Decision Making and Risk Management in an Uncertain World

Navigating risk and uncertainty has long been a fact of life for supply chain professionals. But recent changes in the global political landscape and international economic policy have further intensified these challenges. Today we find ourselves in the midst of a collision between interdependent global supply chains and waves of anti-globalization sentiment, both in the United States and abroad. Unease among supply chain managers is growing due to renegotiated or scrapped trade agreements, the possibility of new “border adjustment” taxes and import tariffs, and potential conflicts with major trading partners. Sailing in these choppy waters, supply chain professionals are struggling to determine whether to retreat, change strategy, or stay the course.

In a recent article published in the Council of Supply Chain Management Professionals’ Supply Chain Quarterly (Q1, 2018), Professor Diego Nocetti (Economics and Financial Studies at Clarkson), Professor Michael Wasserman (International Management at the University of Applied Sciences, Münster, Germany) and I offer four guideposts that managers should monitor in order to better assess their decision-making environment. We then discuss specific strategies that can help them address the heightened uncertainty surrounding international economic policy and, in fact, discover potential sources of competitive advantage.

We conclude that it is critical for supply chain professionals to understand the underlying causes of economic progress; to beware of populist rhetoric that threatens the quality of current institutions by inducing less consistent and predictable policies; to continuously monitor shifts in economic policy volatility; and to avoid cognitive biases that are likely to arise in periods of heightened policy volatility.

In this issue of Linkages, you will read about the dedication of the David D. Reh School of Business and our transformative approach to business education (p. 2); a hands-on learning project that provides students with experience in Lean Six Sigma while improving healthcare processes and performance at a local hospital (p. 4); professional recognition of our faculty in the field (p. 5); and recent faculty research, news and awards (p. 6-7).

We hope you enjoy the issue and welcome your feedback (mahmoodi@clarkson.edu).
A Lasting Legacy
Clarkson honors David D. Reh ’62, Honorary Doctorate ’17 with the dedication of the David D. Reh School of Business.

On October 13, 2017, Clarkson celebrated the dedication of the David D. Reh School of Business. David D. Reh ’62, H’17 is a successful business leader and entrepreneur who has had a transformative impact on the University through his vision, leadership and generous financial support.

“David Reh has dedicated his professional life to growing enterprises and adapting to evolving opportunities and challenges in the marketplace,” said Clarkson President Anthony G. Collins. “While developing a successful technology-based company and global brand, he has helped prepare the next generation of business creators and industry leaders at his alma mater. He is the embodiment of the qualities of leadership, entrepreneurial competence and integrity we expect all students to aspire to in their chosen professions.

“We are pleased to recognize his generosity and commitment to Clarkson in this lasting and meaningful way.”

An Active Partnership
For decades, David and Sue Reh have been active partners with Clarkson and the School of Business. Their leadership and generous support over the years has strengthened the University’s nationally recognized programs in entrepreneurship and global supply chain management.

The David D. Reh School of Business’ undergraduate and graduate business programs stand out in higher education because the student experience is designed to meet the targeted needs of the world’s most innovative companies. These companies seek out and cultivate employees who can think across traditional boundaries, merging solid business know-how with insight into engineering, global supply chain management, information systems and more.
About David D. Reh

David D. Reh is the founder, past president and owner of the Raytec Group Inc., which he formed in 1971. Raytec consisted of two principal operating companies: Gorbel Inc., which manufactures jib and work station cranes, and Retrotech Inc., which specializes in the design, installation and support of automated material handling systems. Today, the Gorbel and Retrotech brands are recognized throughout the world with business operations in New York and China. Reh sits on numerous boards and has been a Clarkson Business Leadership Council member since 2006. He also serves on the Simon National Council and the Executive Advisory Committee for the Simon Graduate School of Business at the University of Rochester. He was awarded an honorary doctor of science degree by Clarkson in 2017 for “his steadfast commitment to technology innovation and entrepreneurship, the twin engines of progress, and for his dedication to shaping the next generation of business creators and industry leaders.”

Clarkson stands out:

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- Entrepreneurship and Innovation
- Financial Information and Analysis
- Global Supply Chain Management

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- Internationally renowned faculty.

- A 96 percent placement rate for undergraduate and graduate students.

- Campus visits twice a year from 175+ companies to recruit students.
A University-Hospital Partnership Improves Healthcare Processes and Performance

David D. Reh School of Business Assistant Professor Cecilia Martinez and her students apply Lean Six Sigma techniques to reduce inefficiencies and boost performance at a local hospital.

