-2014

In 2006, with increasing price and commodity pressures, to remain competitive, we needed to prioritize simplifying our supply chain through less SKUs, less complexity, and fewer components. When you are complex, you must have a lot of parts to keep up with demand variation. As we focused on complexity reduction, we developed a strong analytical approach to not only cost, but

also cost-to-serve and landed cost. The focus on costs had three chapters:

- The first chapter in our journey was reducing the cost of complexity.
- The second chapter was reducing the cost of non-Bill of Material (BOM) costs.
- The third chapter was reducing the cost of direct or bill of material costs.

In each chapter, we asked questions including:

- What is the gross spend and cost per unit, the factors driving it?
- What cost can just be eliminated?
- What design specific costs exist?
- What manufacturing demands are on cost (inspection, automation)?
- What suppliers need help with cost (LEAN, labor, freight)?
- What are competitive best practices?

Third Phase: 2013-future

Today, we go further; we focus on designing for total landed cost in balance with throughput and service level. This is more holistic and requires a higher level of modeling, analytics and cross-functional coordination. Our factors spans all those prior priorities, but expands into a higher level of analytics on design cost (simplicity, leverage, supplier input), manufacturing cost (sites, labor, automation), service costs (freight).

Our journey is also maturing. The goal is to become demand driven versus supply driven. In one of the first steps

of becoming demand driven, you realize that you have to redesign the relationships not only with suppliers, but also with customers. In 2009, we took the work that we did with E2open on suppliers and built customer networks to see channel sales and demand signals daily. We are on the journey. We are targeting much improved end-to-end planning in response to multiple demand sources. We are also working on Sales and Inventory Operations Planning (S&IOP). But, I must tell you, when it comes to the management of demand, our work on the demand signal is still evolving. Our current focus is moving through co-planning in the network with suppliers and deploying new forms of analytics.

Make no mistake, cost is always important to us, but we are striving for balance. We want to understand demand drivers. Historically, electricity, water and the BOM decisions drove the costs. Chasing low-cost labor made sense in the '80s and '90s, but now we are understanding what makes up total landed costs matters and evaluating alternatives. It is a much more balanced approach.

Another challenge on the horizon is security. Supply chain security is emerging and growing in importance. Today, our customers want proof that we have high integrity products. Securing our inventory is emerging as risks and opportunities. And as we see, the new force shaping supply chain excellence is geopolitical risk and security.

Today, talent is at a premium. We want our supply chain professionals to bring a strong balance of knowledge relative to financials, international business, analytical knowhow, and a sense risk management. Supply chain strategic thinkers are tougher to find.

What does the future look like?

When I think of the future, I think of a thin broad line across design, plan, source, make and deliver. Functional

excellence needs to be a focus, but you need to power cross-functional execution excellence. We have also identified and matured the strength of a strategic team to focus end-to-end across functional boundaries and beyond the tactical. The value is in having an operations leadership team capable of strong tactical execution muscle and yet balanced by a longer-term strategic set of decisions.

Ash clouds, tsunamis and floods create the need for a strong, flexible, sustainable supply chain. We have come a long ways since the late 80's and our initial supply chain priorities. We are balancing cost, market requirements, and human talent and supplier relationships through a longer-term lens while meeting the needs of our customers and investors each quarter.

What do you measure?

We strive toward operational excellence. We measure:

- Cost: Cost of Goods Sold, Opex, Capex
- Quality: Both integration quality and long-term reliability
- Flexibility: Utilization of Capacity
- Delivery Metrics: Perfect order delivery, although good, to continually refine
- Sustainability: Doing the right action for our people, our planet (EICC, Life cycle analysis of materials, no hazardous materials)
- Technology: Portfolio of technology bets to serve our future demands

We define goals and mature our understanding of the metric over time. We want to drive continuous improvement. The goal is to always measure and evolve. We have

strong empirical processes, a strong base of analytics, and management controls. Our teams actively use some strong software tools spanning analytics, communications and optimization; accountability emerges through transparency and quantitative understanding of performance.

I know that you endorse principle-based leadership. How have you defined it?

Our tenets are customers, suppliers, cost, risk; and people. The focused metrics are cost, quality, delivery performance, flexibility, sustainability, and technology/strategy. I don't know that this is much different than what other people do, but we have learned a lot about balance and alignment.

What lessons have you learned?

I can summarize this into three statements:

1. Do the right thing (Solving Customers' problems with the right solutions in the storage industry)
2. Do the thing right (Make vs. Buy, Cost, Quality/Reliability, Flexibility)
3. Do right for our investors, customers, employees (Electronic Industry Citizenship Coalition (EICC), Green Product/Process, talent development)

As a leader, it is important, to continuously look from the outside with a lens of continuous learning, continuous improvement. I am always listening to what other companies are doing. I try to continuously learn. As supply chain leaders, we have to get good at sensing demand and making the right decisions in advance of the order, in advance of the market. It requires an external sense of where you

are at to guide your value chain. This is my journey, my responsibility.

Thanks Joan. We love your insights! We look forward to hearing more about you and your story at the Supply Chain Insights Global Summit.

Lenovo

The Lenovo Way

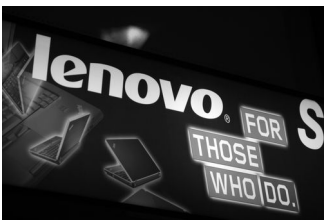
Driving supply chain excellence is easier when companies are clear on the definition. Getting clear is a journey. To help supply chain leaders on this journey, we are conducting interviews. Here we share the perspective of Mick Jones, Vice President for Global Logistics and Supply Chain Strategy, Mick shares these insights. He is coordinating the IBM Supply Chain Integration of the Lenovo Enterprise Server Business Groups. The role's focus is multi-faceted as he designs and executes a new physical network to support the acquisition.

Jovial and engaging, Mick is a people person that gets things done. He has worked at Lenovo for seven years in a variety of supply chain roles focused on building end-to-end supply chain capabilities. Not a novice, Mick previously worked in senior supply chain roles at DHL and Exel Logistics. (Listen to our podcast to hear his story directly at

http://supplychaininsights.com/podcast/lenovo-global-culture-and-supply-chain-excellence-with-mick-jones/)

In one-on-one discussions, Mick confides that he lives in the heart of a tiny village in the center of England. When asked about his family, Mick smiles and shares that he has three children. He is then quick to add he also has five chickens, two dogs, two cats, a fish, and a ferret. He loves going fast either on his motorbike or snow skis, but readily admits he is not the person for home decorating or tending the garden.

About Lenovo: Mick's Perspective



When asked about Lenovo, Mick quickly shares that, "Lenovo is an incredible organization to work for. In my time with the company we grew from being the fifth largest provider of personal computing hardware companies to being one of the top three technology companies in the world. The journey from the initial acquisition of IBM's PC business in 2005, to our recent acquisitions of IBM's x86 business and Motorola's X business, has driven our culture, our style and our structure."

Mick continues, "It is a unique culture. We designed to effectively combine an organization with roots in the East and the West—the Legend Lenovo business in China and the IBM acquisition in the USA. As you know, both of these organizations played pivotal roles in the start of the personal computer revolution. Our goal was to create a new global

culture focused on being the best, and winning in each area and segment where we compete. The design of the culture has been deliberate over the course of the last ten years. I would encourage you to read the new book, out now, titled The Lenovo Way—Managing a Diverse Global Company for Optimal Performance. Yolanda Convers and Gina Qiao wrote the book and it does a great job mapping our journey. It was not easy, but it was worth it. We have built an organization with a commitment to win!"

What defines your organization today?

I would say five things:

- The will to win.
- The ability to fail successfully.
- The absolute focus on what is best for Lenovo and the Individual.
- The commitment to own issues and deliverables across the business at all levels.
- A constant focus on innovation at all levels.

These five things are in our DNA," Mick said proudly.

What is supply chain excellence?

"This brings us to supply chain and the willing culture and the building of supply chain as a core competency. It has been a constant and consistent theme in our culture over the past ten years. We have a strong commitment to do things right," Mick continued.

"So, when you ask me my definition of supply chain excellence, I think there are several core themes:

1. **Customer centric**. CUSTOMER CENTRIC is paramount. We need to focus and perform to amaze

the customer. This includes measuring our performance as the customer measures us, focusing on the customer and delivering what the customer wants. That's a far more complex process now with new avenues/channels to customers, and the impact of social media on the views of customer sentiment. The speed has changed. The march is to a new drumbeat responding to the reactions of the customer, and addressing negative views quickly in social media. This is easy to say but difficult to implement.

2. **Cost focused.** It is cost focused—it needs to optimize the cost against the Customer Service. The 'watch-out' is that this will not be the lowest cost BUT LOWER cost. The pressure is on! The goal is to constantly re-invent ourselves to reduce cost in supply chain operations. For me, this means that the supply chain must innovate. We need to be the most INNOVATIVE area of any business. It has to look outside of itself for the best benchmarked ideas to bring inside. So for me Benchmarking is not against our other Technology competitors in our industry. Instead, it is constant learning from other industries like AUTOMOTIVE, RETAIL, HEALTHCARE, and FOOD manufacturing.
3. **Delivery of operational excellence**. Supply chain excellence also means that we have to deliver strong and identifiable OPERATIONAL EXCELLENCE programs. There are no excuses. To win, the organization must be the best and the most consistent performing area of the business—not only within the business but within the market. It has to add relative value to the business.
4. **Partnering with the commercial teams to add value.** To me that means that we need to see ourselves

as a SALES ENGINE and be deeply integrated with Sales across all areas of the business.

5. **Right characteristics.** Culture needs to drive delivery. It must be in step with the culture. For us, it needs to be VISIBLE, FLEXIBLE and AGILE. We need to be able to monitor and measure the progress of orders across the supply chain—this is even more key as we start to look at the Internet of Things and the impact of that on visibility, and track and trace. The last few years have shown us how weather and geophysics can significantly challenge the reliability of the supply chain. Sensing helps us to change quickly and effectively evolve.
6. **Best place to work.** Finally I would say that Excellence in Supply Chain means that it is a place where the best people want to work. I want to create an organization that has the trust of its internal and external customers. This means being the partner of choice across the SC from Logistics to Parts. To me that entails one more thing, a COLLABORATIVE organization—one that is not afraid to have customers and partners share in the development of ideas and solutions, and consequently in the value delivered."

Focus in 12 months?

So what do I need to focus on over the next 12 months? The enterprise is a newly formed business unit—with a new network that combines the existing Lenovo network and the assets transferred in the IBM network. Both networks have significant differences in their structures and the way they run. So most of the next 12 months will be around focusing on that integration and creating what I want to see as a world-class network solution as quickly as I possibly can."

So lastly, LORA, you asked me about my New Year's Resolutions. When we first planned this interview they were real New Year's Resolutions—so let's make them New Fiscal Year resolutions instead!

Let's have some fun! Here goes:

- I want to avoid the ageing process ……. It is too much trouble to get any older so it is clear that I need to find the secret serum!
- My goal is to make the business and the transition the best ever ….. I want to make it something that others want to look at and emulate in the future. I also want to have fun doing it …… it would be a miserable existence if we couldn't laugh along the way.
- Most importantly, I want to develop some brilliant people.

To me that is what it is all about. Thanks for the interview, I know that it is late. I think that I will go home and avoid my gardening chores and enjoy my family."

Thanks Mick. We wish you luck, and appreciate the interview. Talking to Mick always brings a smile to my face. Great energy and heart, Mick is a true supply chain leader. The integration of the IBM acquisition is a pivotal transition for Lenovo: two very different cultures in an ever-changing market. It is a big story to cover.

Syngenta

I pushed aside Shane's motorbike helmet and jacket to take a seat in his crowded office. It was a beautiful spring day in March in Basel, Switzerland. Shane is a stocky man of medium build who I love talking to. He is an engaging personality: definitely a people person.

He had recently returned from his stint as the commercial leader for Syngenta in Vietnam, and was excited to tell me about his beach-side investment in Australia. An Aussie by birth, Shane still speaks with an Australian accent.

Syngenta AG is a global Swiss agribusiness that markets seeds and agrochemicals. The company's focus is on biotechnology and genomic research. The company was formed in 2000 by the merger of Novartis Agribusiness and Zeneca Agrochemicals.

Shane's Story

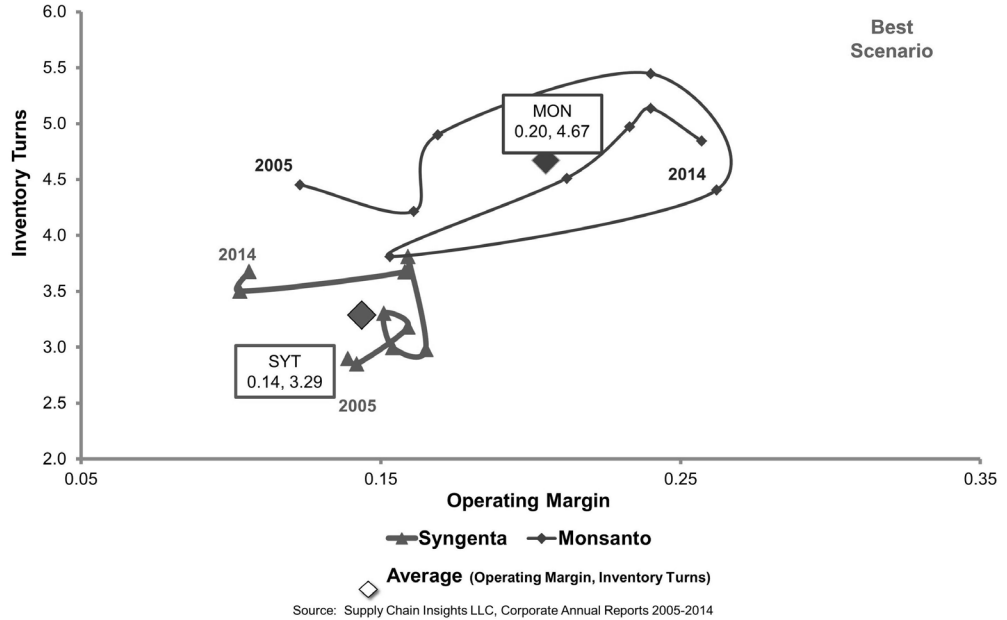
Let's start with some history. I first met Shane in 2007 at the beginning of his work with Syngenta's value chain. At that time, his team was actively building a demand-driven strategy. I was working at AMR Research, and the group asked for help to understand the concepts of being demand driven. It had been a whirlwind trip across Europe, and I was tired. I don't remember what I said, but I do remember Shane. As I stood up to give my standard speech, Shane engaged me in dialogue. I loved his style and charisma with the team. It sparked a great debate.

I was excited to return on this windy, spring day to talk to Shane—seven years later—to ask him for reflections. Seldom do I see a commercial leader transition to supply chain, and I wanted to gain his insights.

In 2007, Shane Emms was asked to take a global supply chain leadership assignment at Syngenta. With a career in marketing, and very little understanding of supply chain, he was afraid that his new team would ask, "What does this guy know?" However, in 2008 when the business grew +20%, inventories declined substantially, and part of his team won a Syngenta internal award, it became clear. While Shane did not start out with a supply chain background, he was a fast learner and a great leader. (Use the orbit chart in Figure 5 to follow Shane's progress through the recession. He led the team during the period of 2007-2009. Note the improvement and the resiliency in supply chain performance.)

