

CENTER FOR SUPPLY CHAIN MANAGEMENT

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Rutgers Supply Chain Management Thought Leaders



Industrial Internet: The Opportunities and Challenges in Supply Chain Management

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On a cold winter afternoon before Christmas, I was enjoying a cup of coffee while shopping online for Christmas gifts. With one simple click, a gift was going to be delivered to a friend's door the next day. I was not unfamiliar with such an experience, but I was still amazed by the supply chain performance, and I realized this was impossible without the world's two major waves of innovation. The mass production was enabled by a myriad of machines, facilities and networks that arose from the Industrial Revolution. Then, the Internet Revolution brought us the powerful computing, information and communication systems.

While the impact on productivity from these two revolutions has become incremental instead of transformative, the world is experiencing another revolutionary change: the Industrial Internet. The central idea of the Industrial Internet is to establish the communication and interaction between intelligent machines and human beings. Machines equipped with sensors can send data to and collect data from each other and make local decisions; humans also receive data from individual machines, perform advanced analytics, and thus will be able to operate machines proactively, coordinately, and systematically. As a result, business can be conducted in a completely innovative way. This is awesome! But what does it mean to supply chain management?

First of all, the smart machines are predictive and reactive, which enables preventive maintenance and pushes towards zero unplanned downtime. It would be significant progress in lean manufacturing. Imagine a locomotive serving intermodal transportation. Based on its operating data, it predicts a potential mechanical failure happening in two days and notifies the operator. The operator then has sufficient time to schedule preventive maintenance when the locomotive is idle, or to allocate another locomotive as a replacement if extensive repair is needed. Therefore, the supply chain will not be disrupted. Secondly, with the massive amount of data gathered from machines, factories, warehouses, and possibly each product, we will be able to improve efficiency and reduce costs from a supply chain perspective, while still enhancing customer satisfaction. For example, if printers can forecast and communicate the depletion of ink cartridges, the manufacturers will have more accurate data to forecast demand, plan production and schedule distribution for ink cartridges. It mitigates the risk of overproduction and reduces the cost of carrying excessive inventory. The operational efficiency can be further increased when data from relevant suppliers is taken into consideration to avoid production disruption. The financial impact could be enormous. In a 2012 whitepaper, GE estimated that a 1% efficiency improvement in how freight is

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moved across rail networks is valued at \$27 billion over a 15 year period. Last but not least, the information flow and communication across the entire supply chain could empower the system-level management and optimization of supply chain performance. Essentially, the rise of the Industrial Internet offers an exciting prospect for supply chain management.

Before seeing the full benefits, some barriers have to be crossed. An obvious obstacle is the investment on transforming traditional machines into smart machines. Also, the frequent data transmission requires fast and reliable networks, as well as ample data storage. Other issues include data security and privacy speculation. From a supply chain management standpoint, the technologies are far from ready to achieve the aforementioned blueprint. Breakthroughs in optimization methodologies and big data science are desired. Besides, management needs to be educated and prepared for the strategic, operational and cultural changes. As stated by Marco Annunziata, the Chief Economist at GE, "It is not going to be easy, but it is going to be worth it."

MBA Students Compete in Annual Case Competitions

The RBS Center for Supply Chain Management held a case competition for RBS MBA students on January 31. This annual event allowed our MBA students to demonstrate their skills in analyzing a real-world supply chain management case, and provided an opportunity for supply chain executives affiliated with the Center to get to know top talent from RBS. This year's case—OXO International: Forecasting and Inventory Management—was written by Dr. Yao Zhao, Associate Professor, Department of Supply Chain Management and Marketing Sciences. By analyzing the data in the case, the student teams identified key issues in the company's supply chain and operations, discussed how these issues were related to the company's bottom line and business goals, and developed concrete suggestions and action plans to better design and manage the company's operations.



