

# The Evolution of Supply Chain Education

Academia reacts to today's complex global supply chain in developing vibrant courses with real-life urgency

By April Terreri

As industries face a dearth of skilled workers to fill diverse positions along the extensive supply chain, they look with hope to collaborating with educational institutions so their collective voice can direct course offerings that meet the requirements of their ever-evolving global supply chains.

Having qualified personnel is critical, as supply chain management (SCM) is a definite differentiator, notes David Aquino, research director for Boston-based AMR Research. "It can provide revenue differentiation, it can improve speed-to-market, and it can provide the success of the commercialization of products," he says.

## From Logistics to Supply Chain Management

AMR Research recently conducted a study that surveyed about 200 companies in its report "Supply Chain Talent: State of the Discipline," published in April. The study found the industry does not have a universally accepted definition of what a common supply chain professional curriculum should look like. "The initiative was motivated by industry telling us they don't have the right talent," says Aquino. "They also admitted they have not done a good job articulating their requirements to their academic partners."



Experts agree that part of the reason the supply chain quickly thrust ahead of educators is due to the quick evolution of supply chain management from its heritage in separate silos. "About 15 or so years ago, the term 'supply chain' didn't exist. Supply chain management has evolved into a process that now includes a set of these interdependent silos," continues Aquino.

The AMR study found that "a common supply chain talent attribute model is the foundation for improvement." The model incorporates four major functional "stations": plan, source, make and deliver. Seven new elements, says the report, reflect the expanded responsibility of supply chain operations, namely new product development and launch, post-sales support, customer management, strategy and change management, performance measurement and analytics, technology enablement and governance. The Supply-Chain Council's Supply-Chain Operations Reference (SCOR) model is the accepted base of the elements of a defined supply chain.

The model represents just how complex SCM has become and how SCM curriculum needs to expand to teach all these stations. The goal

is to have academia, leading industries and professional societies agree on what a common curriculum should look like and how to teach it in order to improve graduates' level of quality and proficiency. Delivering content might vary from traditional methods to online education, simulations, group projects and studying case studies.

We interviewed three educational institutions, each with a different way of delivering educational content. What is common among them is that each provides students with real-world experience.

### **Penn State's Executive Education Programs**

In addition to its executive education program in supply chain management, Penn State University offers degree programs at the undergraduate, MBA and Master's in Manufacturing Management levels. It also offers an online professional master's program.

A corporate sponsors group supports the supply chain management program and offers ideas for new courses. "We draw heavily on the people representing the industries in this group to speak in our courses," says William "Skip" Grenoble, executive director at the Center for Supply Chain Research at Penn State.

The executive education programs include six separate courses, each three-and-a-half days in length. Three certification programs require various combinations of the six courses. The Supply Chain Management certificate requires taking Essentials of Supply Chain Management, Processes and Tools for Supply Chain Success, and Achieving Supply Chain Transformation.

The Supply Chain Leadership certificate comprises Designing and Leading Competitive Supply Chains and the transformation course.

The newest program leads to the Supply Chain Operational Excellence certificate and requires Processes and Tools, Applying Lean Principles across the Supply Chain, and a collaborative course called VICS CPFR (Collaborative Planning, Forecasting and Replenishment). "We have collaborated with VICS (Voluntary Interindustry Commerce Solutions) in Lawrenceville, N.J., to do this course," explains Grenoble. VICS also provides faculty to participate in this program.

Students typically take one course or a certification program primarily for their own personal development, Grenoble says. Many of the courses require students to do preliminary reading before they enter the course.

In addition to using its own faculty members to teach, PSU uses industry practitioners, consultants and professors from other educational institutions. "We integrate exercises, case studies and discussions," Grenoble explains.

A simulation exercise – called LINKS – has its setting in the consumer electronics business, where each team of students manages a company in that industry. "There are about four or five decision periods students encounter, during which they must make supply chain decisions around areas like forecasting, inventory management, transportation and procurement," continues Grenoble. "Each of the four or so teams competes with each other in making these decisions, and they learn how important tradeoffs are in supply chain management and how making a decision in one area can impact another area. For instance, they might choose a less-expensive mode of transportation, and then they learn how it turns out to be a slow mode, meaning they will require more inventory."