When I asked Shane, during my recent trip to Basel, Switzerland, to tell me how he orchestrated the transition, he replied, "There were two immediate actions. I pushed hard to get the supply chain team to understand the commercial challenge; and I also worked diligently to give the supply chain team an identity, and I then asked them to stand up to that identity."

Figure 5. Orbit Chart Comparing Syngenta and Monsanto Progress on the Effective Frontier - Balancing Inventory Turns and Operating Margin for the Period of 2005-2014



Source: Supply Chain Insights LLC, Corporate Annual Reports 2005-2014

He smiled and laughingly said, "Supply chain guys are serious and smart folks, but don't always know how to market their work. They are great problem solvers, but sometimes they do not understand the elements of the commercial enterprise." The Syngenta team, under Shane's leadership, built their identity around the slogan of 'Deliver today, design for tomorrow'."

Shane continued, "We lived this identity and promoted it within the company. It was important: the lines were being drawn between commercial and operations teams, and we had to focus to help the two groups work better together—we were the most important link of the supply chain."

"It seems like yesterday because it is so vivid in my mind. The times were tough. In 2008 the market was ballistic. Commodity prices were driving high interest in agriculture and we had run out of a lot of product. To focus, we identified about 23 areas that we could tweak to improve the responsiveness of supply. We were out of capacity, needed to build it, and needed to redefine the supply chain. My goal was to ensure that each person on the team felt like they had a stake in the business and the opportunity. We focused on how to work with the commercial teams. Initially, it was in two areas." Shane said.

He then described this work. "My first goal was to get the supply chain team and commercial teams working together, not one way. When it came to working with the commercial teams, I asked each person on the supply chain team, where appropriate, to consider saying 'No', and mean it, and stick to their guns." With a twinkle in his eye, Shane said, "Getting along often means standing up in an astute way for the company's benefit, not any one function over another."

He cleared his throat and continued, "My next focus was on building stronger business partnerships. I asked the team to get involved with the business. I think all supply chain leaders need to know where the money comes from,

and customer's needs. So, I encouraged them to pull up their chairs with the commercial teams, and get involved, and better understand the business and continue to seek where we can create and add value."

"You know that our supply chain is complex. We outsource about 80% of the primary ingredients of our crop protection business, and pack it in finishing plants and ship to warehouses. The front-end of the supply chain performs very differently than the back-end," he said as he rose from his seat to write on his whiteboard. With a black marker, he drew a series of boxes that represented the Syngenta supply chain. The emphasis was on making active ingredients and pushing them to a decoupling point to push finished products to market. He continued, "We needed to be responsive to the market. By doing this, our sales teams got an extra leg up on the competitors and drove sales, while we could bring working capital down."

My Take

To understand supply chain excellence, and the impact of a leader, you need to compare the results of peers. In Figure 5, I share the orbit chart on the pattern of inventory turns and operating margin for two competitors: Monsanto and Syngenta. The potential of the Syngenta and Monsanto businesses is very different. Like most market leaders, it is based on product portfolios and market strategies. The goal of a supply chain leader is to maximize the potential. As can be seen in Figure 1, Monsanto outperforms Syngenta. However, take a closer look at the Syngenta and Monsanto patterns through the recession when Shane was leading the team. Note the resiliency in Syngenta's supply chain and the small incremental improvement under Shane's leadership. While Monsanto has a higher overall performance, the Monsanto team lost control of the supply chain in the rebound from the recession.

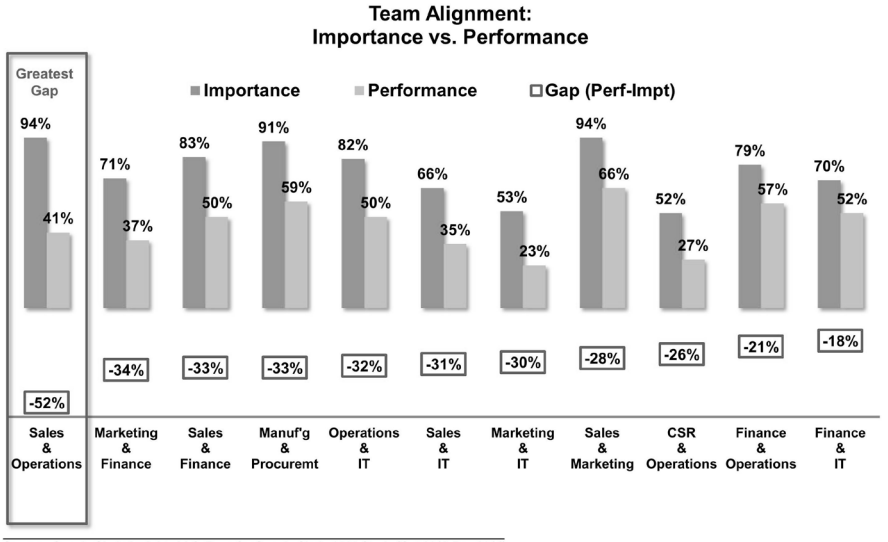
Shane's work on commercial and supply chain team alignment improved resiliency. The alignment between the commercial and operational teams is both difficult and important. This is why I think this is an important story.

In our research two years ago on supply chain alignment, as shown in Figure 6, the lack of alignment in most supply chains is a gap, and I agree with Shane... a missing link in most supply chains today.

Congrats to Shane and to the team for closing this gap. It was important in building resiliency and driving improvement in the Syngenta supply chain.

What do you think? I would love to hear your story. I know of very few stories of horizontal organizational alignment, and I think they are important.

Figure 6. Organizational Alignment: Closing the Critical Link Between Sales and Operations

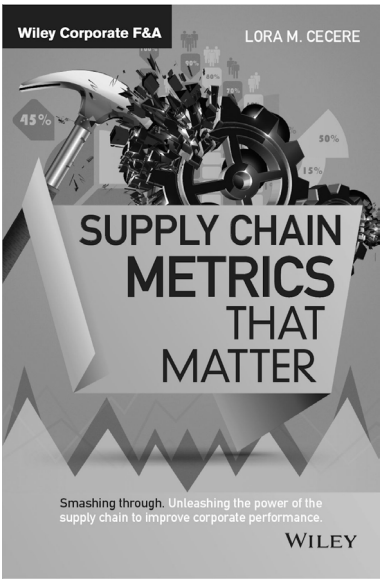


Source: Supply Chain Insights LLC, Race for Supply Chain 2020 Study (Oct 2013-Dec 2014)
Base: Manufacturers, Retailers, Distributors, Third Party Logistics Providers, Consultants, Software Providers, Academics and Other – Total (n=94)
Q18. In your opinion, how important is it for each of the following pairs of teams to be aligned within [your][a typical] company? SCALE: 1=Not at all important, 7=Extremely important
Q19. How aligned do you believe that these same teams actually are within [your][a typical] company? SCALE: 1=Not at all aligned, 7=Extremely aligned
Showing: % rating 5-7 on 7-point scale

SECTION 4

Driving Process Excellence

Supply Chain Metrics That Matter



Last week, I held my new book in my hand. It is exciting to have two years of research, nine months of writing, and four months of editing become crisp, fresh pages. The smell of ink is intoxicating.

Tomorrow, I have a call with a manufacturing company to answer the question, "*What is the most important concept in the book?*" I love the challenge.

I have three concepts that I will share. Here is my response.

1. **Get clear on the definition of Supply Chain Excellence.** The book is a story of a fictional client by the name of Joe. The story is a composite of personal experiences with clients. In the book, Joe does not want to perform like an average Joe. He has a passion to do supply chain right, but he is uncertain on where and how to get started.

   He is in a quagmire. Joe works for Filipe, and his boss believes that supply chain excellence can best be typified by lean processes. Filipe wants Joe to adhere to all of the principles of the book Toyota Way. However, in his organization, this is not a commonly held belief. There is no consensus. In contrast, Frank, his sales vice president, wants volume. For Frank, excellence is all about growth. Frank believes that supply chain excellence is best defined by his experiences at Procter & Gamble.

   While Joe is trying to balance the feedback from Filipe and Frank, he is often asked to change metric targets by his CFO named Lou. Lou is singularly focused on inventory. Joe and Lou have long discussions about Lou's definition of supply chain excellence. Lou's definition is based on his experience at General Electric. Joe struggles with the fact that he has a leadership team of three strong leaders:

each with a very different paradigm of supply chain excellence. Joe struggles with how to align these three commonly held visions. Without alignment, the organization constantly gets pulled in different directions.

Since each of Joe's leadership team members have a fixed paradigm on the definition of supply chain best practices, it limits the potential of Joe's organization to redefine supply chain excellence. Joe is struggling to open up the discussion with closed-minded leaders. It takes a different mindset. The book outlines the steps to drive a guiding coalition.

2. **What is balance?** After two years of research, I think that we throw the supply chain out of balance and limit its potential through the use of traditional and functional metrics. It is for this reason, that I believe that the traditional SCOR Model metrics are problematic. *To maximize performance, I believe that companies must align all functions within the organization to a common set of metrics based on the operating strategy. Joe's team selects the metrics of Revenue Growth, Operating Margin, Inventory Turns, On-time Customer Orders, Safety and Return on Invested Capital (ROIC). To drive success, they then focus the individual functions—sales, marketing, manufacturing, procurement, distribution, finance—around metrics that focus on reliability. To illustrate the point, I share a table from the book, shown in Figure 1.
3. **Achieve balance in metrics and build outside-in processes.** I have written about demand-driven and market-driven concepts for over a decade. I fundamentally don't think that most people understand the impact of decreasing demand latency and

Figure 1. Focus on Balance, Strength and Resiliency

At a Corporate Level, Focus on Balance, Strength and Resiliency ➡	**Corporate Bonus for all Functions: 60%** *Based Equally on Goals in Revenue Growth, Operating Margin, Inventory Turns, On-Time Orders, Safety and ROIC* **Stretch Objectives for CSR:** Carbon and Electricity Usage				
At a Functional Level, Focus on Reliability *(Each function to be rewarded 40% of bonus on reliability metrics)* ➡	**Marketing**	**Sales**	**Customer Service**	**Manufacturing**	**Procurement**
	Market share	Deductions from orders	Orders shipped complete	Overall equipment effectiveness (OEE)	Delivered costs of direct materials
	Profit/case	Returns	Hands-free orders	First pass yield	Prevention of outages
	Good/bad complexity ratio of product portfolio	Customer scorecard ratings	Returns	Product quality	Material quality

> improving the speed of demand translation on the balance sheet. This happens through the building of outside-in processes. It requires the use of channel data and the building of many-to-many networks. This is a stark contrast to traditional supply chain processes that are inside-out. As I have written the book, and written the research supporting the book, I am becoming more and more of a zealot about outside-in processes. This end-to-end focus is a step change from what we have in most organizations. Making this pivot makes Joe successful.... I also believe that it can also make you more successful.

So, let me know your thoughts. The book has been selling briskly. Every morning after I fill my coffee cup, I go to the Amazon site and check sales. I smile when I see that it has been selling within the top 100 books within business and economics and commerce for the last six weeks. This puts a spring in my step. I love to see it sell, but I love even more to hear from my readers. Please let me know your thoughts.

Three Questions People Are Afraid to Ask

Groupthink is a psychological phenomenon that occurs within a group of people in which there is a desire for harmony within the group, but the result is an irrational or dysfunctional outcome.
Wikipedia

You know the drill. The meeting is on everyone's calendar. It has been set up by the CEO or a board member's assistant months in advance. The room is big, the PowerPoint deck is large, and the coffee cups are arranged in neat rows on the counter of the side of the room. There is an abundance of pastries flowing from the basket, and the stage is set for an impactful meeting. Even though things seem to be going well (all of the meeting details are well-executed and the speaker is giving an energized presentation), the room is eerily quiet. The speaker is speaking, the beautiful

slides move quickly at the front of the room, but the audience is not engaged.

In my travels, I attend these meetings frequently. They are precipitated by a strategic relationship between a consulting company and the executive team. The consulting team pitches a theme—vision of supply chain best practices, big data analytics, or demand-driven value networks—to the executive team, and a new project is initiated. The first step in the journey is a kick-off meeting. The second step is usually a large implementation of a technology project—Enterprise Resource Planning, Customer Relationship Planning or Analytics. I feel that the industry is engaged in 'Group Think'. No one in this meeting is going to ask tough questions. The board has not set up the team for success. Here are the three questions that I would like people to ask:

Question 1: What drives a successful implementation of supply chain planning?

Supply chain planning is now in its fourth decade. The first evolution of technologies were built by best-of-breed solution vendors. These solutions were usually implemented by the technology provider by consultants with specialized skill sets. The promise was the delivery of a decision support system that would allow the organization to optimize the relationships between cash, cost, and customer service against the strategy.

The second generation of solutions were built and marketed by Enterprise Resource Planning technology companies like SAP and Oracle. The promise of these solutions was that an 'integrated planning solution with ERP would deliver greater value'. (This solution is termed the ERP Expansionist.) This new solution was favored by the Information Technology (IT) organization. By purchasing planning and transactional systems from a common vendor,

they had one throat to choke and they were familiar with the architectural elements. It was also the preference of the consulting partners because the projects were longer, more costly and better aligned with the consulting model. But, did it add more value? The answer is no. The movement to adopt "integrated ERP and Supply Chain Planning software from an ERP vendor" moved the industry backwards. Ironically, the solutions implemented by the consultants, as contrasted to those implemented by the technology vendors, also produced less desirable results.

How do I know this? The results in Figure 2 come from a nine-month research project of 120 respondents representing 183 instances of demand and supply planning. (The average company has more than one instance of both.) In the study, the respondents were asked to rate time to Return on Investment, and satisfaction. We also correlated the results to balance sheet performance.

What do we find? Best-of-breed solutions have a higher Return on Investment and are quicker to implement. They also have higher satisfaction rates. The highest satisfaction comes when the technology vendor implements the solution. It is significantly different at a 90% level of confidence. In the data, we can also see that the implementations from the ERP expansionists have significant gaps—requiring more planners, longer times to plan, and greater difficulties getting to data.

Why does this happen? Leadership teams struggle with the trade-offs between cash, cost and customer service. As a result, supply chain planning is often a targeted project when the strategic consulting partners talk to their clients at a board level. The strategic consulting partners are respected in these relationships and seldom questioned, and the stage is set. In parallel, there is a low-level of trust for the best-of-breed technology vendors. Many are very sales-driven and difficult to work with. The market was overhyped at an early stage and

Figure 2. Comparison of Results for Best-of-Breed Solution Providers to ERP Expansionists in Supply Chain Planning

Experiences by Best of Breed vs. ERP Expansionist

		Best of Breed	ERP Expansionist
Who Implemented	Technology Provider	**49%**	14%
	Third-Party	22%	**40%**
	In-House	17%	**33%**
Time to Implement	12 Months or Less	**71%**	37%
	13 Months or More	23%	**59%**
Speed vs. Plan	Early / On Time	**56%**	37%
	Late	36%	**56%**
Cost vs. Budget	Under / On Budget	**59%**	40%
	Over Budget	32%	**49%**
Time to ROI	9 Months or Less	**34%**	11%
	10 Months or More	36%	48%
	No ROI (yet)	12%	19%
Satisfaction	Satisfied	**81%**	63%
	Neutral	9%	**21%**
	Not Satisfied	11%	16%

Source: Supply Chain Insights LLC, Planning Software Study (Feb – Oct 2014)
Base: Manufacturers, Retailers, Wholesalers/Distributors/Co-operatives and Third-Party Logistics Providers with Demand and/or Supply Planning Software and Know Number of Planning Instances – By vendor: Best of Breed (JDA, Kinaxis, Logility, OM Partners, Aspentech, Demand Solutions, Demand Works, Quintiq, SAS, Smart Software, Terra Tech) (n=94 instances), ERP Expansionist (SAP, Oracle, QAD, Quantrix, FuturMaster) (n=63 instances)
RED BOLD = Higher than other group at 90% or higher level of confidence

trust eroded. Would the board deliberately select a system that takes longer to implement, with a lower Return on Investment, requiring more ongoing labor and producing lower results? Of course not. But, the industry is in a groupthink. No one is having a fact-based discussion. This is how we see our role.