An RBS SCM-MBA team won 3rd place in the 2014 Sam M. Walton Global Logistics Case Competition (3/15/2014, Case topic: WALMART'S SUSTAINABILITY JOURNEY). Coached and advised by Professors Tom York and Rudi Leuschner, with strong support from many other SCM faculty members, the Rutgers team earned its way to the final round, besting schools such as Chalmers University of Technology (Sweden), Ohio State University, University of Dallas, University of Maryland, and University of Wisconsin. The Rutgers team consisted of the following students:

- Jason Sluzynski, Flex time Supply Chain student
- William Pollak, 1st Year Full time Supply Chain student
- Joseph Branca, 1st Year Full time Marketing student
- Anna Hoang, 2nd Year Full time Supply Chain student
- Sally Shen, 1st Year Full time Supply Chain student
- Vignesh Prabhudoss, 2nd Year Full time Supply Chain student





Supply Chain Talent Management: Investing in the Future

By Don Klock, Clinical Associate Professor, Department of Supply Chain Management and Marketing Sciences, Rutgers Business School

You would think that issues like customer service, cost reductions and forecasting would top the list of things that keep supply chain management professionals up at night. But as we talk with our advisory board members, supply chain management professionals at conferences, and businesses that recruit our students, we keep hearing that the number one issue they face is finding and retaining the right talent.

Why? What is the problem?

The first reason is demographics are working against us. More than 25% of the working population will reach retirement age by 2015, resulting in a potential shortage of nearly 10 million workers. During that same time period, the replacement pool of 35 to 44 year-olds will decline by 15%. To add to the pressure, 10,000 "baby boomers" are retiring each day. Many of these talented people are the ones we count on to run our difficult projects, do complex strategic sourcing or start up new initiatives such as a new ERP system or a warehouse.

The second reason is the effect of globalization, off-shoring and outsourcing. Many of these jobs were critical to the training and development of our people to become talented supply chain leaders. As we have sent jobs overseas or to other companies, there are fewer opportunities to develop our people.

Top-performers are as not mobile as past generations due to dual working couples or just personal preferences. It is not unusual today for one spouse to desperately want that promotion, but he/she can't give up (or risk) losing the other spouse's income.

Lastly, partly due to recent economic changes and the desire to stay "lean," these same supply chain management professionals are being asked to do significantly more with less. Is this an environment that builds the loyalty of your talented professionals? Unfortunately, this is when some people take that call from a headhunter.

Therefore, it is imperative that supply chain leaders develop plans to attract, maintain and develop their talent. Failing to manage your company's talent needs is equivalent to failing to manage your business. And yet the majority of employers have an abysmal track record when it comes to finding and retaining talent.

So, what do you do?

While there are multiple strategies to pursue, in this short article I will deal with five strategies:

1. Conduct an Internal Skills Assessment: [See Exhibit #1.] This is a relatively easy thing to do, but few people do it. Your Human Resources Department can help you. If you can't do it internally, there are many outside organizations that will conduct the interviews and develop recommendations.

2. Develop a Plan to Close the Skill Gap: You need to develop a plan to train your current employees such that you can close the gap. In addition, while very hard to do, you need to develop "exit strategies" for those who are not able to perform. You also need



Conduct an Internal Skills Assessment

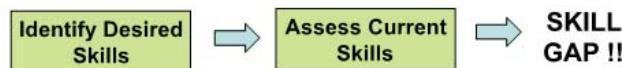


Exhibit #1

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|---|---|----------------------------------|
| – Skill sets
– Standards
– Forecast | – Interviews
– Testing
– Case Studies
– Past Performance | – Organizational
– Individual |
|---|---|----------------------------------|

to develop a formal recruiting strategy based on these new criteria. As part of this strategy, partner with a top Supply Chain Management University. [See #5 below.]

