

# Supply Chain Management and Marketing Sciences

Improving efficiencies and effectiveness in the end-to-end supply chain cycle

2009, Issue No. 2 [business.rutgers.edu/scm](http://business.rutgers.edu/scm)

Business

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## New department of Supply Chain Management and Marketing Sciences

The newly established Department of Supply Chain Management and Marketing Sciences (SCMMS), expanding on the overwhelming success of Rutgers Center for Supply Chain Management, exemplifies the mutual advantage of a vital collaboration between Rutgers Business School (RBS), private companies, and public entities that bridges the gap between academic and business practices.

Rutgers SCMMS is conveniently located in the middle of the nation's major air, sea, and rail transportation hubs. Nationally recognized as a leader in industry collaboration, the SCMMS department fills a crucial need for businesses competing in a global economy that face rising logistics, outsourcing, and security challenges. This collaboration is helping companies with complex logistics to succeed by improving efficiencies and effectiveness in the end-to-end supply chain cycle.

"The Center for Supply Chain Management at RBS is widely viewed as an excellent source of supply chain expertise and a forum for networking with colleagues within various industries," said Lei Lei, PhD, Professor and Chair of the Department of Supply Chain Management and Marketing Sciences. "Over the past few years, the center has developed into a knowledge hub that is an excellent resource to industry professionals."

RBS's vision is to become a nationally ranked, top-rated supply chain department. "We are accomplishing this goal through our excellence and unique strength in world-class research, innovative teaching, and high quality service in supply chain management to client companies and industry," said Rutgers Business School Dean Michael R. Cooper, PhD. "The new Supply Chain Management and Marketing Sciences department plays an important role in delivering to students the business, science, and technology credentials demanded by today's leading corporate employers," added Cooper.

### Focused on mission

SCMMS's mission is threefold. First, to disseminate knowledge through leading edge research in three focused areas:

- 1) Supply Chain Optimization
- 2) Global Procurement and Sourcing
- 3) Marketing Science that interfaces with the Supply Chain and the business



Supply Chain Management student on a recent industry sponsored visit to the Port of Newark, New Jersey.

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The second goal is to excel in classroom teaching of comprehensive and well-rounded programs, which offer high-quality education that focuses on end-to-end Supply Chain Management and balances both theory and practice.

Third, to continue to increase collaboration between industry and government, with the goal of bridging the gap between academic and business practices, and creating new synergies across disciplines that promote economic development and drive leading-edge research teaching.

### Advisory Board Members:



## Undergraduate Honors Track Scholarships

The newly introduced supply chain honors track had 10 scholarship recipients at the undergraduate level this year. Scholarship recipients include Felicia Cheng, John Dever, Joyce Kong, Eitan Levine, Ankit Munjapara, William Stopa, William Van Emburgh, Alice Wong, Philip Geltman and Roman Khan. Congratulations to all the honors track scholars!

## Transportation Summit

In April of this year, the Transportation Summit was hosted at Traves Hall, Douglass campus Center with esteemed speakers like Karen E. Kelly (North America Trade Compliance Leader/ Global Transportation, BD), William A. McLeod (Program Manager, Department of Homeland Security, Immigration and Customs Enforcement), Michael Palermo (Federal Task Force Officer, Federal Bureau of Investigation), and David A. Pollard (Managing Director, FedEx Solutions, FedEx Corporate Services, INC.). Various panels in the summit included The Ins and Out of Supply Chain Security, Vulnerabilities in the Supply Chain, and Supply Chain Risk Mitigation and Business Continuity.

## 8<sup>th</sup> Annual Supply Chain Management Certification Program

In June, the Center for Supply Chain management hosted its eighth annual certificate program in supply chain management for business professionals, which has had over 200 graduates to date. The program covers major aspects of supply chain management, including strategy, sourcing and procurement, logistics, operations management, inventory management, and organizational alignment. Led by Rutgers Business School

faculty and top senior executives from local corporations, participants learned how to execute a supply chain management plan that is grounded in today's business needs for competitive effectiveness and operations efficiency. The program has consistently received outstanding evaluations from its attendees and was a major success this year with over 29 attendees.



