

CRSSCA - 9th Annual Supply Chain & Logistics Management Workshop, 2024



Supply Chain Analysis and Sustainability

Time: 3 December 2024 (Tuesday); 8:30–16:30 Atlantic Standard Time (GMT-4:00)

Location: Rowe Building, Room #3089, 6100 University Ave., B3H 4R2, Halifax, NS, Canada

A flagship event of CRSSCA (Centre for Research in Sustainable Supply Chain Analytics), Faculty of Management, Dalhousie University, and organized by Dr. M. Ali Ülkü, this series of annual Supply Chain and Logistics Management (SC&LM) workshops not only brings in distinguished academics and industry leaders to share their knowledge on the latest trends and cutting-edge research and best practices in SC&LM but also provides an excellent opportunity to cross-pollinate ideas and network with academics, practitioners, and students in a collegial environment while showcasing students' accomplishments in research and industry-partnered experiential learning projects.

Program

8:30-9:00	Registration and Coffee & Donuts
9:00-9:10	Welcome Speech by Dr. Mike Smit , Professor of Information Science and Dean, Faculty of Management, Halifax, NS, Dalhousie University
9:10-9:30 Theme Intro	Dr. M. Ali Ülkü , Professor of Management Science & Information Systems and Director-CRSSCA, Faculty of Management, Dalhousie University, Halifax, NS, Canada <i>Supply Chain Analysis and Sustainability: A Thematic Introduction</i>
9:40-10:20 Talk #1	Dr. Mehmet Alegöz , Associate Professor of Industrial Engineering, Eskişehir Technical University, Eskişehir, Türkiye <i>Economic, Environmental, and Social Effects of a Carbon Tax Policy on Servitizing Firms</i>
10:20-11:00	Dr. Dinçer Konur , Associate Professor of Information Systems & Analytics, McCoy College of Business, Texas State University, San Marcos, TX, USA <i>Environmental Sustainability in Inventory Control</i>
11:00-11:30	Break
11:30-12:30 Keynote	Dr. Anjali Awasthi , Professor of Information Systems Engineering, Concordia University, Montréal, QC, Canada, and President of The Canadian Operational Research Society (CORS) <i>Sustainability and City Logistics Planning</i>
12:00-13:30	Lunch & Networking
13:30-14:10 Talk #3	Dr. Debora Jackson , Professor of Management and Dean, The Business School, Worcester Polytechnic University, Worcester, MA, USA <i>Toward a Sustainable, Agile, Resilient Supply Chain Framework</i>
14:10-14:30 Talk #4	Robert Francis , Student, Saint Mary's University, Halifax, NS, Canada <i>From Waste to Worth: A Sustainable Approach to Food Supply Chains</i>
14:30-15:00	Break
15:00-15:40	2024 CRSSCA Best Research Thesis Competition – Finalists' Presentations
15:40-16:30	Award Announcements, Closing Remarks, Networking

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Keynote Speaker

Anjali Awasthi, Ph.D., is a Full Professor and Concordia University Research Chair (Tier-II) in Connected Sustainable Mobility Systems at Concordia Institute for Information Systems Engineering (CIISE), in Concordia University, Montreal. Her areas of research are modeling and simulation, data mining, Information Technology and decision-making, sustainable logistics planning, quality assurance in supply chain management, and sustainable supply chain management. She currently serves as the CORS President (Canadian Operations Research Society). In the past, she served CORS as Vice-President, Education Chair, and jury member of student competitions. She is a senior member of ASQ (American Society for Quality), associate of LSRC (Loyola Sustainability Research Center), and regular member of CIRRELT (Centre Interuniversitaire de Recherche sur les Réseaux d'Entreprise, la Logistique et le Transport). She is also the recipient of Eldon Gunn service award (CORS 2018, Halifax) and the IEOM Special Recognition Award (4th North American Conference on Industrial Engineering and Operations Management, Toronto, 2019). Her research paper entitled "A system dynamics simulation model to evaluate regulatory policies for sustainable transportation planning" received the best paper award from Taylor and Francis journal "International Journal of Modeling and Simulation." She has appeared on Radio Canada, CTV, Montreal Gazette, Le Devoir, The Suburban, Metro, and The Globe and Mail.