3. Your Focus Should be on Retaining Your Top Talent: There are many ways to motivate your top talent. I recommend focusing on your high potentials first, but do not forget about those functional specialists you need to run your business efficiently and effectively. Here are some simple things you can do to retain your top talent:

- Frequent Career Discussions
- Retention and Recognition Programs
- Rotational Assignments
- Top Management Exposure

4. Management Development Program: Do you have a robust, top-down Management Development Program? You need to set challenging objectives and demand regular, formal performance reviews. You need to have a formal succession planning process that holds employees and managers accountable to develop their people and put the right people in the right jobs. It must be visible to all employees to have credibility.

5. Partner with a Supply Chain Management University: Lastly, a key strategy is to pull talent directly from universities. If you truly want the “best” students, you need to engage with the university by visiting the campus frequently, being a guest speaker in the classes, and most importantly hiring students for summer internships, co-ops and full-time positions. Students talk to each other, and if they see the company on campus and students getting hired, they will line up for interviews with that company. From the company’s perspective, this is as close as it gets to what I call “no-risk hiring.” You will know whether you want to hire that student by the end of that internship. And that student will know if he/she wants to work for you. The first step is to partner with a university. While I am biased, we certainly hope it is Rutgers Business School and its terrific Supply Chain Management program.

Now and in the future, talent management will determine the success of your Supply Chain Management organization. These simple steps will make that happen.

Did You Know?

The RBS undergraduate program in Supply Chain Management focuses on the areas of strategic sourcing, procurement management, logistics, quality management, and supply chain technologies. This program, tied for 2nd place the U.S. in a recent ranking by Gartner Supply Chain Leaders, has a strong corporate sponsorship that provides excellent intern and job placement opportunities. An important feature of the program is the variety of scholarships offered to top students who are passionate about supply chain management and contribute to the success of the program. A few examples include:

- Academic Excellence Award scholarships of \$1000 are awarded to students who are majoring in Supply Chain Management (SCM), have shown leadership skills, and are interested in supporting and helping grow the SCM major at Rutgers Business School. Since 2011, 15 students have received awards worth over \$20,000 in total.
- The SCM Honors Track Scholarship Program is an annual program that recognizes and rewards the best students by providing a \$2,000 scholarship and a summer internship from one of the program's corporate sponsors. Since 2009, this program has awarded over 40 scholarships to well-deserving students.
- The Department of Supply Chain Management and Marketing Sciences award is given by the faculty to students who have demonstrated outstanding achievement in the study of supply chain management and made major contributions to the department. In 2014, ten students received this prestigious award.
- Each year, the Center for SCM recognizes students of academic distinction and awards them the ISM Pharmaceutical Forum Scholarship. This newly-established award is a direct result of our strong partnership with local business executives with strong ties to our SCM program. In 2014, two \$750 scholarships were awarded to undergraduate students with an interest in supply chain pharmaceutical management.
- Rutgers is active with the NJ chapter of the Council of Supply Chain Management Professionals (CSCMP), and this professional organization offers annual scholarships to SCM students. In the last two years, CSCMP of New Jersey has awarded over 14 scholarships worth over \$10,000 to Rutgers Business School Supply Chain Management undergraduate and MBA students, and 4 of those students have attended the National CSCMP Meetings, with all travel expenses paid by CSCMP.

Meet our Center Faculty



Dr. Lei Lei, Chair and Professor, Department of Supply Chain Management and Marketing Sciences, and Director, Center for Supply Chain Management



Dr. Dale Rogers, Professor, Department of Supply Chain Management and Marketing Sciences, and Co-Director, Center for Supply Chain Management



Donald Klock, Clinical Associate Professor, Department of Supply Chain Management and Marketing Sciences, and Business Director, Center for Supply Chain Management

Ranked Domestically and Globally

Rutgers Business School's Supply Chain/Logistics program is ranked #3 in the nation by Gartner Supply Chain Leaders and #13 in the nation by US News & World Report's annual survey of top business schools. Our program is also ranked #13 by SCM World's global program ranking.