Question 2: Who does supply chain planning well? What can we learn?

As shown in Figure 3, the companies that are the most satisfied with planning are smaller organizations with 15 or less planners and without high item complexity.

To drive maximizing the value of planning, organizations need to be aligned against an operating strategy. Companies adopt planning to optimize the organization's response from the customer's customer to the supplier's supplier. The supply chain planning cannot be effective if implemented by a supply chain function that is focused only on customer service, logistics and distribution. It requires the support of the organization to optimize the response for the End-to-End Value Chain that crosses functions.

What can we learn from this table, and the research? A successful supply chain planning implementation is about more than technology. The implementation of decision support tools needs to be a way of life. Planners need time to plan, and the organization needs to be aligned against a shared vision or operating plan. It cannot be about the optimization of vertical silos within the organization. This leads to a sub-optimal response.

The second thing that I learned from the research is that we do not have good solutions for large organizations in the market today. If you have a large number of planners and high item complexity, you are at risk. This I think leads us to the Third Act of Planning. In the Third Act, I believe that the technologies are very different from those in

Figure 3. Characteristics of Those Satisfied With Supply Chain Planning

Characteristics of Those More Satisfied with Primary Planning Instance

		More Satisfied*	Less Satisfied*
# Demand/Supply Planners	15 or Fewer	**59%**	44%
	16 or More	41%	55%
# Items at a Location (SKUs)	10K or Fewer	30%	**52%**
	More than 10K	52%	42%
High Team Alignment*	Sales and Finance	**81%**	67%
	Finance and IT	**80%**	61%
	Marketing and Finance	**69%**	47%
	Sales and IT	**54%**	38%
	Marketing and IT	**50%**	33%
High Demand & Supply Team Alignment*	High	**94%**	67%
	Neutral	6%	**17%**
	Low	-	**17%**

Source: Supply Chain Insights LLC, Planning Software Study (Feb – Oct 2014)
Base: Manufacturers, Retailers, Wholesalers/Distributors/Co-operatives and Third-Party Logistics Providers with Demand and/or Supply Planning Software and Know Number of Planning Instances – By satisfaction with most important planning instance (highest impact on revenue):
More satisfied (rated 6-7 on 7-point scale) (n=54 respondents), Less satisfied (rated 1-5 on 7-point scale) (n=66 respondents)
*Rated 5-7 on 7-point scale
RED BOLD = Higher than other group at 90% or higher level of confidence

the first three decades of evolution. In the Third Act, I believe that the processes and technologies are redesigned outside-in from the channel back to the enterprise. I think that it is a new world of cognitive learning, rules-based ontologies, concurrent optimization, and B2B networks based on canonical infrastructures with many-to-many data models. These new technologies are evolving. (I will write more on this in my next blog post.)

Question 3: How do I become demand driven?

Data surrounds the company. The data in the channel is changing faster than the company can adopt processes and technologies to use it. It is piling up on the doorsteps of most major companies. Some may be used by the digital marketing teams for marketing purposes, but the average company does not know how to use it. They struggle to listen to and interpret market signals. It is ironic that there has never been a time in history where customer data is more available, and the demand higher for companies to operate a customer-centric value network to sense and respond to true demand, but the solutions to use the data are evolving. Today, they do not exist.

Most consultants and technologists are guilty of bait and switch. The discussion is on becoming demand driven, but the recommended solution is a traditional approach. When the pretty slides are over, the consultant submits a project plan to implement the traditional forecasting, order management and supply planning that does not sense market demand and translate it into usable outcomes. The audience listening to these presentations does not have the courage to raise their hands and ask the question, "How do you define demand-driven value networks?" and then follow with the question of, "Can the traditional technologies really help us

to become demand driven?" The consultants are incented to recommend the solutions that they are familiar with in implementing. Most know very little about the true definition of demand driven.

Tomorrow, I get to deliver this message to a large manufacturing client. I am speaking at their global kick-off. I am going to encourage them to not be guilt of industry groupthink. In this blog, I hope that I push you too. I want you to raise your hand and question the status quo. And, if you do not have the courage to do it directly, share the research and ask your leadership team to give me a call. I answer all emails and phone calls. I want to change the dialogue. It is tough for me to see that nine out of ten companies are stuck, and not making progress, at the intersection of operating margin and inventory turns. I grow weary of all of the consultant presentations of how supply chains can reduce inventory without looking at the form and function of inventory and the real needs for inventory to be a buffer of demand and supply volatility.

Getting Down to Brass Tacks

Definition

Brass tacks are a type of pin or nail. The phrase to come (or get) down to brass tacks is sometimes used idiomatically to consider the basic facts of a situation.
Source Wikipedia

In the 1990s suppliers had channel power. The formula for success seemed foolproof. A new product was launched, the ads ran on national TV and "poof" a new brand was created. This all changed with the disintermediation of national media.

During the next decade, the power shifted to the retailer. Consumers became more loyal to retail brands, and retailers increased the number of products manufactured and marketed as house brands. This trend spawned chains like Trader Joe's, Walmart, Whole Foods Market, etc.

Today, with the acceptance of the mobile phone and digital media, the power has shifted to the shopper. Consumers want to shop anywhere, and buy in the way that they want to buy. The digital consumer often wants to shop online, pick up at the store, and conveniently manage returns. The e-commerce customer wants convenient delivery to the home.

With the shifts in power, the relationships in the value chain are morphing. Each year I go to the Consumer Goods and Technology (CGT) conference where speaker after speaker talks about retail/supplier collaboration. I usually sit in the back of the room and watch the event with a wry smile on my face. Why? I am a disbeliever. Collaboration is evasive. Today it is more talk than action. In this post I want to share what I think really needs to happen to spawn true collaboration.

What Is Collaboration?

I define collaboration as a lasting win/win value proposition for both parties. Today we have collaborative data sharing and processes, but we seldom have what I term true collaboration. Instead, we have had situations where one party wins at the expense of the other. In the 1990s the supplier won at the expense of the retailer. In the last decade the retailer won at the expense of the supplier. It is for this reason that I sit on the back row at most conferences watching, listening, and smiling.

Why Is It More Important Now?

As the bricks and mortar retailer is attacked by e-commerce pure plays—Amazon in North America, Alibaba in China, and Flipkart in India—assortment and excitement in the store become paramount to lure customers. They need the supplier more to drive excitement in the store. While many retailers are

changing the role of the store to include services: pet grooming in PetSmart, clinics in CVS, cooking classes in Williams-Sonoma, etc.—this is not enough. The retailer needs the help of the supplier more than ever. It is for this reason that I have written a letter to the retail Chief Operating Officer below.

My Letter to the Retailer

Dear Retail Chief Operating Officer,

I have watched the evolution of consumer value chains for many years. I have studied the building of collaborative processes, and written about the shifts, and highlighted where we are gaining value. I know we have talked about collaboration for many years, but all I see is pilots: good intentions defined by fits and starts. In my research, I do not see that any retailer has really redefined value chains through collaboration. Based on what is happening in the industry and the need to drive excitement in assortment in the store, I would like to share three things I would do if I were you to build a collaborative framework to enable true collaboration between you and your suppliers.

1. ***Share data freely and openly through a private network.*** *Today, as shown in Figure 4, most retail data is shared through a portal. The most effective way to share data is through a private network. Portals do not enable effective data sharing and support of collaborative practices. When data is shared through a portal it lacks a persistence layer. As things change there is no system of record. Today only 3% of retailers are using private networks for data sharing. I know that this takes investment, but it is worth it in the long run. Consider the impact of Walmart's Retail Link on Walmart.*
2. ***Get good at data sharing.*** *Replenishment is fueled by an effective perpetual inventory signal. It anchors optimization engines for replenishment. The supply chain*

Figure 4. Data Sharing Mechanisms

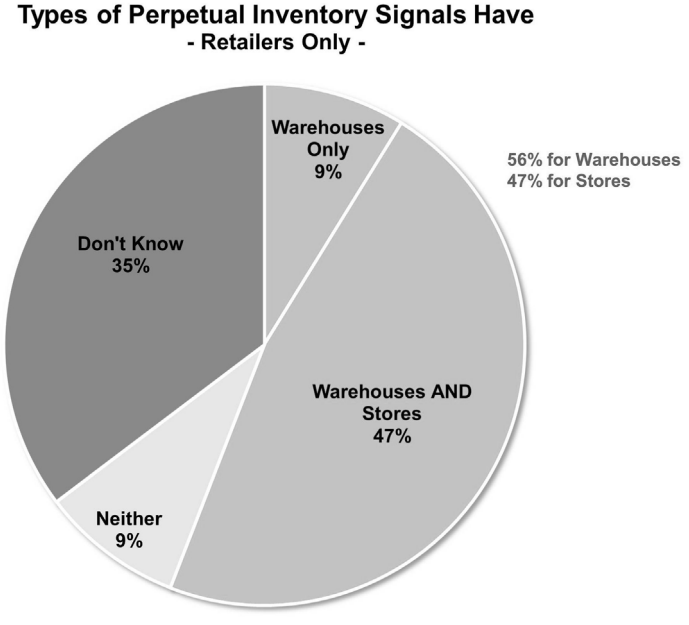
How Data Is Typically Shared by Primary Retailer
- Suppliers Only -

	Retail sales and/or order forecasts	Forecasts	Store point of sale	Promotional plans	Warehouse inventory levels	Customer returns	Warehouse withdrawals	Store perpetual inventory	Store perpetual inventory changes
SHARE ANY DATA	**58%**	**58%**	**52%**	**48%**	**42%**	**39%**	**23%**	**19%**	**6%**
Portal	29%	26%	26%	16%	23%	16%	16%	19%	3%
Spreadsheets	13%	13%	-	16%	3%	16%	3%	-	-
EDI	10%	3%	13%	-	3%	-	3%	-	-
Private Network	3%	3%	6%	3%	6%	6%	-	-	3%
Other	3%	6%	-	10%	-	3%	-	-	-
Don't know	3%	6%	10%	6%	6%	-	-	-	-

Source: Supply Chain Insights LLC, Retail Scorecards Study (Jan – June 2014)
Base: Suppliers/Manufacturers Who Work with Retail Scorecards (where retailer evaluates supplier) (n=31)
Q29. How is each type of data typically shared with you? Again, please think about your primary relationship.

Most Common Method

Figure 5. Current State of Perpetual Inventory



Source: Supply Chain Insights LLC, Retail Scorecards Study (Jan – June 2014)
Base: Retailers Who Work with Retail Scorecards (where retailer evaluates supplier) (n=34)
Q34. Does your company have either or both of the following types of perpetual inventory signals?

needs it. Without a perpetual inventory signal you will never be able to manage out-of-stocks and promotions. Today, as shown in Figure 5, 57% of retailers have a perpetual inventory signal in the warehouse, and 47% have a perpetual inventory signal in the store. Collaborative relationships need a good signal for inventory. It needs to be an accurate signal reflecting real-time changes as orders are shipped throughout the day. So, to be a collaborative trading partner, build a good perpetual inventory signal... there is no substitute for an accurate PI signal in supply chain excellence.

Additionally, get good at forecasting. Measure the Mean Absolute Percentage Error (MAPE) of your forecast and focus on driving improvement. Today there are only two retailers that have forecast accuracy that is good enough to drive value downstream for trading partners. Drive a difference. Own your data.

3. ***Take your hand out of the supplier's pocket.*** *For many, deductions and penalties for performance have become a budget line item (often a profit center). And 84% of retailers charge for deductions with 1/3 of retailers having a budget for deductions with many taking them into income. As a result, it has become a systemic way of making money for the retailer which is a lose/lose. In this relationship no one wins. Suppliers cannot get to the root cause to solve problems, and revenue recognition is delayed. Instead, it becomes waste, or Muda, in the supply chain to track and manually audit. Instead, focus on clean transactions. Carrots drive better performance than sticks.*

My advice. Own your own network. Focus on creating value and winning together. Isn't that is what collaboration was supposed to be all about? If you get serious, I want to write your story in the new book that I am writing.

S&OP: A Tough Nut to Crack

Definition

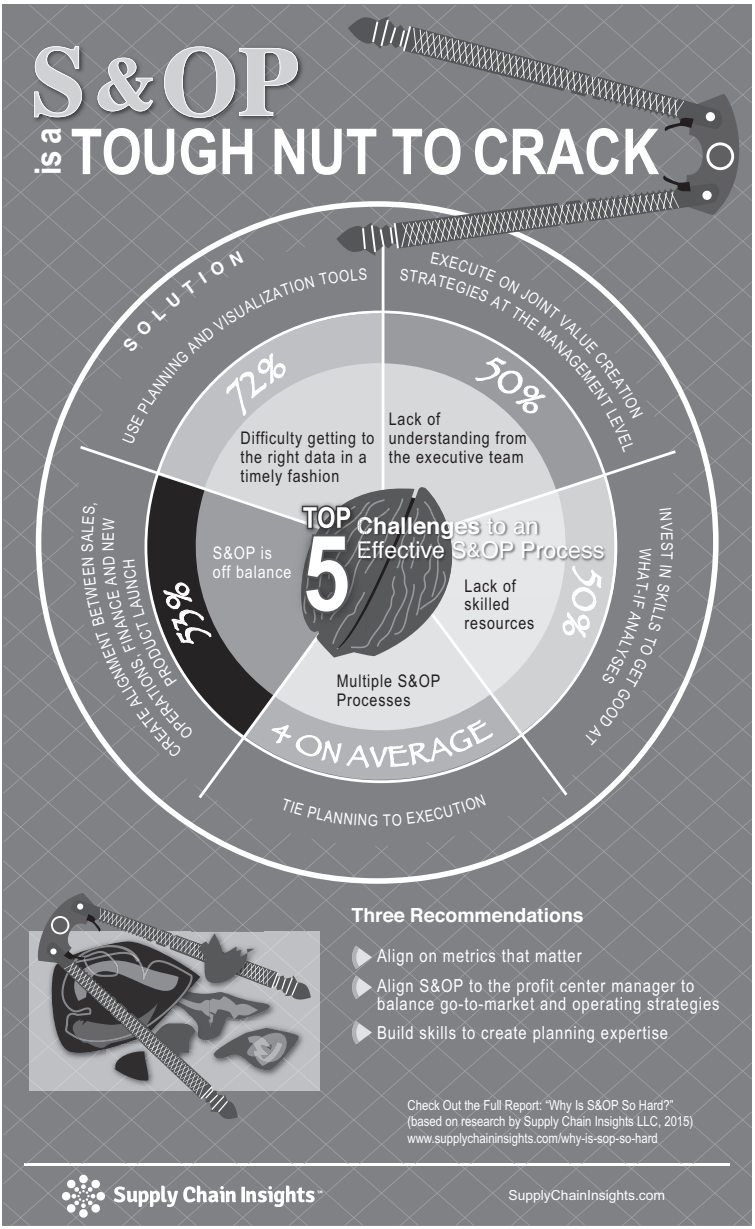
A Tough Nut to Crack: A problem that is very difficult to solve.
Cambridge Dictionary

Sales and Operations Planning (S&OP) is over 30 years old. I have been studying it as a researcher for 15 years.

