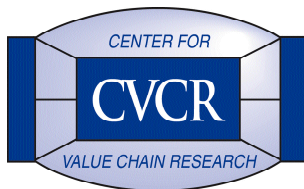


# Center for Value Chain Research

Spring 2011

Vol. 6, No. 1

## NEWSLETTER



### In This Issue:

- Directors' Column:  
SCM — Beyond the SKU
- The “Soft” Side of Supply Chain Management
- Undulating Global Supply Chains — Currency Adjustments Drive Motion
- News and Upcoming Events

**Questions?** Comments? Ideas for future articles? Contact us!

Lawrence Snyder  
[larry.snyder@lehigh.edu](mailto:larry.snyder@lehigh.edu)  
610-758-6696

Joel Sutherland  
[joel.sutherland@lehigh.edu](mailto:joel.sutherland@lehigh.edu)  
610-758-6428

Robert J. Trent  
[robert.trent@lehigh.edu](mailto:robert.trent@lehigh.edu)  
610-758-4952

### Center for Value Chain Research

Lehigh University  
621 Taylor Street  
Bethlehem, PA 18015 USA

[www.lehigh.edu/cvcr](http://www.lehigh.edu/cvcr)

### DIRECTORS' COLUMN:

## SCM – Beyond the SKU

It should come as no surprise that most supply chain management (SCM) professionals understand that the basic function of our industry is to efficiently and effectively manage the flow of goods (i.e., SKUs) from source of supply to point of consumption. Some of the more common activities associated with SCM processes are demand forecasting and scheduling, inventory management, warehousing, transportation, and returns management.

As the understanding and value of SCM has increased over the last two decades, industries outside the traditional ones (e.g., consumer package goods, retailers, manufacturers) are exploring and discovering new and creative ways to effectively apply SCM processes.

For example, Sabre Airline Solutions (a division of Sabre Holdings) has developed solutions to support what they call the “travel supply chain”. Some interesting statistics are that through Sabre Airline Solutions software-as-a-service, they effectively...

- Manage 40% of all commercial airline flights globally
- Manage \$100 billion in airline inventory
- Process 11 million fare shopping transactions daily
- Manage over 360 million customer boarding's each year

...and behind the scenes Sabre Airline Solutions has developed processes and procedures to deal with complex irregular operations, such as fluctuating passenger demand; maintenance schedules; different equipment types; crew positioning; schedule changes; and much more.

### Supply Chain Solutions for Homeland Security

One of the unique applications of SCM processes is by ERO (Enforcement and Removal Operations) — a part of DHS (the U.S. Department of Homeland Security). ERO is responsible for enforcing the nation's immigration laws by identifying and apprehending removable aliens, detaining these individuals when necessary, and removing illegal aliens from the U.S.

A critical issue that needed to be addressed was the influx of illegal immigrants entering and staying in the U.S. It was not long after the ERO was created (in 2003) that they recognized their supply chain challenge. They had not accurately forecast the high number of illegal aliens that would be captured after 9/11, nor did they have sufficient detention facilities to hold them. They needed to come up with solutions to “turn this inventory” over more frequently in order to maintain the same number and size of their detention facilities.

So there you have it — a classic inventory management problem, starting with inaccurate forecasting, resulting in excessive inventory for the storage space available. Making matters worse, if and when the origin of an illegal alien was determined, they needed to be transported back to their country of origin in the most efficient and effective manner possible.

To address this problem, ERO arranged for an Accelerated Learning (AL)

*(Continued next page)*

program — a form of facilitated fast-track brainstorming that taps into the creative capabilities of subject-matter experts. To address the challenges noted above, ERO brought in SCM professionals from academia and industry to brainstorm solutions for these SCM challenges. Joel Sutherland, Managing Director for the Center for Value Chain Research at Lehigh University, was invited to participate. Three days of intense discussions resulted in a variety of potential solutions that ERO took under advisement. While the specific recommendations are still confidential (due to non-disclosure agreements signed by all participants) many of the recommended solutions have since been implemented, alleviating the problem.

What should we learn from this? We should open our minds to SCM solutions beyond the realm of SKUs. Sabre is doing it for their “travel supply chain”; ERO applied SCM processes to solve their people “inventory management” problem; and other industries such as health care, energy, and not-for-profits are applying SCM processes to address their challenges.