### **Bisk Education's University Alliance**

Matt Cole is the lead online instructor in the certification program in supply chain management offered through Bisk and the University of San Francisco. Cole is also PAB supply manager for Diageo, and

he previously worked for Unilever as its supply chain and materials planner.

Cole and a few other instructors, with over 100 years of combined experience, developed a supply chain management course, relying on their collective backgrounds in logistics and the supply chain. "I am a CPG and military guy with strengths in manufacturing," Cole says. "We have another instructor who is a Six Sigma Black Belt, who really understands production." The program, launched last September, consists of three eight-week courses: Functional Perspective of Supply Chain; Tactical Implantation of Supply Chain; and Supply Chain Best Practices.

For each week's class, students watch eight 15-minute segments focused on a particular topic. The first course gives students a working definition and basic understanding of the supply chain – through the plan-make-source-deliver model – so students can communicate in the language of the supply chain, and subsequent courses can build on this foundational knowledge, Cole says.

The second course is all about applying the concepts learned to functions like warehousing networks, general supply planning and demand planning, Cole explains. "Students learn elements of best practices by studying basic forecasting techniques, strategic sourcing and [materi-

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## A Student's Perspective of SCM Education

On the way to pursuing an MBA at Ashford University, Timothy Lucas stumbled onto the fact that he knew more about a buzz-phrase than he thought he knew. That phrase is "supply chain management" (SCM). "I spent 20 years in manufacturing and heard the phrase mentioned often," says Lucas, district operations manager for Sears Holdings Corporation. He decided he wanted to become certified in SCM and discovered the Bisk certification program. As he read more about what the SCM curriculum entailed, he was amazed by what he read. "I realized this is all knowledge I have been using for the past 20 years in my job. So it turns out I had the knowledge, but I just didn't have the certification."

This past April, he began taking the Bisk certification program and recently received his master certificate in Supply Chain Management. "Certification helps me to be viewed as someone who is serious about self-enrichment and who is a subject expert. It lets my current employer understand I have invested in the latest and greatest knowledge available and that I can add value to the organization."

Lucas encourages people, at a point in their career where they need to differentiate themselves from their peers, to think about this certification program. "Take advantage of the weekly sessions with the instructors so you have the chance to talk live with them. Participate in the program to its fullest, because that's how you will get the most out of the experience."

– April Terreri

# Building and Strengthening SCM Careers

## Supply Chain Management

For years, the supply chain management (SCM) business has been primarily about cutting costs – but not anymore. The future is in the emergence of SCM 2.0. It leverages proven solutions designed to rapidly deliver results with the agility to quickly manage future change for continuous flexibility, value and success. This is delivered through competency networks composed of best of breed supply chain domain expertise, and the intimate understanding of how to manage these elements to achieve desired results.

The ability to adapt to new advantages and complexities are critically important, and companies are relying more heavily on the strategic thinking of their supply chain leadership. The good news is that the jobs will be more plentiful and lucrative. On the other hand, more will be demanded of these professionals.

## Your SCM Education Is a Competitive Edge

Your SCM team is only as strong as its weakest link. American Public University (APU) offers affordable online degree and certificate programs that not only help build SCM careers, they strengthen them.

Professor Matthew J. Stork, Transportation and Logistics Management degree Program Director at American Public University offers some advice for those looking to advance a career or build expertise in this field. “Pursuing an APU Transportation and Logistics Management Bachelor’s or Master’s degree is essential to anyone looking for advanced SCM education. Tomorrow’s leaders in this field will have the ability to impact their company’s bottom line by finding intelligent ways for SCM to drive a company’s ability to successfully compete in the global market. APU’s Transportation and Logistics Management degree provides graduates with a real world SCM education while expanding their knowledge of complementary areas such as air and sea transportation, hazardous materials, economics, international trade, and other vital areas to succeed in a global career path.”

Today, most companies are in great need of a well educated workforce who can work with their ever growing supply chain partners. The goal of APU’s Transportation and Logistics Management program is to ensure its students are trained and educated as leading experts in the field of supply chain management.