With the rise of the global multinational, S&OP increased in importance as a way to align and drive organizational balance. In parallel, as shown in the attached infographic, challenges to perform S&OP well increased.

Companies struggle with the process transformation. The lack of skilled resources is an issue, but executive understanding of the supply chain is a more pressing and fundamental issue. Too few companies understand that the

Figure 6. S&OP Infographic



supply chain is a complex system with finite and nonlinear relationships between the metrics. Companies also struggle to get to data. The average company has three-to-five Enterprise Resource Planning (ERP) systems and two to three Advanced Planning Systems (APS), data access is an ongoing challenge.

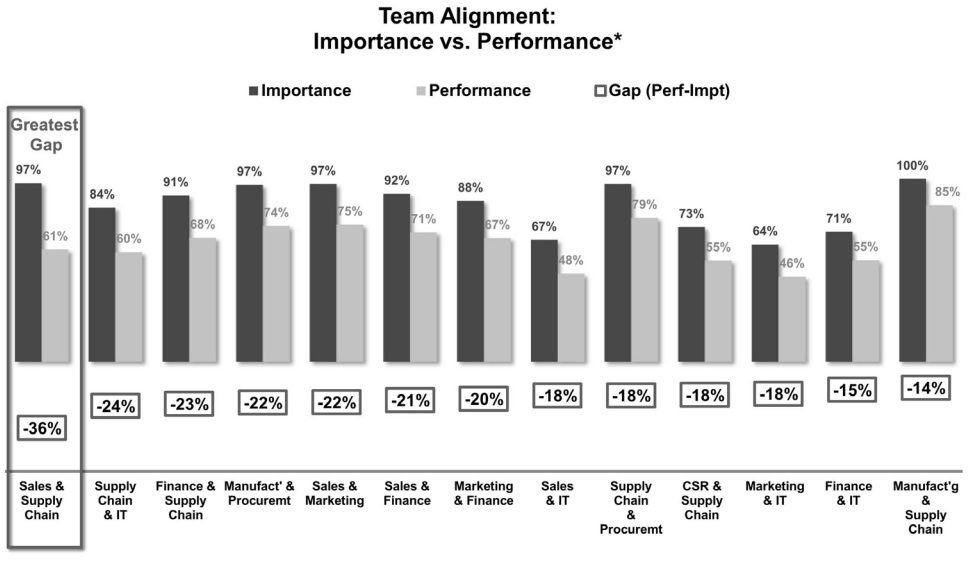
Decisions are easier when the alternatives are visible. While many companies have implemented solutions for demand and supply planning, the ability to evaluate alternatives, through "what-if" scenarios, is an issue for 76% of companies.

The environment is also more complex. Today, companies do not have one S&OP solution. Instead, they average four processes with many companies having more than ten discrete processes.

S&OP improves organizational alignment and drives agility. Improvements happen faster when there is organizational balance between commercial and operations teams, and the process reports to a profit center manager. Roughly one in two companies is out of balance, and the organizational functional gaps are the largest between commercial and operational teams. Last month, I interviewed Fran O'Sullivan, General Manager of IBM. Fran believes that the gap between sales and operations closes faster when organizations create "T-shape managers." Fran defines a T-shaped manager as a person that has excelled within a function, but also has cross-functional experience. Fran believes that there is no substitute for cross-functional experience. I agree. We see this in the research.

This organizational and functional barrier is tough to overcome. It is even worse when the organization lacks an executive team that understands how to drive cross-functional process improvement. As shown in Figure 7, the gap is large.

Figure 7. Organizational Alignment



Source: Supply Chain Insights LLC, Supply Chain Planning Benchmarking (Feb.-May 2015)
Base: Planners (n=433)
Q20. In your opinion, how important do you believe it is for each of the following pairs of teams to be aligned? SCALE: 1=Extremely important, 1=Not at all important
Q21. How aligned do you believe that these same pairs of teams actually are at your company? SCALE: 1=Not at all aligned, 7=Extremely aligned
*Data are those who rated it 5-7 on a 7-point scale (top 3 box)

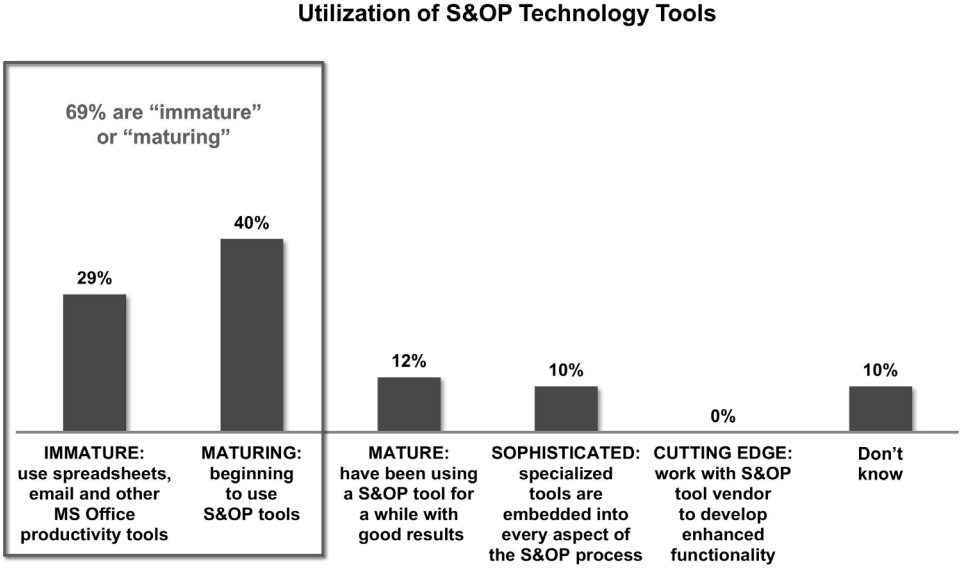
A second and fundamental issue is the lack of technology to model the supply chain. This gap is shown in Figure 8.

The use of technologies to model a feasible plan is not as common as most people would like to believe. Many organizations still rely on spreadsheets with no understanding that a complex supply chain cannot be adequately modeled using a spreadsheet.

So, in a nutshell, S&OP takes time and a focused effort to perfect. It happens over many years. Start by actively tackling the issues. While it cannot be a technology project, companies cannot achieve S&OP maturity without technology modeling.

What do you think? The infographic is based on insights derived from four years of research studies. Have we missed anything? We would love to hear from you!

Figure 8. Use of Technologies for S&OP



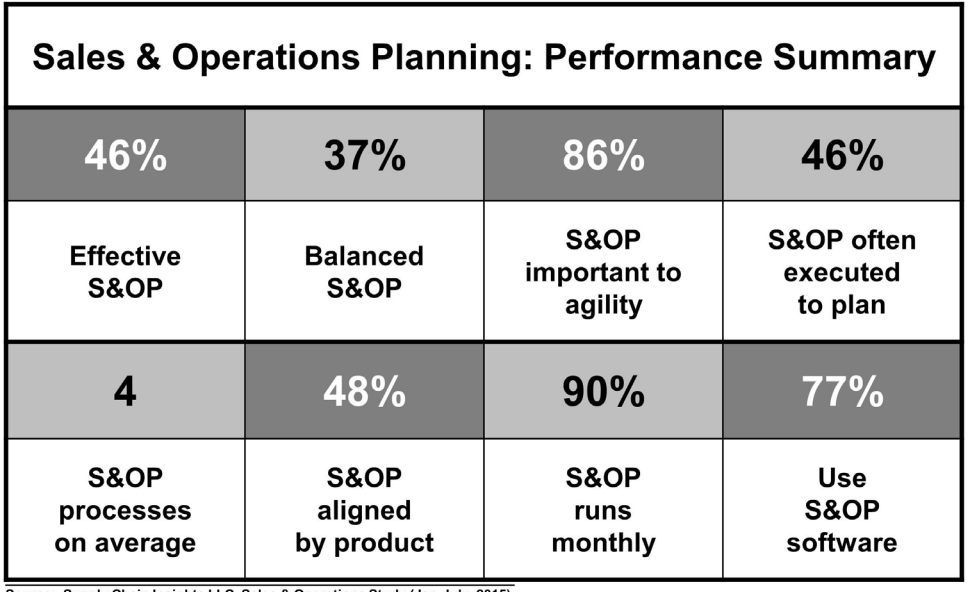
Source: Supply Chain Insights LLC, Global Summit Survey 2014 (July-August 2014)
Base: Supply Chain Insights Global Summit 2014 Registrants – and Using S&OP Technology (n=52)
30A. How would you rate your [company's][typical client's] utilization of S&OP technology tools?

Seven Mistakes to Avoid in S&OP

Definition of a Mistake: An action or judgment that is misguided or wrong. Synonyms: Error, fault, blunder, oversight, miscalculation or a misunderstanding.

Sales and Operations Planning (S&OP) is important to building value chain agility and improving enterprise performance. (Agility is the ability to have the same performance in cost, quality, and customer service given a level of demand and supply volatility.) Most processes are over 15

Figure 9. S&OP Performance Summary



Source: Supply Chain Insights LLC, Sales & Operations Study (Jan-July, 2015)
Base: Manufacturers and distributors who sell items they manufacturer, have $250M+ in revenue – total (n=56), have a S&OP process (n=52)

years old; yet, only 46% of companies feel that their processes are effective.

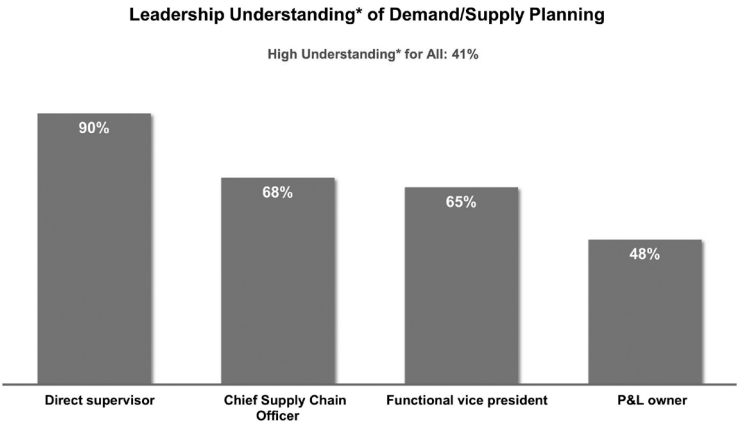
The building of an effective S&OP process takes many years: often three to seven. Like a marriage, it requires continuous readjustment and renewal. The journey is hard work; and it is too important to incur a mistake, or experience a setback.

I see more and more companies making these seven common mistakes. I share these here to help you and your team side step the issues to drive success.

1. **Right reporting relationships.** The most effective S&OP process reports to a profit center manager (P&L). A P&L leader is the only person in the organization that can drive the right balance in trade-offs between commercial and operations considerations. Without this reporting relationship, it is very difficult to achieve balance.

   Success does not happen overnight. The problem is that few P&L leaders understand supply chain planning. As shown in Figure 10, the maturity of S&OP is dependent on training the P&L leader on S&OP planning basics. Don't assume that the basics of planning are well-understood by the P&L leader. In this recent research of supply chain planners, you can see that the gaps are large in P&L leader understanding of supply chain planning.
2. **Lack of balance in process definition.** Balance is more readily achieved when the reporting is to a P&L manager, but requires equal emphasis on both the operations and commercial processes. As shown in Figure 11, most companies are out of balance. Consumer Packaged Goods companies are more balanced than Food and Beverage.

Figure 10. Leadership Understanding of S&OP Planning Basics

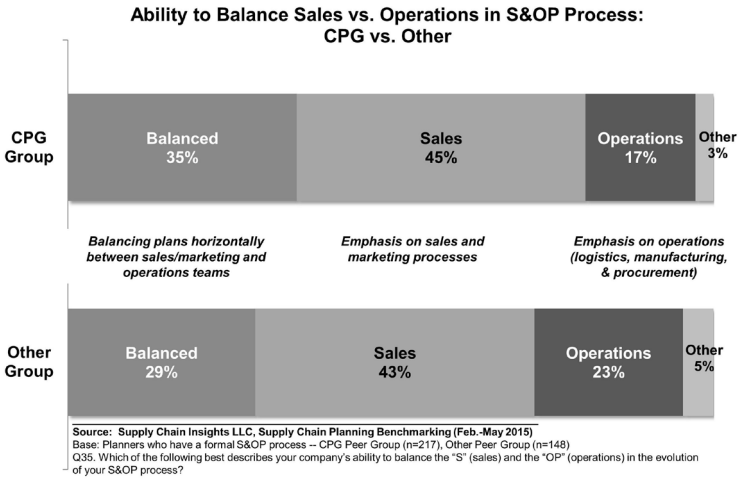


Source: Supply Chain Insights LLC, Supply Chain Planning Benchmarking (Feb.-May 2015)
Base: Demand and Supply Planners (n=221)
Q12. Now please rate the leaders below on their understanding of [demand][supply] planning. If there is more than one person who fits each description, please generalize across them. SCALE: 1=Poor, 7-Excellent, 0=Not applicable
*Data are those who rated it 5-7 on a 7-point scale (top 3 box)

3. **Building the right team.** Good planning drives better decisions. To be effective, companies need to build the right team. It requires a balance of junior and senior talent. When there are too many junior team members, the organization does not have enough institutional knowledge to formulate great plans. Similarly, when the planning organization is too mature, it is inflexible. In a conversation last week with supply chain leaders, in reviewing the chart in Figure 12, they emphasized that successful planning requires a team of both junior and senior planners. It needs a career path. The role should never be an entry-level turnover position or a senior role where there is little change.

   Additionally, to keep planning teams and mitigate turnover, planning salaries are often too low. Invest in benchmarking salary comparable(s) for your

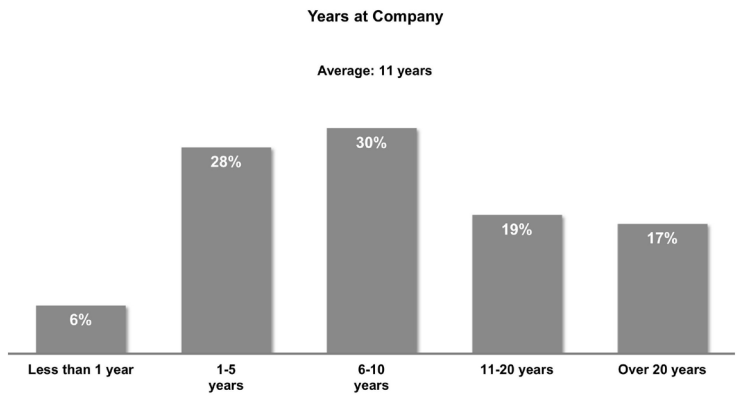
Figure 11. S&OP Process Balance



region. Aim to pay in the 80% percentile or higher to retain and keep talent.