— Larry, Bob, and Joel

---

## News and Upcoming Events

On April 22-23, 2011, the CVCR will be conducting a Professional Development Seminar on Lean Supply Chain Management. For more information please visit <http://www.lehigh.edu/cvcr/proDevSeminars.html>

The CVCR is offering APICS CSCP Certification Training. This course helps attendees prepare for the APICS Certified Supply Chain Professional certification exam. It consists of five eight-hour classes, with each class covering one module of the CSCP Learning System plus a review session. For more information please visit <http://www.lehigh.edu/cvcr/apicsCertificationTraining.html>

The following class schedule has been set for 2011 (all on Friday, from 8:00 am to 4:00 pm):

- Spring Class: April 15, 29; May 13, 20; June 10
- Fall Class: Sept. 30; Oct. 14, 28; Nov. 4, 18

On May 24-26, 2011, Joel Sutherland will be presenting at the Supply Chain Leaders in Action (SCLA) Forum in Orlando, FL. For more information go to: [http://www.dcenter.com/P\\_SCLA.htm](http://www.dcenter.com/P_SCLA.htm)

On June 5-7, 2011, Joel Sutherland will be presenting at The Logistics & Supply Chain Forum in Stone Mountain, GA. For more info, see <http://www.logisticsforum.com/>

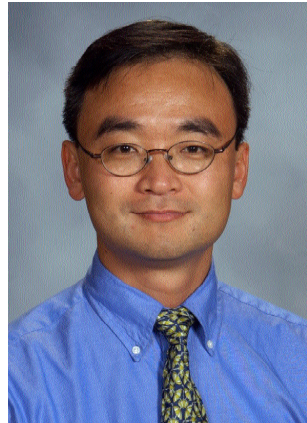
**CVCR Newsletters can be downloaded** from our website. Each current issue is available to the public. Older issues are archived and accessible to registered users with a CVCR login. Go to <http://docark.web.lehigh.edu/cvcr/newsletters.php>

## The “Soft” Side of Supply Chain Management

By **Oliver Yao**

*Associate Professor, Lehigh University*

<http://www4.lehigh.edu/>



It's not always the “hard” stuff — the products, advertising, and other stuff you see — that makes a company successful. Often it's the “soft” stuff — the depth and breadth of experience, methodological rigor, and innovativeness of its personnel. This is true also in supply chain management.

According to the Council of Supply Chain Management Professionals (CSCMP), “supply chain management encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management. It also includes the crucial components of coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers.” Although the definition does not explicitly mention “soft” components, it hides them between the lines. Obviously, all supply chain functions are facilitated by the particular expertise and talents of supply chain practitioners.

Extensive literature has been published on developing models that use hard data — inventory turn, fill rate, cycle time, etc. — to evaluate supply chain health. But hard data collected after the fact are only useful to assess yesterday's supply chain health. Is there a way to evaluate today's or tomorrow's supply chain health? Yes, there is! You have to read the supply chain's “palm”: the job behaviors of supply chain professionals. The logic is quite simple: supply chain professionals' job behaviors are correlated with their decisions, which in turn determine the quality level of supply chain performance.

The central argument in behavioral supply chain management is that performance may be affected by various typical biases (e.g., psychological, incentive-related, etc.) of supply chain decision makers. For example, by using the beer game (a supply chain simulation created at MIT in early 1960s), some researchers have attributed the bullwhip effect to some behavioral factors such as misuse of base-stock policies, misapplication of supply chain management theory, misperceptions of feedback and time delays, panic ordering reactions after unmet demand, and perceived risk of other players' bounded rationality, in addition to the operational factors. Hence, the behavioral

*(Continued next page)*

side of supply chain management cannot and should not be neglected. Today, we have a few practical ways to deal with this.

Think about it. How valuable would it be if you could determine today that your company's supply chain health is deteriorating, rather than wait until the disappointing data comes in next month?

## Managing Job Behaviors

Computer Aid, Inc. (CAI) is a successful company with headquarters in Allentown, Pennsylvania, providing a variety of widely adopted IT products and services. After CAI became a Research Member of Lehigh University's CVCR last year, we began working with their management to validate the concepts and assess the effectiveness of the Advanced Supply Chain Insight (ASCI), an IT solution developed by CAI. ASCI collects, stores, and analyzes data associated with job behaviors of supply chain professionals and reports the results with a drill-down and dashboard user interface. The engine driving ASCI is a role-specific data collection, with subsequent business analytics to infer supply chain health. The data is provided by a questionnaire sent periodically to supply chain managers to assess their job behaviors. The responses are then linked to a number of Key Performance Predictors (KPPs) with different impact weights.

The theory is this: ASCI can help improve performance by providing a tool to systemically manage the job behaviors of supply chain professionals. Without ASCI, management might have no way to spot problematic behavioral patterns among its supply chain personnel. If something goes wrong, they won't see it until the results come in, when it's too late. In economics theory, this is called "information asymmetry"; that is, the job behaviors of supply chain professionals, especially when there are many of them, can't be observed without great, or even prohibitive, cost. Information asymmetry is a major source of supply chain inefficiency. ASCI reduces the cost of obtaining or observing behaviors so that performance can be managed and improved.