Sustainability and City Logistics Planning

City logistics involves the timely delivery of goods to customers under the presence of municipal regulations such as vehicle sizing, timing, and access in urban areas. Sustainability is a key component of these operations. In this presentation, I will cover various tools and techniques for integrating sustainability in planning city logistics operations, namely, location planning of goods distribution centers, routing and scheduling of delivery vehicles under congestion, vehicle selection and sizing, container loading, energy management of electric vehicles, fuel selection, stakeholder collaboration planning, and benchmarking sustainability performance of logistics operators. Practical examples and case studies from various cities will be covered.

Invited Academic Speakers

Mehmet Alegöz, Ph.D., is an Associate Professor of Sustainable Systems and Supply Chain Management in the Department of Industrial Engineering at Eskişehir Technical University, Türkiye. His research interests lie in the area of sustainable supply chains, ranging from emission policies to coordination and competition in supply chains. He mainly uses dynamic programming, stochastic programming, and game theory to develop solution approaches for the problems in this area. Dr. Alegöz has presented at respected conferences. His work has appeared in journals such as the European Journal of Operational Research, International Journal of Production Economics, Omega, and Computers & Industrial Engineering, among others.



Economic, Environmental, and Social Effects of a Carbon Tax Policy on Servitizing Firms

Servitization is an innovative business model in which the use of a product is sold instead of the product itself. Although carbon tax policy is comprehensively addressed in the selling context, effects of a carbon tax policy on servitizing firms still need the attentions of the researchers and practitioners. Motivated by this fact, we propose Stackelberg models and investigate the effects of carbon tax policy on servitization business model. Our results reveal that although a carbon tax may be beneficial in terms of decreasing the environmental impact, it may also deteriorate the manufacturer's profit and social welfare. Moreover, we observe that low customer segment is affected more from a carbon tax policy than the high customer segment. Finally, our analysis regarding the parameters reveals that increasing the maximum usage amount of a product may be beneficial to all actors such as the manufacturer, the customers, the government, and the environment.

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Debora Jackson, DMin, MDiv, ME, MS, is the Stoddard Endowed Professor of Management and the Dean of The Business School at Worcester Polytechnic Institute, where she leads the school in its mission to develop adaptive leaders who create sustainable solutions, deliver globally responsible impact, and conduct transformative research at the intersection of business, technology, and people. As a non-profit leader, the Reverend Dr. Debora Jackson served as Director of Operations of All Girls Allowed; Director of Lifelong Learning at Yale Divinity School; Executive Director of the Ministers Council of the American Baptist Churches, USA, and Senior Pastor of First Baptist Church in Needham, MA. Dr. Jackson was a 20-year business leader, with an emphasis on IT and software engineering, before heeding the call to ministry. Key roles she held during that time included COO/CIO of an e-commerce energy services provider and as Managing Director of a supply chain / IT consulting group. Dr. Jackson holds a DMin and MDiv from Andover Newton Theological School. She holds a ME in Manufacturing Engineering and a MS in Management from Worcester Polytechnic Institute. She holds a BS in Business from Indiana University. Dr. Jackson has written numerous articles, book chapters, and two books, *Meant for Good: Fundamentals in Womanist Leadership* (Judson Press, 2019) and the award-winning *Spiritual Practices for Effective Leadership: 7 R's of Sanctuary for Pastors* (Judson Press, 2015), which was the 2016 Illumination Book Silver Medal Award Winner.



Toward a Sustainable, Agile, Resilient Supply Chain Framework

COVID-19 served as a major disruption in supply chain management, motivating the development of designs that provide end-to-end (E2E) agility and resiliency readiness while maximizing value across their enterprises. However, the disruptive reality also required greater collaboration among businesses to establish strategies to ensure economic viability. This same urgency could be harnessed to realize sustainable supply chains through which designs conform to universally recognized principles of ethical conduct. Doing so positions companies to realize a triple bottom line benefit through which value is increased. Thus, this talk provides the impetus for leaders to drive toward a Sustainable, Agile, and Resilient Supply Chain framework.