Attendees leave the Supply Chain Management certificate program ready to execute a supply chain management plan grounded in today's business needs.

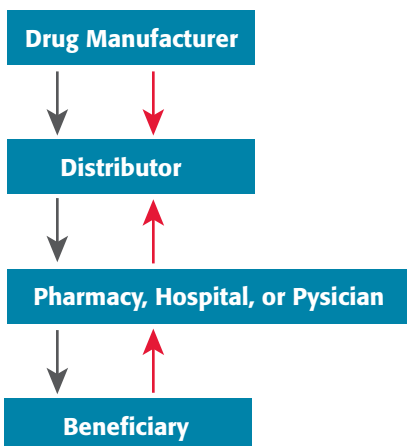
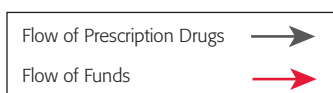
## RBS Research: The future of pharmaceutical and biotech distribution

**Yao Zhao, Associate Professor in Supply Chain Management & Marketing Science**

**Joint Work with Katie Martino, Ph.D. candidate in Supply Chain Management**

Professor Yao Zhao, Associate Professor in Supply Chain Management & Marketing Sciences, was inspired three years ago by real world events to begin research on the contracts and distribution mechanisms in the pharmaceutical industry. Prior to 2004, the pharmaceutical industry followed a buy and hold contract in which distributors would buy drugs at wholesale acquisition cost and then sell them to pharmacies after a markup. With the prices of brand drugs increasing every year around January, investment buying (forward buying) was a common tactic, which allowed distributors to earn 85% of their 4.5% profit. Specifically, distributors under the buy and hold contract purchase products before the increase in price and stock up on inventory to make profits a few months later. However, some of the obstacles arising from such a practice include counterfeiting drugs, accounting scandals, and excessive inventories in the channel.

**Figure 1: Money and Drug flow under the Fee-For-Service (FFS) Contract**



In 2002 U.S. Congress passed the Sarbanes-Oxley Act, which curbed the investment buying practice and only allowed distributors to stock up inventory for a maximum of three months. In response to the new legislation, distributors introduced a fee-for-service (FFS) contract which basically asked the manufacturers to pay a fee for their service to make up for the lost

profit. In return, distributors promised to provide added services, such as point of sales and inventory levels data. Manufacturers' response to the fee-for-service contract is mixed. Many of them are not happy to be paying for services which were previously free. So many of them are actively looking at alternatives, such as 3rd party logistics services.

A 3rd party logistics service does not own the inventory but instead just provides the logistics service (similar to the postal service); the 3rd party is paid for the logistics while the sales go directly back to the manufacturers. Such a contract structure is called a "fee for distribution (FFD) contract."

Without an incentive for investment buying, the fee for distribution contracts eliminate many of the previous obstacles while streamlining the supply chain. Not only is channel inventory minimized but manufacturers have the opportunity to interact and satisfy retail demand, which was not possible earlier. While none of the 3rd party services have

Using real world examples, Zhao and Martino found that the fee-for-distribution contract improves the total supply chain profit by about 3.7% relative to the fee-for-service contract.

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## Faculty Spotlight: Professor Yao Zhao



Dr. Zhao's general interest lies in supply chain management with a special focus on design, control and coordination of stochastic production-inventory systems, integration of supply chain management with project management, and applications in pharmaceutical industry. He has published in leading journals such as *Operations Research*, *Manufacturing & Service Operations Management*, *IEEE Transactions of Automatic Control* and *Naval Research Logistics*. Dr. Zhao is the recipient of Honorable Mention of the 2001 student paper competition in Manufacturing & Service Operations Management. In 2008, he received a National Science Foundation (NSF) CAREER Award on a project that integrates supply chain management and project management.