Structure the role to give planners time to plan. In the design of the role, ensure that there is a focus

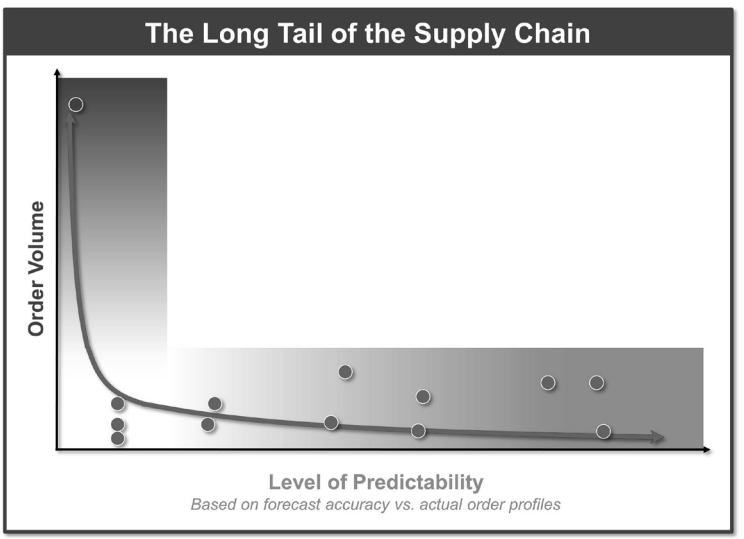
Figure 12. Years in Planning Positions



on the important not just the urgent. When planners are always reacting to issues, they never get time to plan. Likewise, if the planners are always in meetings, they will not have time to plan. In a recent study of planners, we found that the average planner spends 20% of their time planning and using the technologies.

4. **Attention to detail in forecasting processes.** In the modeling of demand, many companies track demand error as part of continuous improvement programs. The measurement of a Weighted Mean Absolute Percent Error (WMAPE) looks like a better number than a non-weighted MAPE (Mean Absolute Percent Error), the measurement of MAPE and a focus on reducing error of products in the tail, will improve customer service.

Figure 13. The Long Tail of the Supply Chain



To measure the tail, chart volume versus demand predictability or order frequency. The products on the tail are the most difficult to forecast, and are also the most important to get right to manage costs and supply chain cycles.

Additionally, avoid these common mistakes in forecasting:

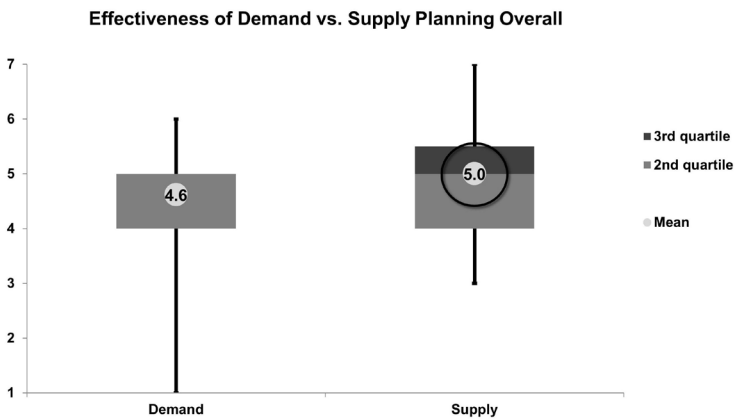
- **Introduction of bias and error in consensus forecasting. Manage input.** Consensus forecasting can often degrade forecasting accuracy. Track the effectiveness of managerial overrides. In a recent study, we found two companies were more accurate on lag 3 and lag 4, and less accurate on lag 1 due to the introduction of error through consensus forecasting.
- **Thinking that the forecast cannot be improved. Drive continuous improvement.** Measure forecast accuracy against the naive forecast (a forecast based on shipments in the prior period). Drive continuous improvement by holding the demand planners responsible to drive value in forecasting against the naive forecast.
- **The hoax of one-number forecasting.** While many consultants will recommend the adoption of one-number forecasting, focus on a common plan, not one-number. A forecasting plan is more sophisticated than one number. The forecast has the ability to roll-up and roll-down a hierarchy. Focus the effort on improving the forecast of the item, or SKU at the distribution center level.

5. **Ability to model a feasible supply plan.** While the scores of demand planning are lower on user satisfaction than those of demand, the range of acceptance of supply systems is larger. Few companies–25% have

the ability to model a feasible plan– and only 33% can model what-if conditions for supply. While it is tempting for teams to focus on visualization technologies like Anaplan, O9, SAP IBP and Steelwedge, be sure that the planners have the ability to model an effective supply plan. This includes the modeling of supply constraints and the measurement of impact of shifts in multi-tier planning. This is a fundamental building block of a successful S&OP program.

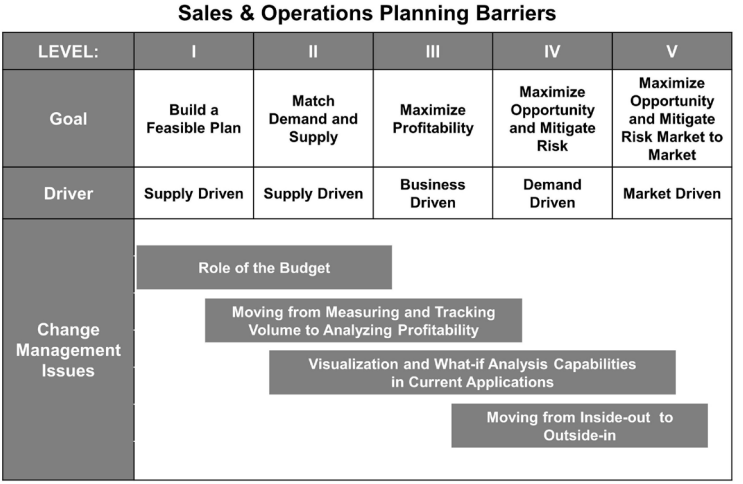
6. **Tight integration of the financial budget.** One of the biggest mistakes is tight coupling of the financial budget to the S&OP plan. Work hard with the financial team to ensure alignment. Use the budget as an input into the S&OP plan, but never constrain the plan by the budget if the goal is to maximize revenue and profit.

Figure 14. Effectiveness of Demand vs. Supply



Source: Supply Chain Insights LLC, Supply Chain Planning Benchmarking (Feb.-May 2015)
Base: Demand planners (n=102), Supply planners (n=120)
Q10. In your opinion, how effective do you believe your company is at [demand][supply] planning? SCALE: 1=Not at all effective, 7=Extremely effective
NOTE: Respondents asked to answer for the planning instance their company uses most often; Lines show minimum and maximum answers given
✪ Higher than other group at 90% or higher level of confidence

Figure 15. Change Management Barriers to S&OP



7. **Not connecting S&OP planning to execution.** Don't plan in isolation. Instead, build playbooks to enable the connection of the plan to better execution. Only one in three companies are successful in connecting S&OP planning to execution. Do this by building the playbooks based on "what-if" analysis and reviewing and realigning the plan weekly.

These are the seven mistakes that we see the most frequently.

What do you think? Did we miss any? We would love to hear from you.

SECTION 5

Driving Technology Excellence

Feed the Beast

As a mom, I loved to read to my daughter. One of our favorites was the book, *Where the Wild Things Are*. I loved the imagery in this short story of 338 words.

You have probably also read it many times, but just in case you are not familiar, let me briefly summarize the plot. The story is about a young boy, Max, who after dressing himself in his wolf costume, wreaks havoc in his house. As a result, Max is put to bed without his supper. The story unfolds

as Max's bedroom undergoes a mysterious transformation into a jungle environment, and he sails to an island inhabited by malicious beasts known as the "Wild Things." After successfully intimidating the creatures, the Wild Things crown him KING. He throws a wild party with his new friends, but must return home. A hot dinner awaits.

My Adult Version of the Beast

It is Sunday morning in Palo Alto, CA. The sun is rising. Again, I find myself with a sleepless night, tossing and turning. So, I thought that I would grab a cup of coffee and pen a short blog post before I take off for Phoenix to work with clients and attend the Manhattan Software event. (Then it is off to Dallas to speak on Supply Chain Metrics That Matter at the Dallas CSCMP roundtable and complete some more client work.) Life is busy on the road, but I am deep in thought about the wild things, the beasts at work that are undermining supply chain progress. Let me share my story...

My briefcase is heavy. I am deep in research analysis of a couple of efforts (wrapping up our first year of supply chain planning benchmarking for ten clients, writing reports for the Supply Chain Insights newsletter and finishing some work with a couple of manufacturing clients) that are

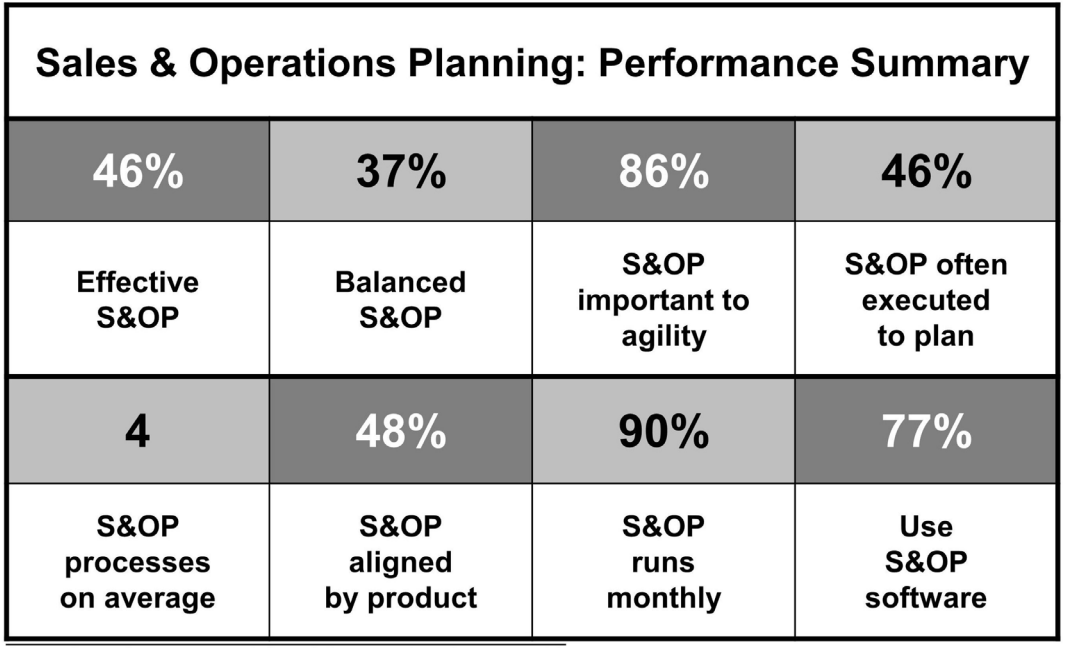
all telling me the same thing: companies are feeling supply chain pain. Looking back at history, they made more progress in supply chain management in the period of 1995-2005 than today.

Companies are feeling the pain of process complexity, globalization, and product lifecycles. The business requirements have outpaced the first and second generation of capabilities of the Advanced Planning Systems (APS).

Feeding the Beast or Improving the Business? When I heard a comment by a supply chain leader in a qualitative interview last week participating in the Supply Chain Insights supply chain planning benchmarking work, I winced. When I asked him, "How would you rate yourself in your capabilities to deliver supply chain excellence through supply chain planning?" his response was fascinating. He answered, "We are doing a better job of feeding the beast than driving insights." When I asked for clarity, he responded, "So many of our processes focus on feeding our ERP systems, that we don't see the patterns of our business." The dialogue was rich. In short, this major manufacturer and a well-respected supply chain leader, lamented the lack of good decision support tools and the singular focus of his IT team to focus on ERP implementation.

My next call was with a group of leaders working on supply chain planning in Sales and Operations Planning (S&OP) processes. The slide in Figure 1, stimulated great discussion. The group of 12 manufacturing planning leaders working on S&OP had a great discussion on the "&" in S&OP. The discussion went like this: "We have made some progress on the processes of supply and forecasting, but not in the translation of information into better plans. The issues of changing product mix, demand translation, revenue management, and new product launch abound. Balance is desirable, but not reality." (44% of the S&OP processes balance the "S" and the "OP", and only 33% can successfully do "what-if analysis.)

Figure 1. Current State of Sales and Operations Planning

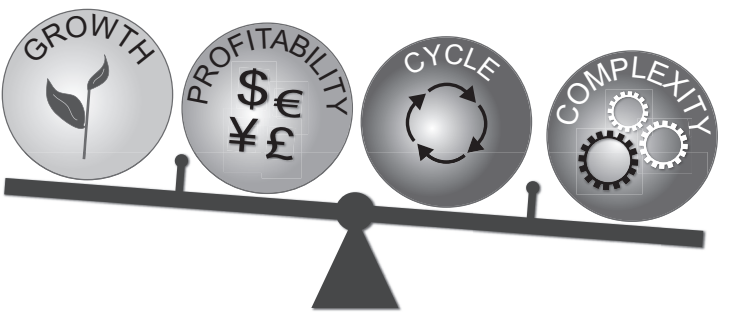


Source: Supply Chain Insights LLC, Sales & Operations Study (Jan-July, 2015)
Base: Manufacturers and distributors who sell items they manufacturer, have $250M+ in revenue – total (n=56), have a S&OP process (n=52)

We know from our correlations to supply chain financial metrics that when companies have balance between the "S" and the "OP" and have organizational alignment, progress is faster on the Supply Chain Effective Frontier balancing growth, costs, cycles and complexity.

The supply chain is a complex system and these metrics are tightly linked in nonlinear relationships. Managing growth and driving improvement requires an investment in decision support technologies. The companies using technologies from JDA, Kinaxis, Logility or OM Partners rate themselves better on the ability to perform "what-if analysis" to build playbooks to execute business plans. Companies with tightly coupled ERP planning tools—those from SAP and Oracle— feel stuck. The ERP beast is labor-intensive and a barrier to driving insights and getting good planning. While ERP is effective and needed as a system of record, the SAP APO and HANA technologies, and the Oracle SCM tools, do not support good planning processes. (The SAP tool is the best system of record, and the Oracle technology struggles to deliver either.) The tight coupling of planning to ERP has taken us backwards, not forward. There is a need to plan for the future when there is a lack of definition in items, markets and policies. ERP, by definition, does not

Figure 2. Supply Chain Effective Frontier



support planning where uncertainty and volatility is high. As a result, most companies today find themselves in the unfortunate position of feeding the beast, not seeing the insights that are critical to manage the business. To reverse, this trend, companies need to define their supply chain planning, and decision support architectures. It requires work. The average business leader understands transactions more readily than planning architectures. The tendency is to react not to plan. There are as many cultural barriers as there are technology ones.

Spend time, as a group, to define requirements at each level of the planning architecture as shown in Figure 3.