Dinçer Konur, Ph.D., is an Associate Professor at the Information Systems and Analytics department of McCoy College of Business, Texas State University. He holds PhD and MS degrees in Industrial and Systems Engineering from University of Florida (Gainesville, FL) and BS degree in Industrial Engineering from Bilkent University (Ankara, Türkiye). Before joining Texas State University in Fall 2018, Dr. Konur was a faculty member of the Engineering Management and Systems Engineering Department at the Missouri University Science and Technology (Fall 2012-Spring 2018) and he worked as a post-doc researcher at the Intermodal Freight Transportation Institute of the University of Memphis for a year (July 2011-July 2012). Dr. Konur's research expertise is in operations research and game theory and their applications, mainly in supply chain management, logistics, and transportation. His research studies related to sustainability and supply chain management focus on inventory control models with environmental sustainability. These studies analyze the economic and environmental impacts of various inventory control strategies. He also conducts research on game theoretical models of competition in supply chain management, omnichannel retailing, and freight management.



Environmental Sustainability in Inventory Control

Inventory control is crucial for profitability as it helps manage costly activities such as warehousing, stocking, replenishment, and shipments. These activities also have significant environmental impacts along supply chains. As such, to be environmentally sustainable, inventory control decisions need to incorporate not only the economic performance but also the environmental footprint of inventory-related operations. In this talk, I will review the basic approaches used to incorporate environmental sustainability into inventory management. Balancing economic and environmental impacts using alternative inventory control strategies is one of these approaches. I will present several inventory control models, including coordinated shipments, TL and LTL trucking, delivery-scheduling, and static and dynamic trucking, to highlight how companies can balance the economic and environmental tradeoffs in inventory management using different strategies.

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Invited Practitioner Speaker

Robert Francis is a proud third-year student at the Sobeys School of Business at Saint Mary's University and is currently enrolled in the commerce co-op program. Throughout his first year at university, it became apparent that future sustainability and environmental impact would be the most prominent problems we will face and have to solve in the next 40 years. In mid-2023, Robert became involved with Square Roots as the Director of Advancements. This student-run community interest corporation, which falls under the Enactus-SMU, in 2023, was able to divert over 152,000 lbs of produce destined to a landfill because of cosmetic imperfections and get them into the hands of hungry Canadians province-wide. After gaining experience from Square Roots, Robert sought an internship at Halifax Seed, one of the largest local agriculture supply companies that has been around since 1866, so he could further his understanding and knowledge of the agriculture and food supply chain. He has since returned to Square Roots as the Co-Director of Operations, hoping to expand the business and feed more Canadians nationwide.



Workshop Organizer and Chair



M. Ali Ülkü, Ph.D., P.Eng., is a Full Professor and the (Founding) Director of the Centre for Research in Sustainable Supply Chain Analytics (CRSSCA) at the Faculty of Management, Dalhousie University, Canada. Dr. Ülkü's research examines circular and sustainable supply chain and (humanitarian) logistics systems, manufacturing/retailing and service operations analyses, green marketing and optimal contract designs, analytical modeling of sustainable consumption and development, and interdisciplinary research on big data and societal/environmental problems. He is an avid supporter of student-led research and enjoys seeing the impacts thereof.

About CRSSCA (www.dal.ca/crssca)

The Centre for Research in Sustainable Supply Chain Analytics (CRSSCA) is the world's first and only research centre dedicated to sustainable supply chain analytics research. The mission of the Centre for Research in Sustainable Supply Chain Analytics (CRSSCA) is to provide big data-driven, innovative, and analytical solutions to and to disseminate scholarly knowledge in the understanding of complex modern global supply chain problems through the lens of sustainability (economic, environmental, social and cultural). Housed in the Rowe School of Business, Dalhousie University, CRSSCA is the supply chain research hub in Eastern Canada. CRSSCA fosters interdisciplinary research that sheds light on complex issues in supply chain management. Keeping sustainability imperatives front and centre, CRSSCA creates new knowledge in prescribing solution models for data-driven industrial problems, devises analytical tools for better decision-making, and develops insights into the intricate relationships between supply chain operations, green logistics (global trade, inventory, process, and product design, procurement, manufacturing, transportation) and sustainable consumption.

A frontier research hub in Eastern Canada, CRSSCA enables faculty-student-industry research collaborations, brings in research funding, produces cutting-edge research, sponsors annual workshops and case competitions, and provides unique opportunities for students and executives to enhance their academic and professional skills while enabling research experience for the unique SC&LM Major in the Bachelor of Commerce program at Dalhousie University.

With its activities, CRSSCA contributes to UN Sustainable Development Goals (SDGs) #9, 11, 12, 13, and 17.