Consistent performance, reduced costs and process cycle times, and reliable outcomes characterize successful operations.

At Clarkson, students in Assistant Professor Cecilia Martinez’s senior capstone course learned firsthand the strategies and value of process improvement in a healthcare setting.

Professor Martinez’s area of expertise is Lean Six Sigma, which relies on a collaborative team effort to improve performance by removing inefficiencies and waste through an in-depth root cause and statistical analysis.

This past spring, Prof. Martinez and 11 Engineering & Management students partnered with Canton-Potsdam Hospital (CPH) on five projects to help improve processes at the hospital.

“My role was to guide them in their problem-solving journey at CPH,” says Prof. Martinez, who has consulted for the St. Lawrence County Health Initiative for the past four years. “I attended some of the project meetings with CPH, helped remove some roadblocks and provided oversight to make sure students were not only on the right track but were making the expected progress to complete their projects on time.”

The students were separated into five groups and had to apply the Six Sigma five-step DMAIC (Define, Measure, Analyze, Improve, Control) methodology, combined with lean tools, to their projects.

This was important because, in addition to gaining hands-on experience, each student was working toward Lean Six Sigma Green Belt certification through Lean Methods Group, thanks to support from Clarkson’s Career Center and the Engineering & Management program, as well as National Grid, which served as a corporate sponsor.

“Working toward the certification really motivated the students,” Prof. Martinez says. “They completed the online portion of the training while simultaneously working on their projects.”

And while a professional engineer typically takes about a year to complete this certification, the students finished their Lean Six Sigma Green Belt certification in less than four months.

By the end of the semester, the students had successfully determined ways to reduce food waste, streamlined the process of transporting meal trays to patients, redesigned the scheduling process for total joint replacements, improved the way digital patient information is entered, and reduced the waiting room time for orthopedic patients.

“Our goal is to provide an education that combines classroom learning and practical experience in a real-life setting,” says Prof. Martinez. “Real problems, real people, real solutions.”
Milne Completes Second Term as Chair of INFORMS’ Practice Section

R. John Milne, Neil ’64 & Karen Bonke Associate Professor, recently completed his second (and final) one-year term as chair of the INFORMS (The Institute for Operations Research and the Management Sciences) Section on Practice.

INFORMS is the leading international association for professionals in operations research and analytics.

The Practice Section’s mission is to support and advance the practice of operations research and management science. It oversees the competitions for the Franz Edelman Award for Achievement in Operations Research and the Management Sciences, the Daniel H. Wagner Prize for Excellence in Operations Research Practice, and the UPS George D. Smith Prize.

The section also organizes sessions for the INFORMS Annual Meeting and oversees the Edelman Gala at the INFORMS Analytics Conference.

During Professor Milne’s time as chair, the section changed its name and overhauled its bylaws and the documentation associated with the Edelman Award competition, which included developing handbooks for competition chairs and judges.

After stepping down as chair, Prof. Milne will remain a member of the section’s leadership council and, for the seventh consecutive year, will serve as the editor for the Interfaces special issue dedicated to publishing the papers of Edelman Award finalists.

Prof. Milne has been involved with INFORMS for more than 20 years. In 2005, he was the recipient of the Daniel H. Wagner Prize for Excellence in Operations Research Practice.

Prof. R. John Milne

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Over the past several years, many companies have invested significantly in business analytics to transform their organizations and gain a competitive advantage. Past research argues that business analytics capability leads to better decisions, which results in improved firm performance. However, the benefits of analytics capability have not been studied in the context of supply chain relationships that can constrain the independent decision-making of supply chain actors.

Professor Farzad Mahmoodi, the Joel Goldschein ’57 Endowed Chair of Supply Chain Management, and colleagues Assistant Professor Usman Ahmed (University of Michigan-Flint) and Assistant Professor Asad Shafiq (California State University, Fullerton) have studied 300 medium- to large-sized U.S.-based manufacturers to examine whether supply chain analytics capability can assist suppliers in coping with unfair conditions in important buyer-supplier relationships. They also investigated whether its benefits are comparable to adaptation, which is another strategy suppliers use to extract more value from relationships. Their results show that both analytics capability and adaptation lead to greater value extracted from supply chain relationships by suppliers.

The researchers also examined how the presence or absence of procedural justice influences the benefits of supply chain analytics capability and adaptation. Results indicate that in relationships marked by high levels of procedural justice, adaptation becomes more important, while in relationships marked by low levels of procedural justice, supply chain analytics capability becomes more important.