Inventory Is a Hot Potato that No One Wants, but Everyone Needs to Own

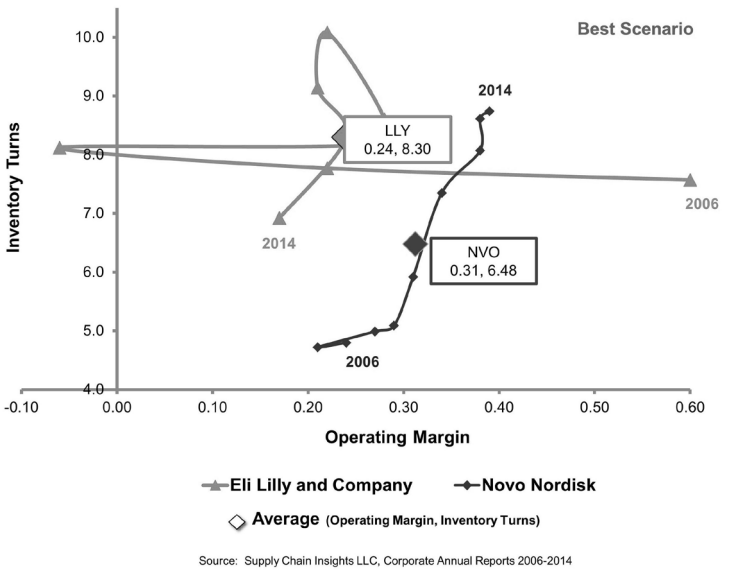
In the process of feeding the beast, inventory is a hot potato that no one wants, but everyone needs to own. In my work on Supply Chain Metrics That Matter, I realize how

Figure 3. Defining Planning Architectures

little real progress the average company has made in improving operating margin and inventory turns. Nine out of ten are stuck. Despite all the rhetoric in the press currently on "Supply Chain Leaders", I struggle why there is not more attention paid to companies like Novo Nordisk, and Ecolab that are making progress at the intersection of inventory turns and operating margin.

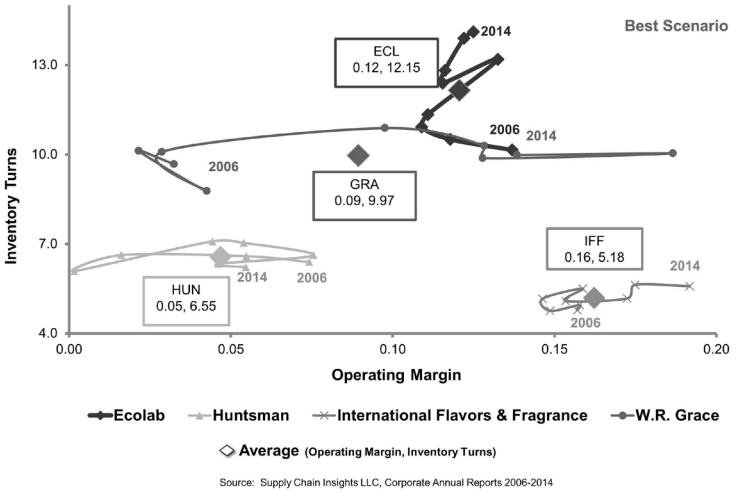
At conferences, I hear from many supposed "supply chain leaders"; however, to me a supply chain leader drives progress at the intersection of these two important metrics of operating margins and inventory turns. Few conference speakers meet this criteria. In fact, in my research, I find, only 10% of companies have this characteristic. As we published in our recent Supply Chain Metrics That Matter Report on the Pharmaceutical Industry, I learned that AstraZeneca has better performance and Novo Nordisk is driving a faster rate

Figure 4a. Orbit Chart - Pharmaceutical Industry



Source: Supply Chain Insights LLC, Corporate Annual Reports 2006-2014

Figures 4b. Orbit Chart - Chemical Industry



Source: Supply Chain Insights LLC, Corporate Annual Reports 2006-2014

of improvement than their peer group. I want to hear from them. In parallel, in the chemical industry, Eastman Chemical has a better overall performance than their peers and Ecolab is driving greater progress on improvement. I want to tell their stories. I do not think that we hold "supply chain leaders" accountable enough to talk about their real impact on the business. My goal is to bridge the gap between supply chain processes and balance sheet results.

While many companies are quick to turn to technology to solve the inventory problem, my caution is to rethink your organizational and cultural dynamics before you start to consider technology. While you cannot make this type of improvement without technology, you cannot make the improvement with the technology unless you address the cultural issues. The first challenge is to define a job position and process for inventory management. Recognize that the design and execution of inventory strategies is about far more than technology. It requires adopting a new

lexicon to manage the form and function of inventory and rethinking business policies. Many companies have a number of misconceptions on inventory management. Try to address these in advance.

The second barrier is accountability. One of the characteristics that I see in companies making progress at this critical issue is the ownership of inventory.

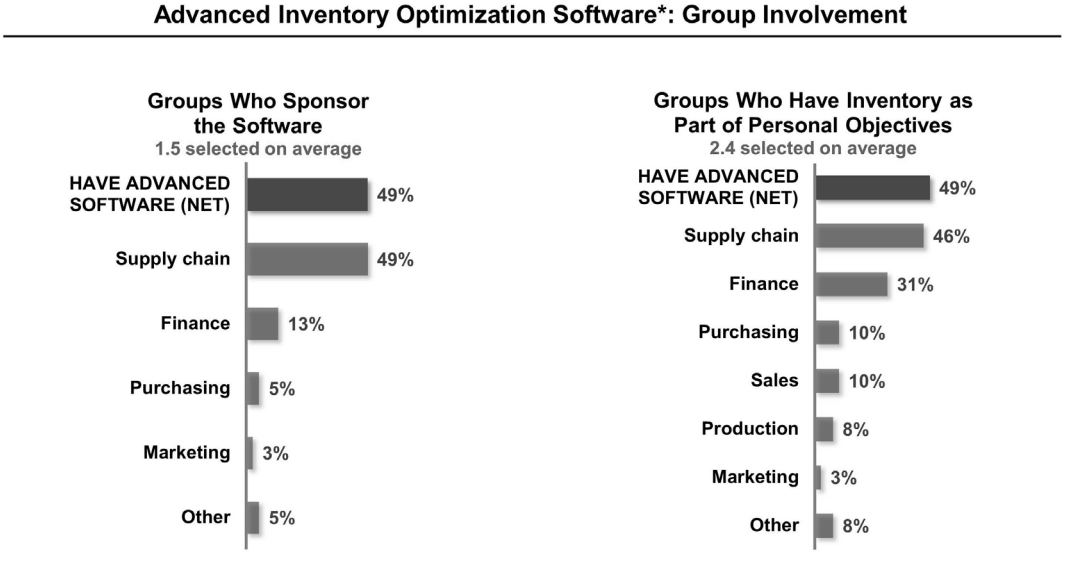
In Figure 5, I share recent information on inventory management. In companies with more advanced inventory technologies—multi-tier inventory management and inventory configuration technologies, notice the lack of cross-functional ownership for inventory management. Organizations without cross-functional ownership for inventory will struggle to make progress. No matter how much companies spend on technologies, in this environment progress will not happen. Instead of holding the hot potato, supply chain leaders need to fight for cross-functional ownership and understanding of inventory. Start with the finance team. Use your supply chain design technologies and "what-if" analysis (if you have it) in tactical planning to help finance to see that inventory is a needed buffer, not a cost to cut, and shine a light on the business policies (e.g., supply chain design, customer fulfillment policies, and relationships with suppliers) that are undermining progress in inventory management.

Return Home. Craft Your Five-Stage Plan

So like Max, when the dust settles and the ERP implementation is complete and you have danced with the Wild Things and fed the beast, it is time to get back to business and drive supply chain improvement. Where to start?

1. Define where you are at. Plot your progress against competitors on the intersection of inventory turns and operating margin and assess the current state. Ask yourself the question, "Are you dancing with

Figure 5. Inventory Ownership



Source: Supply Chain Insights LLC, Inventory Optimization Study (February - May. 2015)
Base: Manufacturers, retailers, and distributors who use inventory optimization software and have $250M+ in revenue (n=39)
Q18. Which group(s) at your company sponsored this inventory optimization software? Please select all that apply. Q19. Which group(s) have inventory as part of their personal KPI's/objectives? Please select all that apply. *Respondents were asked to answer for the inventory optimization software that is most important to their company

the beasts like Max? Is the team focused on feeding the beast versus driving business insights?" If so, realign.

2. Analyze your team's impact on performance last year. Carefully look at the events on the timeline as they unfolded. As the team analyzes last year's successes and wins, define what you need for decision support technologies. Have the courage to test new forms of analytics and be clear on the definitions.
3. Socialize the concepts and build a guiding coalition. Start with the finance group.
4. Build a road map. Drive results.
5. Call me and let me write the story! Good luck in your journey.

What Do We Do Now?

"What did you learn?" asked the client at the end of the day. I smiled and reflected. It was a thought-provoking question.

The ROI study on supply chain planning was completed. The data is clear: best-of-breed supply chain planning solutions are faster to implement, have a better ROI and yield higher satisfaction than planning systems from ERP providers.

When I finished the blog post last week, I sent the research to 15 supply chain leaders in manufacturing and asked for their opinions on the study. These were large multinational manufacturing companies with very senior supply chain leaders. Their response surprised me. They said, "I am surprised that companies in your study rate themselves so highly on the use of supply chain planning technologies. For us, the results of supply chain planning solutions are disappointing. We struggle to find solutions in the market that meet our needs. We don't think that anyone is happy."

So, I answered the question from the client in a dry, understated tone, "I don't think that we have met the needs of large multinational manufacturers in the design of supply chain planning as we know it today. I think that vendors are largely competing with each other, and not able to see the true needs of users."

There have been many obstacles. Initially, the market was overhyped and the first generation of solutions underdelivered. The second-generation solutions (extended ERP footprints) made this even worse. As we can see from the research, these solutions were more expensive, harder to use, and required larger teams to run (30-40% more people). In parallel, supply chain talent is scarce and the attainable market for software vendors contracted as 38% of their targeted customers went through M&A. The merger mania created a more complex IT environment.

Today, the gray-hairs of the first and second generations are retiring. We have the opportunity to build solutions that can better meet the needs of large manufacturers (greater than $5 billion), but to do this, we have to get past the historical baggage of this market evolution to accomplish this goal." It was an answer that the client did not want to hear. It is also an answer that I really do not want to tell. I was a part of the evolution of supply chain planning solutions; and today, we have a quagmire. I firmly believe that the next generation of supply chain planning will come from new best-of-breed providers in the Third Act.

So, what should a global manufacturer do? Here are five actions to consider:

1. **Stabilize current investments.** The first step is to stabilize current investments. My recommendation is to not rip out and replace software at this time. Instead, I would invest in software tuning. Many software companies offer an audit that you may also

Figure 6. Augmentation Strategies to Consider

Area of Focus	Augmentation Strategies to Consider				
	Innovator	Early Adopter	Early Majority	Late Majority	Laggards
Building B2B Networks	Sensing Through Canonical Many-to-Many Models	Multi-Tier ATP	Control Tower: Supply Chain Execution Sensing	Transportation Networks	EDI
Supply Chain Planning	Cognitive Learning	Concurrent Planning	Demand-Sensing Cloud-Based Planning	Multi-Tier Inventory Optimization	Supply Planning
Channel Management	Digital Path to Purchase	Predictive Analytics on Channel Data	Demand Signal Repositories	VMI / CPFR	Order Management
Manufacturing	Digital Manufacturing	Predictive Quality Models	Digital Integration into Machining Predictive Maintenance	Integration of MES to Production Planning	Production Planning
Analytics	Rules-Based Ontologies	Sentiment Analysis	New Forms of Visualization	Telematics and Mapping	In-Memory Reporting

want to consider. Use your current platform as a planning system of record to add planning functionality for S&OP, deeper forms of predictive analytics and what-if analysis tools.

2. **Augment current functionality based on risk profile.** Using the standard maturity model for technology adoption, consider augmenting the current functionality based on risk aversion. To help, I have built a chart outlining where I see the market. My heart is with the innovator, and in much of my writing, I will advocate the emerging solutions; but in my head, I know that most of the market is a late majority buyer. The market has become more and more conservative in my time as an analyst.
3. **Build planning talent.** Talent is the missing link for many organizations. The average time to fill a demand or supply planning role is five months. Start now to build a planning organization. Train a new generation of employees to understand planning.
4. **Experiment with new forms of analytics.** Build a small group to test and learn with new forms of analytics. Provide funds for this group to experiment with tools like Tableau, Spotfire and QlikView. One of my favorite discussions of this approach was a podcast with Fran O'Sullivan of IBM. IBM is one of the few organizations that I have worked with that focuses on seed capital for small analytic projects and encourages the line-of-business leaders to test and learn.
5. **Closely follow the evolution of the next generation of solutions.** You may not have the organizational risk profile to step out and text cognitive learning, new forms of B2B networks or Digital Manufacturing, but you can actively follow the industry pilots and learn from those doing the testing.

These are my thoughts this morning over a cup of coffee. I would love to hear from you. When you think about the decades, I think that we all can agree that it is a time of change. I penciled this timeline on my notebook this morning:

- 1970-1980: Definition of MRP and DRP. Power of Computing.
- 1980-1990: Definition of Supply Chain Planning. Rise of Client Server Technology.
- 1990-2000: Race for Y2K. Rapid Advances in Connectivity.
- 2000-2010: Dawn of e-Commerce and B2B networks. Race for the Global Supply Chain.
- 2010-2020: Digital Business.

I find the evolution exciting and full of promise.

Hype or Hope

It is morning in Orlando. The sun is rising. I am speaking this morning at a conference and doing a book signing of my new book, Supply Chain Metrics That Matter.

The world of supply chain is active on my iPhone. Several good friends in consulting roles are sharing information on SAP HANA from SAP Insider; and this morning, LLamasoft announced the acquisition of the LogicTools assets from IBM. In parallel, I have been hard at work on a report on multi-tier inventory optimization for the last two weeks. This inbound news adds to the story. It will delay my report. In this post, I want to share my reflections.

Companies struggle with inventory. They have not made as much progress on inventory as cash-to-cash.

SAP: Will Hype Translate to Hope?

The news from SAP Insider is a continued drumbeat on the HANA rewrite of SAP's supply chain applications.

Figure 7. Progress on Supply Chain Metrics

Consumer Value Chain (2000-2013)						
Industry	**Year-over-Year Revenue Growth**	**Operating Margin**	**Inventory Turns**	**Cash-to-Cash Cycle**	**Revenue per Employee (K$)**	**SG&A Ratio**
Retail (n=19)	**7.6%** ↓93%	**0.06** ↓4%	**10.1** ↑8%	**23.5** ↓30%	**418** ↑35%	**16.8%** ↓1%
Apparel (n=11)	**11.1%** ↓103%	**0.11** ↓12%	**3.6** ↓5%	**109.5** ↓12%	**318** ↑26%	**31.1%** ↑9%
Food & Beverage (n=21)	**5.0%** ↑29%	**0.16** ↑26%	**6.5** ↑15%	**43.7** ↓233%	**414** ↑71%	**22.8%** ↓14%
Consumer Packaged Goods (n=17)	**5.9%** ↓57%	**0.16** ↑10%	**5.1** ↑10%	**52.9** ↓3%	**576** ↑21%	**27.3%** ↓5%
Chemical (n=18)	**7.4%** ↓12%	**0.11** ↑35%	**5.0** ↓6%	**80.8** ↑2%	**632** ↑36%	**14.4%** ↓6%

Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2013
Peer groups based on September 2014 "Supply Chains to Admire" research report

Excitement abounds. My advice is for customers to not get caught up in the hype. I am actively covering several supply chain HANA implementations and they are not going so well. Three clients in my interviews have been actively working on pilots for multiple years and are struggling with some fundamental problems. It reminds me of the development days of the CIF interface with SAP APO 3.1 when I only saw three customers successful after intense codevelopment. A hard sled. Buyer beware.