With ASCI, supply chain professionals are asked to report their job activities, which then are benchmarked against best practices. For example, are they reviewing the KPPs often enough? Are they communicating effectively with customers and suppliers? Are they too often pulled away from their normal routine for less important matters? Aggregated to a dashboard, the information provides management with a clear view of the inefficiencies or ineffectiveness of their supply chain professionals so appropriate actions can be taken where necessary. ASCI also makes it possible for personnel to compare themselves with their peers so they can take the initiative in improving their own performance. In this sense, ASCI is a feedback system through which continuous improvement can be made.

One of the key tasks is to validate the seven key performance indicators (Case Fill, Revenue Growth, Lead Time, Inventory Coverage, Order to Delivery Cycle Time,

Forecast Error, Perfect Order) and the 74 "soft", role-specific measures developed by CAI in the ASCI starter toolkit. To this end, we conducted an online survey by sending a questionnaire to a large number of supply chain professionals. With 121 valid responses, we analyzed the data and organized a webinar discussion with supply chain professionals from eleven companies. Our study found that most of the KPIs and role-specific measures are valid measurements for supply chain health, as it is widely recognized by various industries. We also recommend that KPIs measuring supply chain health should be customized, based on the specific situations of each company and industry.

Admittedly, the ASCI approach is not a solution for all issues. Some supply chain issues, such as the long-term ones associated with network design and technology implementations, are beyond the scope of ASCI. For example, ASCI cannot detect whether or not a supply chain network design is appropriate in the presence of disruption risk. Hence, ASCI is a complementary tool that may add unique value to traditional methods of assessing and managing supply chain health.

There is a popular Chinese saying: to judge a person, look at him or her from both inside and outside. To judge a supply chain, we need to look at both the "soft" and "hard" sides.

For more information, or to take a sample supply chain health test, go to [www.advancedsupplychaininsight.com](http://www.advancedsupplychaininsight.com)

---

## The CVCR 2011 Spring Symposium Is May 11-12. See pg 5

### Here's what people told us after the 2010 Fall event:

"Once again, what a great symposium! I really appreciate the opportunity, in the course of one day, to get an overview of many of the current and salient issues in the value chain space. This helps me keep my vision a bit broader than the "inside the box" world I normally live within."

— Dean Starovasnik,  
Practice Director, Distribution Engineering Design,  
Peach State Integrated Technologies

"I thought the CVCR Symposium on Supply Chain Complexity was **one of the best conferences I have ever attended** (and there have been many). **Great job!**"

— Dan Larter, V.P. Eastern Sales Division, Dart Transit

"I attend a lot of supply chain conferences and symposiums, and I have to say the symposium I attended at Lehigh University was **one of the best I have ever attended.**"

— Kevin O'Meara, Senior Director Supply Chain Operations, Whirlpool Corporation

# Undulating Global Supply Chains — Currency Adjustments Drive Motion

By **Rosemary Coates**

*President of Blue Silk Consulting*

<http://www.bluesilkconsulting.com/>



Trends and costs cause supply chains to undulate (to move like a smooth wave). Global supply chains shift and flex with sourcing and selling strategies for our products, and now there are new dimensions to the movement.

As supply chain professionals, we are used to constant change. Nowhere is this more evident than in China, where the target market for

selling goods is increasingly important, and the cost of manufacturing is getting more expensive. The controversial issue regarding currency adjustments adds another layer of intensity to global supply chains and is causing manufacturers to consider alternative locations. How do supply chain professionals stay flexible to accommodate the trends, costs and policy issues?

Two important things underlay undulating global supply chains: currency adjustments and higher labor costs. Let's examine them one at a time.

## RMB Adjustments Against the Dollar

There is a lot of discussion in the U.S. Congress, the domestic press and the international press about the undervalued Chinese RMB (also called Renminbi or Yuan) and its restricted float against the U.S. dollar and other world currencies. China is being pressured to take action to increase the value of RMB by the U.S. government, the World Trade Organization (WTO) and the International Monetary Fund (IMF).

But Chinese Prime Minister Wen Jiabao and others in the Chinese government are fighting back. If the RMB is allowed to free-float against world currencies, they say, it will cause full scale recession in China. Here's why: in America and other Western importing countries, increasing the value of the RMB would cause an automatic rise in prices for imported Chinese goods between 5% and 15%. So there goes your procurement savings if you are China sourcing. And perhaps this would cause you to look for sources in other countries.

Some people believe that if China goes into recession because the U.S. buys less from there, the whole world may suffer. The cost of goods to U.S. and Western

European consumers (the two largest consuming markets of Chinese goods) will increase. This might result in the U.S. buying less, thus ordering less from China, China producing less, and so on.

China has offered to very gradually allow the RMB to float upward, minimizing the global impact over time. But our American politicians on both sides of the aisle have a different point of view. They argue that millions of jobs will return to the U.S. if the RMB is allowed to freely float, because it will no longer be cheaper to manufacture some goods in China.