## About APU

At APU you’ll find over 33,000 fellow students who are successfully balancing work and family responsibilities while conveniently studying online. Our students pursue degrees and certificates in a myriad of traditional and specialty disciplines.

## APU Online Degree Programs include:

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## APU Online Certificate Programs include:

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## Why APU?

APU offers respectable degrees at an affordable tuition. With monthly course starts and no specific login times or days, you can easily manage class work with your other obligations. Plus, APU offers books grants to all eligible undergraduate students to help manage educational expenses. Our faculty members are industry insiders who combine academic credentials with real world experience.

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**Kevin Ryan**

*Master's in Transportation and Logistics Graduate, American Public University System*

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# Penn State Offers Top Ranking Supply Chain and Logistics Education

## You as Leader

As a supply chain professional, you know that efficient and effective systems are essential for success in your organization. To remain competitive, you must stay on top of the current research and developments in supply chain management. Higher levels of performance are achieved through improved managerial problem-solving and decision-making abilities, enhanced change-management practices, and a developed network of well-informed supply chain leaders who are prepared to handle the challenges of the global supply chain management process.

## Penn State Ranks No.1 in Supply Chain Education

Supply chain and logistics education is a distinctive competence of Penn State and the Smeal College of Business. *Supply Chain Management Review* named Penn State as the top-rated provider of supply chain management and logistics education by both academics and practitioners, and *U.S. News & World Report* recently ranked Penn State as a top-tier supply chain and logistics graduate business program. The Smeal College of Business at Penn State is one of the foremost institutions in business education, and a pioneer in supply chain and logistics research.

Penn State Executive Programs is a world leader in facilitating organizational competitiveness and change through the education process. We work with clients to develop partnerships which enhance the effectiveness of their leadership. The core competencies we bring to bear on these challenges are our understanding of business and general management, our access to an extensive network of faculty both from academic and business institutions, and an outstanding ability to facilitate the learning process. We have a proven track record of delivering outstanding executive and senior leadership programs for many commercial, industrial, and government clients.

Penn State Executive Programs and the Center for Supply Chain Research partner in open and custom development programs to shape business thinking and help advance careers. Since 1989, the Center has become one of the nation's leading institutes dedicated to supply chain management research and education. The Center works in conjunction with award-winning faculty

members to conduct research in the areas of distribution, warehousing, transportation, procurement and supply, customer service, systems modeling and design, logistics information systems, global logistics, and others. The Center also has ties to the business community with active participation of over forty corporate sponsors and four benchmarking groups.

Endorsed by the Council of Supply Chain Management Professionals, the Center and Penn State Executive Programs offer these courses on an open-enrollment basis:

- Designing and Leading Competitive Supply Chains
- Achieving Supply Chain Transformation
- Processes and Tools for Supply Chain Success
- Essentials of Supply Chain Management
- Applying Lean Principles Across the Supply Chain
- VICS CPFR® Certification Program (Collaborative Planning, Forecasting, and Replenishment)

Participants learn from an internationally recognized faculty and supply chain practitioners from top companies who provide practical expertise. Classes are comprised of a distinguished peer group of supply chain executives who work closely together on real-world challenges.

## Certificate Options

Penn State Executive Programs and the Center for Supply Chain Research provide special recognition for one's commitment to supply chain learning through three certificate options. You may earn a Certificate in Supply Chain Management, a more advanced Certificate in Supply Chain Leadership, or an all new Certificate in Supply Chain Operational Excellence by completing a combination of programs listed above.

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## Penn State Executive Programs

Smeal College of Business  
The Pennsylvania State University  
382 Business Building  
University Park, PA 16802-3603  
Phone: 814-865-3435  
Toll-free: 800-311-6364 (U.S. and Canada)  
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## Special Executive Focus: Education

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als resource planning (MRP)] and [enterprise resource planning (ERP)] systems." Students also learn operations and processes like Six Sigma and Kaizen events so they can understand how to apply this knowledge to their work.

"The last course gives an understanding of strategic best practices and compares certain industries," Cole says. "We have entire courses focused on consumer packaged goods, pharmaceuticals and military applications. We discuss case studies and compare supply chains of companies like Coke and Pepsi, for example."