In the research for my inventory optimization report, the lowest level of satisfaction with multi-tier inventory optimization is with clients of the SAP inventory solution (previously purchased from SmartOps). Why is this relevant? The multi-tier inventory optimization product termed MEIO is at the center of the new HANA stack for supply chain which includes demand sensing and the SAP Integrated Business Planning product. The MEIO product is a proof point in the SAP rhetoric of why SAP HANA is a good thing.

What do I hear in interviews? What do I see? In the research for the inventory optimization and the S&OP reports, I find a handful of VERY experienced SAP clients doing codevelopment with the SAP IBP product. There are issues with bottom-up and top-down demand aggregation in the SAP IBP tests along with integration with APO. Demand sensing pilots are very early in evolution, but the results are not equal to Terra Technology's demand sensing results. Each client in interviews speaks of active and focused work from SAP to fix the problems, and I think that SAP will work through the issues; but, the question is how long? And at what price? My advice for mainstream SAP users is to use caution. Why? The lowest satisfaction rates with inventory optimization are at the center of the SAP HANA stack and the current work on SAP IBP is still in what I consider codevelopment. While SAP will share how many licenses they have sold—70 licenses in the fourth quarter—and it sounds

impressive, use caution. Selling licenses does not translate into implemented software. The number of implementations is a fraction of the sales, and I cannot find a successful, implemented SAP IBP or demand sensing project. My view? SAP Supply Chain HANA is still a work in progress. Clients complain of implementation issues, and continual upgrades. Interview excerpts are full of comments like, "After we work hard to fix a bug, I get a new upgrade and have to start all over again. I like the SAP team, and they are trying hard, but it is frustrating."

LLamasoft: Recycled Software Assets Offering Hope?

In parallel, this morning LLamasoft announced the acquisition of the LogicTools supply chain applications business unit from IBM. This includes the Inventory and Product Flow Analyst and the Transportation Analyst products, as well as the related technology and support team. LLamasoft will begin providing software maintenance, support and services to all LogicTools customers effective immediately.

These assets have gone through several acquisitions. The LogicTools product was purchased for $15 million in 2007 by ILOG. At the time, there were 200 customers. ILOG was then purchased by IBM for $340 million in 2008. The primary impetus for IBM's purchase of ILOG was for the BAM assets; and during the period of 2008-2014, sales by IBM of the LogicTools product languished.

IBM has a history of purchasing supply chain assets, and despite great press release superlatives, the company has underperformed in the building and selling of supply chain industry solutions. IBM has many legacy supply chain assets in their arsenal including the DemandTec, Emptoris, Sterling Commerce, and Yantra products; however, IBM's presence in the supply chain market continues to wane.

Currently there are 150 customers of the LogicTools product. It has lost market luster from the days when the founder brought it to market. The product was a no-frills reasonably-priced product that worked. LogicTools has a loyal customer base that weathered the storm of acquisitions. There is still an active core of clients that are quietly using the product.

What do I think that this means for the market? LLamasoft is moving down the stack. With a traditional focus on network design and inventory flows with their GURU product, LLamasoft is getting more serious about tactical supply chain planning. While LLamasoft has great client references in network design projects, the product is traditionally used on a more ad hoc basis. The company is early in building an enterprise-class solution with robust APIs and role-based security. I believe that this is a move to get more serious about inventory optimization and building enterprise-class solutions. This is good news for both the LogicTools and the LLamasoft installed bases.

LLamasoft promises the release of new versions and updates for all three LogicTools software products this year, including the preview of LogicNet Plus Version 8 in just a few months at SummerCon in June, 2015. Don Hicks, LLamasoft's founder, commits that LLamasoft will not be forcing clients to switch to the LLamasoft products.

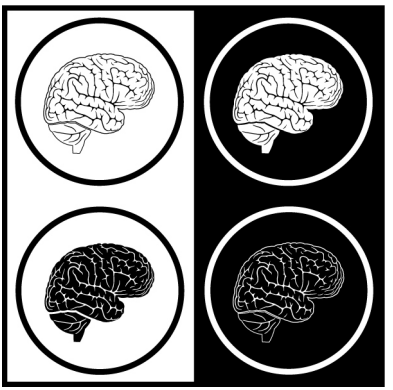
My Take

The greatest improvement in inventory and overall value in supply chains continues to come from best-in-breed solutions. The large system integrators will push offerings from ERP expansionists like SAP and Oracle, I see greater value coming to clients that bypass hype and focus on business results through the implementation of best-of-breed products on top of ERP backbones. I feel that the LLamasoft

acquisition is good for the market, but I believe that the SAP HANA release is not ready for prime time. Today, the SAP HANA product is only for the early adopter with strong SAP codevelopment resources.

As you know, I am straight shooter. This is my take. I would love to hear yours. I like differing points of view.

Rethinking the How



The sun is shining brightly through the conference room windows as I listen to the consultants talk. It's buzzword bingo at its finest. The air is thick. It is comical. The term 'big data' is all the rage. The market has dried up for large Enterprise Resource Planning (ERP) implementations, and the large consultants are prowling the market staking their claim for their next gig.

For me, buzzword bingo on big data is bad. The wrong discussions drive detrimental behaviors. Wave your hands and close your eyes and think about the terms that you have heard. They swirl in your head. It includes the Internet of Things, Digital of Everything, and Commerce of Anything. Few of the terms have grounded definitions and concrete ties to analytical architectures. As a result, confusion reigns. We are at a software and consulting junction point... a disruption of sorts. The large Enterprise Resource Planning (ERP) implementation market is coming to a close. It has been the drug of choice for the consultants for many years, and they are repositioning.

Today, we know analytics is exciting. We just are not clear on the outcome. All we know is that we are evolving and promising. The hard work lies ahead.

A Critical Look at the Market

IBM is good at manufacturing terms that I both hate and love. They are a big marketing machine. Recent terms include omnichannel and big data. While IBM is great at developing these thought-leading concepts, they are good at bringing these concepts to life through their solutions. The analysts add to the cause and the hype cycle ignites. My advice? Sidestep the hype. Do not use the big data lexicon. Set boundaries at team meetings and steer conversations away from industry IT jargon, superlatives, and hollow words. The next step is to drive real projects with real results. This is where the magic happens. In the words of one of my clients yesterday, "Growth solves all ills." Steve's burning platform is the use of analytics to drive growth through micromarketing and segmentation. It makes sense. His business is under attack. They are losing market share. He needs a persistence layer, an application layer, and a visualization layer. He needs to redefine commercial processes in the front office. He is clear on the many shortcomings of the conventional definition of Customer

Relationship Management (CRM), and has management support. He understands that the persistence, the application, and the visualization elements must work together. The discussion is not about science projects. Instead, the focus is on real results. Sensing demand from channel data, pushing it through demand sensing and forecasting, actively designing and evaluating micro-campaigns, and analyzing customer sentiment data. Steve wants to redefine demand. I am his coach. While your burning platform is probably different, the key point is to have it grounded in the business reality.

In a similar vein, SAP HANA has a huge marketing machine behind its launch. I question if the price is worth the value. Priced in RFPs as $1.6 million per terabyte, versus $250,000-$500,000 for Teradata, or $150,000-$200,000 for Cloudera, HANA is expensive. While the manufacturing clients who I work with have strong IT relationships with SAP, and HANA is more and more a discussion, SAP lacks the relationships with the business leadership teams. In the process of pushing HANA on the organization, I think we are missing several basic discussions. One mistake is to focus the conversation on IT. Instead, focus on business value. The HANA architecture is well-suited for large, transactional reporting, in-memory applications. It is less of a fit for unstructured data (weather, maps, social, sentiment, warranty, quality, contract documents and pictures) and streaming data (sensors, RFID, and telematics). However, only 12% of companies can get to total cost data, and the average company has 5-7 ERP instances, so if companies want to spend large amounts of money on a new architecture, who am I to judge? I just think that it is expensive and limited in value when a whole world of new forms of analytics lies ahead of us.

What Does Need to Change

The most fundamental thing that companies need to do now is to change their mindset. It is a paradigm shift of the tall-

est order. There are five basic tenants of project management which do not fit well in the analytics environment. However, changing these will fly in the face of all work processes. Talk through these before you start analytical process development because, as you will see, traditional thinking is your enemy.

To be successful, you will need to break traditional program management tenants. Attack these early in your evolution:

1) The "How." The traditional models.

The traditional project management approach is an RFP, a project plan, an implementation plan, a training plan and a rollout schedule. For analytics, the logic is flawed. What needs to change?

While in the traditional methodologies companies define an "as is" and a "to be" state and then define a project plan, you will need to change this thinking. In analytical projects you do not know what you do not know. The project team needs the courage to fund a project without a well-defined "to be" state. They also need to insert a stage in the project plan to enable the team to test and learn. To move forward, write the contract with phased payments after test-and-learn, and allow the team to work with the technology to prove the business case. Do not force teams to do documented phased process flows and a definitive ROI before test and learn. It will kill the projects that you need to do. Instead, set aside $100,000-$250,000 to enable testing and learning on a compelling business proposition. After testing and learning, then commit to the larger project.

However, in the rollout, do not forget to tackle the change management and the well-embedded process definitions. The project evolution is a continual series of test and learn. Encourage teams around the world to test and learn and refine the technologies. Have contests, small share

groups, and sponsor innovation labs. Spawn a test-and-learn culture.

In the process, keep the large consulting teams at bay, and at arm's-length. Successful analytics projects require two to three deep experts. Do not hire a large BIG-6 consulting partner to redefine your analytics strategies. They are best used in the rollout and management of a known project. I find the brightest minds in this area in the best-of-breed analytics/technology companies and a few thought leaders in leading consulting companies. There are not enough of them. Getting the right fit is essential for project success.

2) The "What." After test and learn, focus on the project justification. A mistake that many companies make is asking the team to do detailed "as is" and "to be" process mapping before the test-and-learn phase. Do not force the team to do detailed process mapping until after testing and learning is complete.

3) Rethink what is possible. Don't settle for the automation of today's processes. The traditional approaches have resulted in efficient, but brittle, processes with teams unable to perform what-if analysis, simulations, and visualization. Sidestep legacy system approaches. Brainstorm use cases and learn.

4) Let the computer work for YOU! Today's supply chains run on spreadsheets. Despite millions of dollars spent on APS/ERP, Excel is the planning tool of choice. Why? People like to touch data even though it is well-proven that touching data adds little value. In the commercial world of sell, deliver, make, and source processes, we do not have the time or money to fund data scientists. Instead, put the computer to work.

To do this, the teams need to have analytical skills, computer programming acumen, and business process understanding. One of the reasons that the business process

outsourcing to India has failed is the lack of business process understanding.

Finding this talent in one person is a rare combination. The answer is to build teams with complementary skills, and focus on maximizing the value of new forms of analytics. Erase your Excel ghettos, remove your teams of low-cost, outsourced workers and harness the power of cognitive learning, artificial intelligence, pattern recognition, combinatorial math, and visualization to drive new insights into your processes.

5) Lead with business leaders. While Information Technology (IT) teams lead traditional projects, change this paradigm. Start the journey to use new forms of analytics using business leaders. Unleash the power of analytics for your business, but sidestep buzzword bingo. When you hear the buzzwords, show the service provider the door.

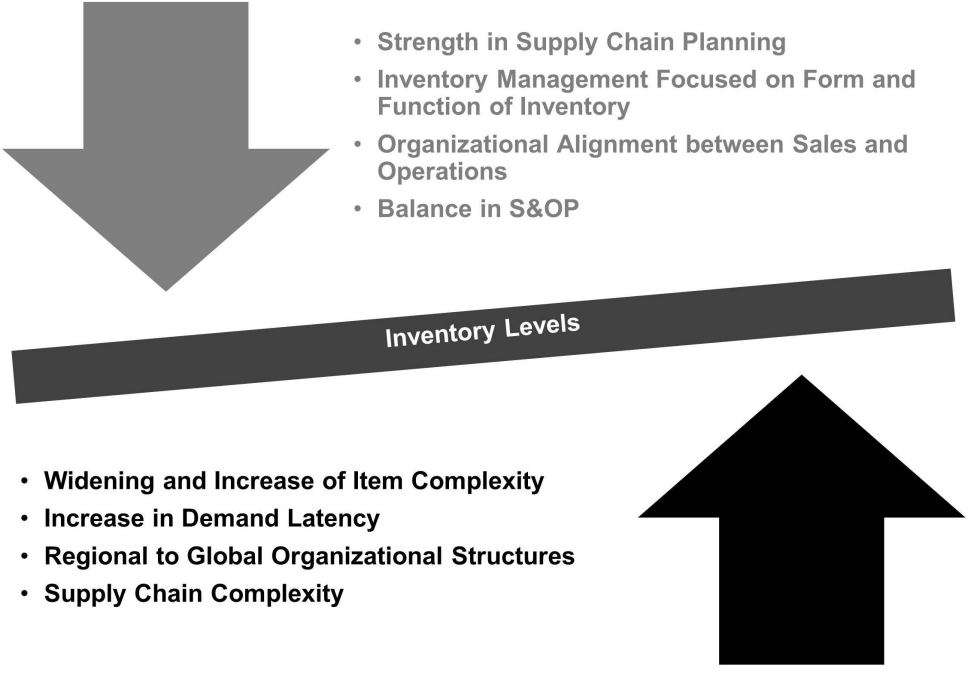
It has been a long week. These are my thoughts on supply chain analytics. Do you agree? Have thoughts to share? I would love to hear yours. Meanwhile, I am off to the gym. My old, tired body needs a run on the treadmill. I have been on the road for two weeks. I am tired.

Seven Misconceptions of Inventory in a Market-Driven World

When it comes to the management of inventory in value chains, frustration abounds. Executive, after executive, lament, "They have purchased many technologies and sponsored many projects to reduce inventories, but they are not seeing results." I have been studying the evolution of inventory technologies as an industry analyst since 2002. In this post, I share my reflections along with seven misconceptions.

The supply chain is a complex system with increasing complexity. Inventory is the culmination of many business decisions. Few companies manage their supply chains end-to-end; and as a result, cannot manage inventory holistically. As a result, only 10% of companies are making progress at

Figure 8. Inventory Levels



the intersection of inventory turns and operating margin. There is no silver bullet. It is truly a case of process, people and technology. Notable exceptions making improvements at the intersection of inventory turns and operating margin are companies like Carlsberg, Cisco Systems, Hershey, and Novo Nordisk.