Dr. Zhao teaches core operations management and supply chain management courses for undergraduate, MBA, executive and PhD programs at Rutgers Business School. Prior to joining Rutgers, he taught at Northwestern University School of Engineering.

Dr. Zhao has collaborated with various companies in supply chain management applications and case studies. For example, he collaborated with General Motors in the area of Spare Part Operations, and with Estee Lauder Companies Inc. in the areas of forecasting and inventory control for new product introduction. Currently Professor Zhao is researching the future of pharmaceutical and biotech distribution in relation to FFS and FFD contracts and their effects on the entire supply chain.

RBS Research continued from page 3

an infrastructure that can compete with that of the largest three distributors – AmerisourceBergen, Cardinal Health and McKesson, the fee-for-distribution contract is generic, meaning that manufacturers can sign with distributors.

*Which contract is better, fee-for service (before) or fee-for-distribution (after)? Who benefits - manufacturer, distributor, entire supply chain? By how much? And why?*

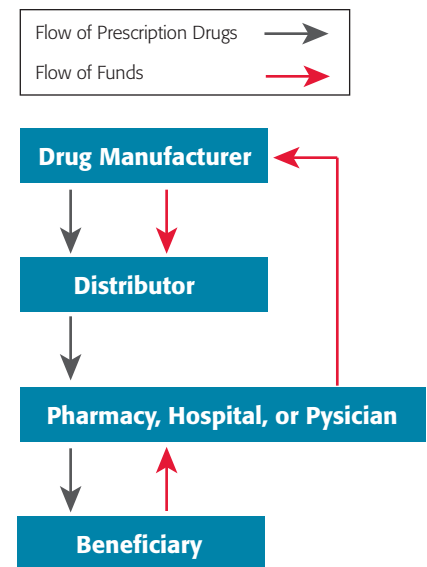
### Research Findings

First starting with a mathematical model in order to quantify and find the answers to the questions above, Professor Zhao tried to predict the behavior of each of the parties under each contract. Their findings and research led them to believe that the fee-for-distribution (FFD) contract is a win-win strategy through which the pie for the

whole supply chain would grow. Indeed, FFD achieves the global optimal for the pharmaceutical supply chain by minimizing channel inventory and streamlining operations of the manufacturer and the distributor. Using real world examples, they found that FFD improves the total supply chain profit by about 3.7% relatively to FFS contract.

For one brand drug example, this represents about \$10 million more profit in a two-year period. The FFD is also flexible because it allows the manufacturer and the distributor to negotiate a split of the increased total profit in any way they like. Finally, FFD is implementable because no matter what FFS contract is currently in place, there is always a FFD that improves the profitability for both the manufacturer and the distributor.

**Figure 2: Money and Drug flow under the Fee-For-Distribution (FFD) Contract**



## Rutgers SCM Advisory Board awards MBA Scholarships

The Rutgers Center for Supply Chain Management Advisory Board awards scholarships annually to full time MBA students pursuing the supply chain management concentration. This year the following four full time students were awarded scholarships: Peter Hogan, Disha Kundra, Sarika Tandon, and Li Yin.



Peter Hogan



Disha Kundra



Sarika Tandon



Li Yin

## Industry Outreach

We value our corporate relationships! The Center for Supply Chain Management and the Annual Supply Chain Management Certification are just two examples of our industry outreach.

### Center for Supply Chain Management

The Center for Supply Chain Management partners extensively with industry to develop practical solutions to problems encountered by the business community relative to the management of the end-to-end supply chain. Industry is also heavily involved in developing various certificate programs for continuing education. We are proud to be associated with a corporate team of Center members, including AstraZeneca, Bayer HealthCare, Becton Dickinson, Bristol-Myers Squibb, Colgate-Palmolive, Deloitte Consulting LLP, Exelon Corporation, Hoffmann-La Roche, ITOCHU International, J. Crew, Johnson & Johnson, Merck and Co., Inc., MetLife, Novartis Pharmaceuticals, Panasonic Computer Solutions Company, PSEG, Sandoz, Schering-Plough, and Sciele Pharma.