Consider the lowly industrial spring, used in all kinds of devices from ball point pens to industrial machinery. But even if the price of Chinese-made goods increases by 5% or 10% or 20%, it is still much cheaper to produce indus-



trial springs in China than most other places. So what kinds of manufacturing would return to the U.S.? It is likely to be the more automated manufacturing and expensive customizable products such as industrial machinery. What China is good at is high volume, low cost, repeatable manufacturing. What the West is good at is innovation, creativity, productivity improvements, and specialty production.

On a recent visit to a toy factory in Shandong, China, I was told that the factory stopped taking long-lead time orders and large orders due to the uncertainty in currency valuations. With very small margins (3%-5%) on toy sales to customers, a small currency value increase of a few percentage points can make their business instantly unprofitable. As the RMB becomes more valuable against world currencies, low margin Chinese manufacturers of goods such as toys, low-end electronics, and apparel will go bankrupt.

Perhaps some manufacturing will return to the U.S. and Europe, or move to other low-labor cost countries. Either way, we need to have a flexible strategy for addressing the undulating supply chains.

*(Continued next page)*

## Rising Chinese Labor Rates

The other equally serious component of undulating supply chains is the rising labor cost in China. This is not a surprising trend.

During past industrial revolutions in Europe and the U.S., labor rates rose over time, causing prices to increase and industrial buyers to continually seek cheaper production locations. In the 1980s, U.S. manufacturers sought low-cost labor in Mexican border towns, and U.S. Customs developed special treatment and processing for these Maquiladoras. In the 1990s this low-cost North American production largely moved to even lower-cost China. And now China is experiencing its own rapid industrial revolution.

Labor rates, particularly in the Pearl River delta in southern China, increased up to 30% in the 2008 to 2010 period. In some cases, this makes manufacturing costs unattractive or untenable. This is particularly true of low-end consumer electronics, apparel, and footwear manufacturing. More sophisticated products requiring investment in machinery and engineering skills are not quite so vulnerable.

So what are supply chain professionals doing? Some companies have moved sewing factories and assembly plants to other countries, such as Viet Nam, Indonesia, and Bangladesh, where labor rates are lower than the Chinese border towns. Other manufacturers have moved to the interior of China, to cities such as Chengdu and Chongqing. In these cities, the local governments are furiously building logistics infrastructure, giving business and tax incentives, and labor rates are still very low.

As with every industrial revolution, in addition to labor rate increases, workers begin to ask for other things such as health care and bonuses. These benefits can add 20-30% to the cost of labor. China is no exception. The Chinese middle class is growing by double digits every year, and with that, workers are expecting more. China's middle class is already 380 million (more than the entire population of the U.S.) and is expected to double in the next 10 years.

This is good news and bad news for manufacturers. While higher wages mean higher costs, the emerging Chinese middle class, with more to spend, represents the fastest-growing and most important future target market in the world. And just like Americans, the Chinese middle class want cars and houses, fashionable clothing, and remodeled kitchens. As a result, supply chain professionals must consider both sides of the equation — supply and demand for our products — before making a move.

So, my best advice for global supply chain professionals is to loosen up, remain flexible, be ready to move or not, think fluidly. Global supply chains are undulating.

*Ms. Coates is the author of "42 Rules for Sourcing and Manufacturing in China" (a [www.amazon.com](http://www.amazon.com) top seller). She is currently working on her second book, "42 Rules for Superior Field Service" (Oct. 2011).*

## ANNUAL CVCR SPRING SYMPOSIUM

### Preparing Your Supply Chain for the Economic Recovery

May 11-12, 2011

Hotel Bethlehem, 437 Main Street  
Bethlehem, PA 18018

The event starts with a Networking & Student Recruiting Reception on May 11. This event provides a great opportunity for companies to get to know some of Lehigh's best and brightest undergraduate and graduate-level students.

A full day of presentations and discussions on May 12 features an impressive list of speakers from Motorola, Toys "R" Us, Estee Lauder, Dean Foods, and Johnson & Johnson.

Breakout Sessions, facilitated by industry subject matter experts, address the areas of technology, outsourcing, globalization, and commercial real estate. Companies on the program include 4SIGHT Supply Chain Group, OHL, Jones Lang LaSalle Americas, and American River International.

The Symposium is co-sponsored by the Council of Supply Chain Management Professionals ([www.cscmp.org](http://www.cscmp.org)) and supported by industry sponsors. For more information on becoming an industry sponsor, contact Joel Sutherland at 610-758-6428 or [joel.sutherland@lehigh.edu](mailto:joel.sutherland@lehigh.edu)

For more information about the Symposium, visit [www.lehigh.edu/cvcr/Spring2011Symp.html](http://www.lehigh.edu/cvcr/Spring2011Symp.html)

For comments from attendees at the Fall 2010 seminar, see page 3.