Tracking Progress

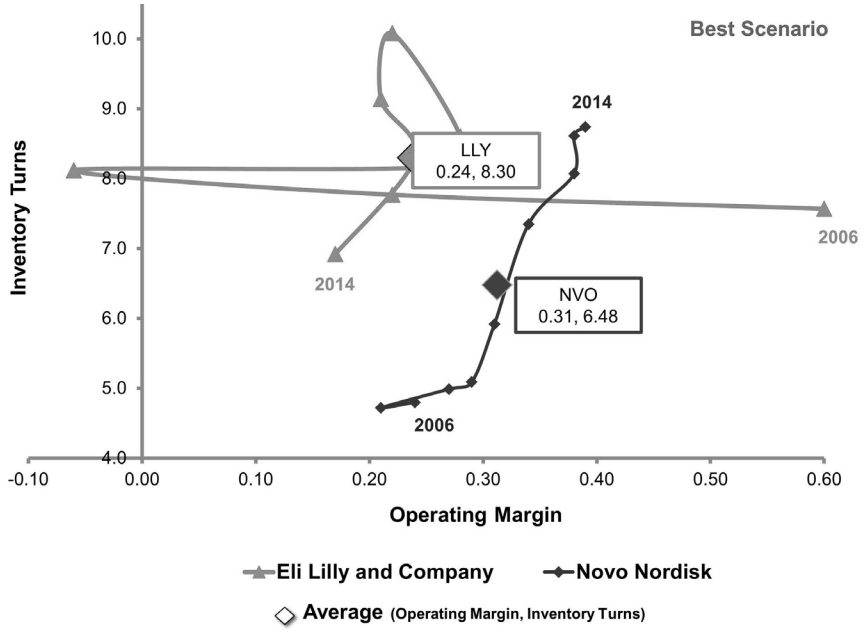
The supply chain leader manages performance at the intersection of inventory turns, operating margin and customer service. While we cannot access customer service levels for public companies, we can measure progress at the intersection of operating margins and inventory turns.

At Supply Chain Insights, this is our passion. We are systemically evaluating each industry in the Supply Chain Insights Metrics That Matter series of reports. In Figures 9 and 10, we share orbit charts of progress. Let's take a closer look to see what progress looks like. In Figure 9, we compare Novo Nordisk versus Eli Lilly. Note the improvement in inventory and operating margins by Novo Nordisk and the lack of progress by Eli Lilly. In parallel, in Figure 10, note the progress by Carlsberg, and the lack of progress by Heineken. This type of benchmarking is the most powerful in the comparison of like competitors.

The Inventory Management Journey

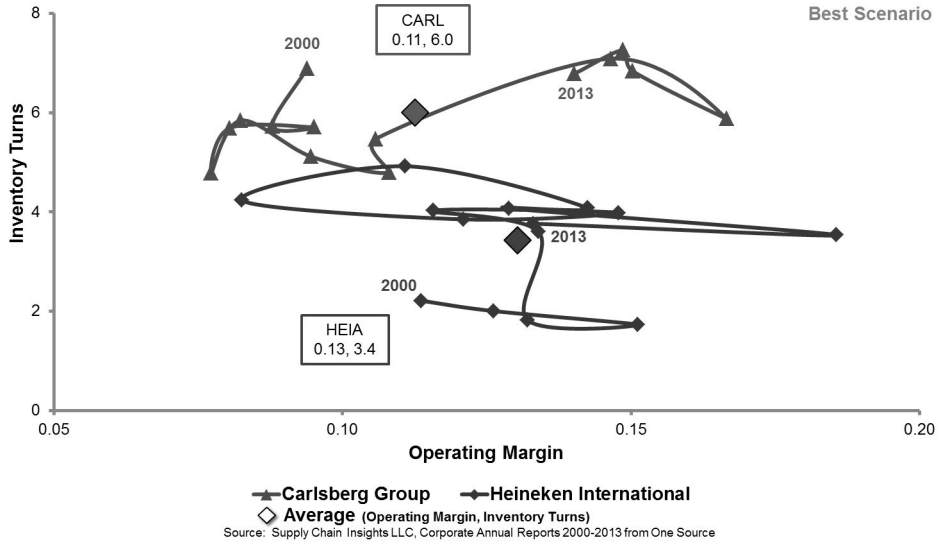
Why is progress so hard? Over the last decade, most companies went through a multitude of changes. The increase in the item complexity, the lengthening of demand latency and the building of global supply chains with greater in-transit inventories top the list. To counteract these business shifts, companies have invested in Enterprise Resource Planning (ERP) and Advanced Planning Systems (APS), focused on projects in lean and flow, and driven maturity

Figure 9. Novo Nordisk vs. Eli Lilly



Source: Supply Chain Insights LLC, Corporate Annual Reports 2006-2014

Figure 10. Carlsberg vs. Heineken



Source: Supply Chain Insights LLC, Corporate Annual Reports 2000-2013 from One Source

programs for Sales and Operations Planning. These efforts are not enough.

The business drivers have outpaced the company's ability to manage inventory through new technologies and processes. Why? While we have talked about collaboration, Vendor Managed Inventory (VMI) are not connected to enterprise systems, and less than 5% of companies have deployed multi-tier inventory optimization software to support a continual process (as opposed to an ad hoc) analysis to set inventory targets. Network design concepts are gradually gaining acceptance, but too few design their networks. And, when they do, the focus on network design is still on bricks and mortar—where to put manufacturing and distribution locations—not on form and function of inventory, and the design of inventory flows.

Seven Misconceptions

I find that when it comes to the management of inventory, misconceptions abound. This includes:

1. **Inventory management is the same as replenishment.** Inventory management and replenishment are separate, but interrelated processes. While inventory management includes the design of inventory strategies to set inventory targets including the execution of supply chain processes to design and manage the form and function of inventory, replenishment is about flow. Replenishment is usually push-based logic, based on a series of rules, based on dependent, as opposed to independent, demand. As a result, traditional replenishment logic amplifies and distorts the demand signal. The greater the demand error, and the greater the supplier volatility, the greater the need for multi-tier inventory management.

2. **Inventory is a cost to be managed.** Finance wants to actively manage inventory. A frequent mistake made in the management of inventory in the extended supply chain is a blanket reduction—a corporate mandate to reduce inventory— without rationalizing the requirements for inventory in the value chain. Inventory should never be managed to a financial target. Instead, it needs to be based on the requirements of customer policy and the supply chain strategy. For many, this understanding is the toughest to close. Finance needs education.
3. **The management of inventory does not need technology.** To get good at the management of inventory, companies need technologies. The supply chain is a complex system that cannot be adequately managed through calculations on a spreadsheet. As a result, companies need to blow up their spreadsheet ghettos within the organization and challenge the supply chain team to think more holistically about the role of inventory in the market-driven value network.
4. **I can use new technologies without changing my planning organization.** The use of new technologies requires time for planners to use them, and when implemented correctly leads to a new set of business processes. Do not make the mistake of buying and installing the technologies, but not getting the benefit because the planners did not have adequate time to plan, or you have not taken the time to rethink the processes to use the new technologies.
5. **Implement with knowledgeable resources.** At first when you read this recommendation you might say, "DUH!?" However, let's face facts. There are too few people in the world who are re-

ally knowledgeable about inventory management software tools. While many consultants will talk about inventory, we find few to be knowledgeable in the technologies. Instead, we find the technology's provider to be the most knowledgeable on the use of the technologies. There are also a few boutique consultancies around the world that have built strong teams around inventory optimization. These are usually small, and focused consultancies with a strong inventory heritage.

6. **The market leaders in inventory management technology have the best solutions.** The companies with the greatest market share—Oracle and SAP—have the weakest references. While both Oracle and SAP will hotly debate this fact, we find a growing gap between the vendors' perception of the use of their solutions market and satisfaction levels of their clients.
7. **All of the solutions have the same functionality.** There are major differences in the technologies to manage inventories in the extended supply chain. It is too complex to be described in a four-box model. As a result, companies should buy inventory management technologies based on process requirements, IT standardization and cultural fit. While many think that solutions with a common name—technologies purchased from a common vendor—are integrated, often the situation in the market is vastly different. Most of the inventory technologies have been sold and resold multiple times in the market, with many best-of-breed solutions having better integration than the ERP providers touting integration.

The market for multi-tier inventory management was overhyped and largely underdelivered in the period of 2005-2007. Due to market size, and the highly competitive and fragmented market, the level of R&D investment by technology providers has slowed. As a result, buyers should buy based on today's functionality.

These are my thoughts. Any misconceptions to add? I look forward to hearing from you!

Reflections on Integrated Supply Chain Planning

Yesterday, I presented to 700 global attendees on an APICS webinar. In the presentation, I shared data on the evolution of supply chain planning and the results on user satisfaction. The results confound me. They are not consistent with market perception. Let me share the story.

As shown in Figure 11, users are more satisfied, the implementations are shorter and there is greater Return on Investment of solutions from best-of-breed solution providers—especially if the best-of-breed solution providers used are industry specific. However, in the polling data in the APICS webinar, we found that over 70% of the respondents had deployed solutions from the ERP expansionists (either SAP or Oracle). The use of best-of-breed planning

Figure 11. Summary Data of User Satisfaction with Supply Chain Planning Applications Background

Experiences by Best of Breed vs. ERP Expansionist

		Best of Breed	ERP Expansionist
Who Implemented	Technology Provider	**49%**	14%
	Third-Party	22%	**40%**
	In-House	17%	**33%**
Time to Implement	12 Months or Less	71%	37%
	13 Months or More	23%	**59%**
Speed vs. Plan	Early / On Time	**56%**	37%
	Late	36%	**56%**
Cost vs. Budget	Under / On Budget	**59%**	40%
	Over Budget	32%	**49%**
Time to ROI	9 Months or Less	**34%**	11%
	10 Months or More	36%	48%
	No ROI (yet)	12%	19%
Satisfaction	Satisfied	**81%**	63%
	Neutral	9%	**21%**
	Not Satisfied	11%	16%

Source: Supply Chain Insights LLC, Planning Software Study (Feb – Oct 2014)
Base: Manufacturers, Retailers, Wholesalers/Distributors/Co-operatives and Third-Party Logistics Providers with Demand and/or Supply Planning Software and Know Number of Planning Instances – By vendor: Best of Breed (JDA, Kinaxis, Logility, OM Partners, Aspentech, Demand Solutions, Demand Works, Quintiq, SAS, Smart Software, Terra Tech) (n=94 instances), ERP Expansionist (SAP, Oracle, QAD, Quantrix, FuturMaster) (n=63 instances)
RED BOLD = Higher than other group at 90% or higher level of confidence

technologies was small at 15%. Today, SAP and Oracle have market share dominance; however, the data is clear. Neither technology vendor is an industry leader in delivering a solution that fits the needs of the supply chain planner.

So, why would a company deploy a solution that is more costly, with a longer time to value, to drive lower satisfaction ratings by the planner? The answer is interesting. The facts are 180 degrees out of sync with perception. The common perception is that SAP and Oracle supply chain planning solutions are superior to best-of-breed Advanced Planning Solutions. There is also a belief that SAP and Oracle provide a solution that is more 'integrated'. I don't think either statement is true. User interviews do not support the market perception; but, this is a case where perception becomes reality.

Using quantitative surveys, we collected the data in Figure 11 in 2014. The data reflects user feedback from 93 companies with over 180 demand and supply chain planning instances. In the table, the figures in bold are statistically significant at a 90% confidence level.

The study is primarily a comparison of best-of-breed solution providers (Logility, JDA, Kinaxis and OM Partners) versus SAP and Oracle. Unlike many research studies, it is a panel that is known. We have validated each respondent as a user of supply chain planning. (This is unlike many studies that are fielded to B2B panel groups where the identity of the respondents cannot be ascertained.)

The research is a study of large manufacturers. Companies were disqualified if they were not mature in the use of planning, or if they were less than $1 billion in revenue.

Five Lessons to Learn

So, why would companies implement solutions that cost more, were longer to deploy, and had lower user satisfaction? Here are my thoughts:

1. **Failure of the industry analyst model.** Buying these solutions is far more complicated than is represented in a simple four-box quadrant. It is complex. There are many parameters. There is greater satisfaction with demand planning than supply.

   The fit of the data model to adequately reflect a feasible plan drives success. This requires an industry-specific data model. (The modeling of materials in Kinaxis is quite different than JDA, and the modeling of reverse bill of materials and co-products in Logility and OM Partners.) To have this discussion with the buyer of technology requires a mature analyst and a research methodology that analyzes user satisfaction. I struggle to find both in today's market.

   The SAP and Oracle analyst relations groups are big machines. Taking a stance against a vendor and calling a spade a spade takes courage by the analyst. It is uncomfortable. The bigger the vendor, the tougher it is to publish a critical article. An old analyst, like me, has scars. I can tell you many stories.

   This week, I am finishing two reports: Sales and Operations Planning, and Inventory Optimization. These two reports will make all the vendors in the industry angry. The phone calls to review factual accuracy will be tough. I will hate my job for about a month, and then the smoke will clear. Through it all I have to remind myself that my job is not to be liked. Instead, I will remind myself that I write independent advice for the line-of-business leader. It is more important to be respected than to be liked.

2. **Follow the money.** Consultants recommended the solutions by SAP and Oracle. The reason? The implementations better fit their models. The implementations were longer and more expensive. They had enough scale to invest resources and build a

bench of expertise. The best-of-breed solutions were not as lucrative for the consultants. The implementations were smaller and the costs were less, and best implemented by the vendor.

The data tells us that independent of the solution, the worst scenario is to have a large system integrator implement a supply chain planning solution. Why? They are not good at it. For all vendor solutions (including SAP and Oracle), companies are better to have the technology implemented by the technology solutions vendor. While there are some exceptions (Capgemini has a strong practice in the implementation of Oracle transportation planning and E&Y has built some great technologies to augment the gaps in APO demand planning, and KPMG has some great knowledge of business networks), in general, big consultants are not good at implementing supply chain planning. I recommend the smaller, and more focused, firms like Bristlecone, MEI, Optilon, SCM02, SmartChain, Solventure, and Spinnaker.

3. **Definitions matter.** The business leader wants an integrated solution. Likewise, the Information Technology director wants an integrated solution. However, when you ask each group for a definition of "integrated" the definitions are different. The IT department's definition focused on the movement of data with a defined context through an API, while the business leader wants a solution that can represent the end-to-end supply chain. Both groups believe that if the solution comes from the same vendor, that it is integrated. Nothing could be further from the truth. In many cases, the best-of-breed solutions are more integrated than the ERP Expansionist solution using both definitions. Definitions matter.

4. **Overhyped market with bad behavior.** The solutions were expensive, and attracted a well-paid sales team that overhyped the solution and then underdelivered. The market is littered with stories of bad behavior. The buyer was wary: they wanted a new approach.
5. **The best software does not always win.** It is now clear that SAP APO was inferior to the i2 Technologies' SCM suite (now owned by JDA), but that was not market perception. In parallel, we now know that the Demantra solution purchased by Oracle lacks scalability and usability, but the perception is that it is well-integrated into the Oracle suite. Perception is reality. In the absence of data, marketing perception wins.

As we move toward the Third Act of Supply Chain Planning Software, our focus is helping the line-of-business user make data-driven decisions. This is why we continue to fund surveys which we share openly and freely. Our mantra is "You give to us, and we give to you." I hope to connect with you soon.