There are time-related drawbacks to online education, admits Cole. Not everyone can participate in the live class, but they can still view it after the fact. But one of the benefits is that students can work at their own pace. "They can watch the lectures and take their tests on their own time. They also get the chance to participate and ask questions during a virtual classroom and they have the opportunity to share information across industries and across the country."

Cole's military experience plays a large role in teaching supply chain

sectors of society. The university draws students from every industry, including ship captains, airline pilots and railroad personnel.

Instructors include retired SCM professionals or executives currently working in the industry. APUS also draws its instructors from government agencies and industry societies to provide students with a relevant experience-based learning environment. Students have the opportunity to discuss topics in chat rooms with guest speakers, view embedded video lectures or participate in dynamic discussion boards where students and instructors can engage in discussions, Stork says.

In addition to BA and MA programs in Transportation and Logistics Management, APUS offers a logistics certification program requiring the completion of six courses for a total of 18 semester hours. "This is an advanced certification program at the master's level," explains Stork. "Essentially it is designed for active professionals who recently advanced to higher-level management positions and who need additional capability and knowledge to apply to their current positions."

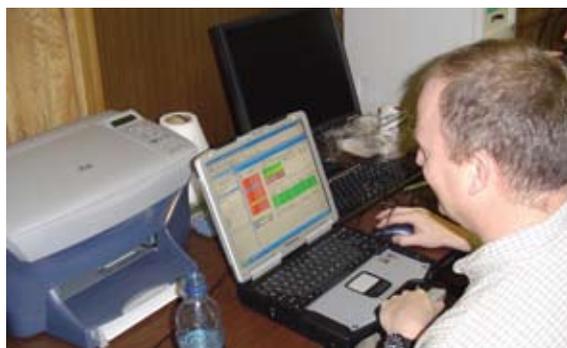
Programs include a range of supply chain management topics, including operational and facility inventory management, in-transit

visibility, technologies related to RFID, and global transportation policy and planning. "Our courses are designed with real-world case studies that let students analyze, and apply creative solutions to, some of the most difficult SCM issues facing industry today," Stork says. Classes include visits to companies like UPS, FedEx and 3PLs where simulations help students understand how the latest technologies are applied for moving, tracking and delivering packages.

Stork reports he recently began realigning a few courses in the BA program to meet the rigorous process of obtaining a blanket waiver with the American Society of Transportation and Logistics. "If successful, students who graduate with a BA in Transportation and Logistics Management will be eligible to receive the prestigious CTL (Certification in Transportation and Logistics). This highly regarded certification is worth thousands of dollars to achieve," Stork says.



**Top left:** Matthew Stork, program director for the Transportation and Logistics Management program at American Public University System. **Top Right:** APUS students. **Bottom:** A student works on a case study/research paper on RFID Business Process Analysis and Integration.



management. "I was a contracting officer, a logistics officer, a supply officer and a transportation officer in the U.S. Army and deployed 10,000 people at a time. One thing I learned throughout my experience is just how important relationships and relationship building is in this industry."

### American Public University System

The dynamics of delivering quality education are changing, says Matthew Stork, program director for the Transportation and Logistics Management program at American Public University System (APUS) in Manassas, Va., an online university. "The traditional brick-and-mortar institutional model becomes problematic to the adult learner, who is working longer hours. Some of our students are deployed all over the world, and they wouldn't be able to get an education were it not for a university like ours."

APUS is unique in that about 60 percent of its students are military personnel. Another 20 percent come from government-related industries, and the remaining 20 percent are adult learners from all

### Continuing Education

There is no doubt that discussions among industry and academia will continue to guide curriculum to reflect shifts and changes in the global supply chain. AMR's Aquino says using an overarching governance group for guidance can better articulate the curriculum, content and delivery systems. "The educational institutions continue to hear industry's requirements, so it's a question of working together to determine how best to build a program that more represents our needs than we have received until now."

Timothy Lucas, a participant in the Bisk program [see sidebar on page 15], believes a governance model is practical, as long as the model can flex according to changing requirements. "I suggest that it include executives, middle management, professors and students so there is a representative cross-section of perspectives and experiences." 