“This is because when procedural justice is high, the benefits can be re-allocated in a fairer manner,” explains Professor Mahmoodi. “Through trial and error and discovery, suppliers and buyers can achieve better configurations of resources to drive superior performance and then share the rewards fairly.”

However, when the relationship is characterized by low levels of procedural justice, the supplier must safeguard its interest a priori through contracts and firm commitments. Without supply chain analytics capability, the supplier will be at a disadvantage to achieve the best outcome.

“In unfair conditions, supply chain analytics capability can provide insights into how to maximize value given the relational constraints since the supplier is competing with an opportunistic buyer,” says Prof. Mahmoodi.

Inside the Classroom

Course: EM482 Systems Engineering and Management
Assistant Professor Golshan Madraki

A new course developed by Assistant Professor Golshan Madraki, who joined the David D. Reh School of Business in 2017, focuses on human-made systems, including supply chain systems.

All human-made systems include four major components: inputs, processes, outputs and controls (feedback). For example, in supply chain systems, the main inputs and outputs are customer orders and the cash paid for final products; the processes include sourcing, manufacturing, and distribution systems; and the controls are applied to the entire system to provide feedback and take corrective action.

The course introduces methods to understand, design and evaluate these system components. Topics include an introduction to systems perspective; conceptual and preliminary system design; the evaluation of system alternatives through decision-making models; the application of operations research techniques to optimize processes; queuing theory, control concepts and methods; and systems reliability.

Professor Madraki’s areas of expertise include graph theory, operations research and mathematical modeling.
Assistant Professor Zhaleh Semnani-Azad served as a visiting scholar at the Jerome A. Chazen Institute for Global Business at Columbia University. She collaborated on three lines of research: the experience of face threat in honor culture negotiations; the intersection of culture and gender norms in negotiation tactics and outcomes; and the effect of diversity on team conflict and performance. She was invited to present her research as part of the Management Division Seminar Series at Columbia Business School. Professor Semnani-Azad co-authored a paper, “A Measurement Model for Dignity, Face, and Honor Cultural Norms” in Management and Organization Review. Prof. Semnani-Azad received a $45,000 National Science Foundation grant for research on cultural factors associated with biometric trust (in collaboration with Professor Stephanie Schuckers from the Department of Electrical & Computer Engineering at Clarkson).


Professor Farzad Mahmoodi, Joel Goldschein ’57 Endowed Chair in Supply Chain Management, has recently co-authored two articles: “Scheduling Assemble-to-Order Systems with Multiple Cells to Minimize Costs and Tardy Deliveries,” forthcoming in Computers & Industrial Engineering, and “Using a Structured Method to Proactively Manage Disruptive Technologies Impacting the Supply Chain,” published in CSCMP’s Supply Chain Quarterly.

Professor Mahmoodi was also the recipient of the 2017 Professor of the Year-MBA Module, which is awarded by selection of the MBA students.

Assistant Professor Cecilia Martinez was the lead author of the article “Towards Lean for Sustainability: Understanding the Interrelationships Between Lean and Sustainability From a Systems Thinking Perspective,” published in the Journal of Cleaner Production.


Prof. Mousavian was also awarded the 2017 Outstanding Teaching Award, through the Clarkson University Faculty Teaching Excellence Endowed Fund in Honor of Dr. Robert John McGill and Dr. Nye Smith.

Associate Professor Dennis Yu has been appointed Associate Editor of the International Journal of Logistics Economics and Globalisation. Professor Yu has also been appointed to serve as a member of the editorial board of the International Journal of Business and Economics Research.
Distinguished Teaching Award

Associate Professor Luciana Echazu was the recipient of the University’s Distinguished Teaching Award at the 124th Commencement ceremony in May 2017.

The award is the most prestigious teaching honor granted by Clarkson University.

Professor Echazu has been at Clarkson since 2007, primarily teaching global supply chain management majors. Throughout her tenure at Clarkson, she has been recognized multiple times. In 2009, she received the Outstanding New Teacher Award and the Inspiring Mentor Award (presented by Delta Zeta). In 2011, she was the recipient of the Outstanding Teaching Award by the Clarkson University Student Association, the Respect Award, and the Ralph Janaro Memorial Faculty Award (presented by the Beta Gamma Sigma honor society). She was again distinguished with the latter two awards in 2012, when she was also named MBA Faculty Member of the Year, presented with the Commendable Leadership Award and tapped into Phalanx, Clarkson’s highest honorary society.

In January 2018, Prof. Echazu was appointed Associate Dean of Operations and Programs at the David D. Reh School of Business.

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