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## Collaboration Summit

On June 4, 2009, the Center jointly hosted a conference with the Council of Supply Chain Management Professionals - NJ Roundtable on Driving Results through Collaboration in the Supply Chain. The event took place on the Rutgers-Douglass campus in New Brunswick, NJ. Speakers included Larry Monaghan (Director, Transportation and Logistics, LG Electronics), Joel Childs (Vice President, Marketing, FedEx Custom Critical), Dr. Aaron J. Shenhar (Professor, Rutgers Business School), Sarah Polworth (Director, Vendor Relations & EDI, Saks Fifth Avenue), Mike Slattery (Director, Customer Service Operations, Campbell Soup Company), Ron Keegan (Director, Information Systems & Telecommunication Business Support, Arkema Group), and Pam Cheng (Vice President, Supply Chain Management, Merck & Co., Inc).

Topics at this very successful summit held earlier this year included Creating Trust, Openness, and Honesty with Supply Chain Partners to Drive Exceptional Results, Well-executed Project Management in Collaborative Initiatives in the Supply Chain, and Meeting and Exceeding Metrics and Goals Through Cooperation with Customers and Vendors, and Through Internal Group Effort.

## Rutgers Business School team impresses supply chain management industry executives to win case competition

A team of masters students from Rutgers Business School won the Rutgers Center for Supply Chain Management annual case competition. Student teams from four distinguished northeast schools competed before a panel of industry judges from DP&C Enterprises, L'Oreal USA, MetLife, Novartis Pharmaceuticals, PSEG, Schering-Plough, and Schindler Elevator Corporation.

In addition to Rutgers Business School, the other schools competing in the challenge were the College of Engineering, New Jersey Institute of Technology; Martin J. Whitman School of Management, Syracuse University; and P.C. Rossin College of Engineering and Applied Science, Lehigh University.

"The competition is an excellent opportunity for students to showcase their

"The competition is an excellent opportunity for students to showcase their business skills before a panel of senior industry executives. Business executives also enjoy the chance to see top students in action."

Dr. Lei Lei, PhD, Professor and Director of the Rutgers Center for Supply Chain Management



The winning students won based on their analysis of critical business issues, quality of solutions, articulation of ideas, presentation style and responses to judges questions.

business skills before a panel of senior industry executives," said Dr. Lei Lei, Professor at Rutgers Business School and Director of the Rutgers Center for Supply Chain Management. "Business executives also enjoy the chance to see top students in action."

Student teams were assessed in the competition on their analysis of critical business issues, quality of solutions, articulation of ideas, presentation style, and responses to questions from the judges. The winning team from Rutgers Business School included first year MBA students Som-Ming Leu, Ishma Sharma, Sarika Tandon, and Li Yin.

Rutgers Business School-Newark and New Brunswick is an integral part of one of the nation's oldest, largest, and most distinguished institutions of higher learning: Rutgers, The State University of New Jersey. Founded in 1929, Rutgers Business School has been accredited since 1941 by AACSB International—the Association to Advance Collegiate Schools of Business, a distinction that represents the hallmark of excellence in management education. Today, with a focus on Business, Science, and Technology, Rutgers Business School is educating more than 4,000 undergraduate and graduate students at two main campuses in New Jersey as well as six satellite locations in New Jersey, China, and Singapore. Steeped in academic excellence, with a distinguished faculty and a corps of over 29,000 successful alumni, Rutgers Business School is highly ranked by the *Financial Times*, *U.S. News & World Report*, *Business Week*, and *The Wall Street Journal*. It is recognized as among the top three business schools in the New York City metropolitan area, and ranked #10 nationwide for "Most Competitive Students" by The Princeton Review.

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