Transportation Science and Logistics Society

Outgoing President's Note
Barrett Thomas

With my term as President having come to an end, it is appropriate that I thank the TSL membership for giving me the opportunity to serve them as President. I was fortunate to follow two Presidents in Laurie Garrow and Grazia Speranza whose efforts set TSL on a path to better serving TSL members through the introduction of a TSL Conference. This year, the TSL Conference Organizing Committee chaired by Pitu Mirchandani and consisting of Mike Ball, Maciek Nowak, Warren Powell, and myself evaluated a number of host sites and chose Chicago, Illinois, and local organizer Maciek Nowak as local organizer for the summer 2017 conference. I look forward to continuing to work with the committee to prepare an innovative conference, and thank Pitu, Mike, Warren, and Maciek for their work on the committee.

I would also like to thank Catherine Cleophas, Jan Ehmke, and Ann Campbell for their excellent work organizing this past's summers TSL Workshop in Berlin. The TSL Workshops have become an important part of TSL's efforts to bring people together. With the TSL Conference coming online and the continuation of the TSL Workshops, TSL will have the ability to better serve both broad and narrow topics as well as large and small gatherings.

I am also grateful for the opportunity to work with this year's TSL Board. I particularly want to thank Grazia Speranza and Maciek Nowak, the Past President and Vice President, respectively, who offered valuable counsel throughout the year. Thank you as well to Ann Campbell and Mike Hewitt for the important roles that they play as Secretary/Treasurer and Communications Chair, respectively.

I also want to particularly thank the TSL Special Interest Group Chairs and the International Liaisons. This year, I tasked each group to review its role in the Society and to identify how they could better serve TSL. I am particularly grateful to Tom Van Woensel and Harilaos Psaraftis for their willingness to chair the respective task forces. The work is ongoing, but I am confident that these two groups will continue to increase their value to TSL members.

Finally, in my final year on the Board, I look forward to working with this year's President Maciek Nowak, incoming Board members, and particularly the incoming Vice President/President Elect Karen Smilowitz. TSL is at an exciting point in its history, and I am confident that we have leaders in place who will provide steady guidance.

Incoming President's Note
Maciek Nowak

When Grazia Speranza first asked me to run for president of TSL, I couldn't help but think of the Groucho Marx (and later Woody Allen) quote, "I don't want to belong to any club that would have me as a member," except the situation was considerably more severe as the club would have me as President. Any concerns were set aside when fate, rather than the club, decided the election through a coin flip, the first in TSL history. Of course, I was very pleased when my opponent, Karen Smilowitz, was elected to the position this last year and I'm looking forward to working with her over the next couple years. I'm also excited to have on the board numerous colleagues who have long been active TSL members, with considerable experience guiding the society. In particular, I would like to recognize Barry Thomas, whose years of service to the Society have left it immeasurably better than it was before. I don't want it to go unnoticed that, now that he is Past President, Barry is the only TSL member to have served in every board position (plus newsletter editor). Thank you, Barry!

Thanks to the hard work of so many past and current officers I take on this role at a time when TSL is in great shape. Our financial situation is strong, thanks in no small part to the efforts of our Treasurer, Ann Campbell. We will be hosting the fifth TSL Workshop this year, in Atlanta on Georgia Tech's campus. Planning for the TSL Conference is in full swing, and we are looking forward to hosting several hundred members in Chicago, July 27-29, 2017 (make sure to mark your calendar). We have finalized two very strong committees that will decide on the TSL Best Paper and Best Dissertation awards, chaired by Marielle Christiansen and Larry Snyder, respectively. The TSL Cluster Chair for INFORMS, Steve Boyles, will be sending out a call for abstracts for INFORMS 2016 in the coming month (seems way too soon to be thinking about that already).

So, what's next? My priority this year will be to better engage our Special Interest Groups (SIGs), as well as our international partners. We have five well-defined SIGs: Freight Transportation, ITS, Urban Transportation Planning and Modeling, Facility Logistics, and Air Transportation. These SIGs can be effective tools to engage with our members on a more individual level as TSL itself continues to grow. However, they are an underutilized tool. Several of these SIGs have conducted activities that recognize their membership, primarily through a best presentation award at INFORMS. I would like to see these efforts continued and expanded across all SIGs. I would also like to see the SIGs help to drive the conversation about what TSL should be focusing on to better serve the membership. In addition, I would like to utilize our International Liaisons to develop stronger ties to our members outside of North America, as well as organizations and groups that share a similar interest as TSL. Some may argue that TSL (and more broadly INFORMS) is a primarily North American society, and the membership numbers support this to some extent. I do not expect to change the demographic of our society; however, there are collaborative opportunities that may be better utilized through a closer relationship with transportation and logistics focused societies outside of North America.

This idea is not new; I quote from Warren Powell's message as Communications Chair in the Fall 2007 TSL Newsletter, at a time when the board had just added the International Liaisons: "The field of transportation science and logistics needs an international society to bring everyone under one umbrella, and at the moment, TSL has the best chance of being that society. As a society, TSL can do things that Informs cannot, but we will have to earn the trust and confidence of the international community. Are we willing to elect an international president? Are we willing to work with the Publications Committee to nominate an international editor for Transportation Science? Are we willing to travel to Europe for an important board meeting? There will be a price to pay to draw us out of our comfort zone, but the benefit will be a larger and healthier community."

We have accomplished a couple of these tasks: an international president, in Grazia Speranza, TSL board meetings at the Odysseus conference, and the last TSL Workshop in Berlin (and, if Martin Savelsbergh had not moved back to Georgia Tech, an international editor for Transportation Science). But there is much more that we can accomplish. I would like to promote greater collaboration across borders, perhaps through an award for research conducted by TSL members from two or more of our regions (North America, Central and South America, Europe and Africa, and Asia, Australia and New Zealand). I think that TSL can help facilitate more opportunities for PhD students to study outside of their region. I hope to work with VeRoLog this year to determine how to best share our resources to benefit our respective memberships, which can hopefully serve as a template for cooperation with other international groups. And ultimately, through these efforts, if we do see our demographics shift to include more members in underrepresented areas such as Southeast Asia, Northern Africa, Eastern Europe, etc., then I think our society will be all the better for it.

I look forward to working with the TSL Board, SIG Chairs, International Liaisons, and our membership on these efforts over the coming year. And finally, I hope to see you at the TSL Business Meeting in Nashville this November.

TSL Dissertation Prize

In 2015, a total of 12 excellent dissertations were submitted to the competition. In the course of a two round evaluation process dissertation chair Elisabetta Cherchi, along with committee members Larry Snyder, Halit Ulster, Emma Frejinger and Francesco Corman unanimously selected a winner. Congratulations to Alexandre Jacquillat at MIT (advisor Amedeo Odoni)!

Winner: Alexander Jacquillat

Integrated Allocation and Utilization of Airport Capacity to Mitigate Air Traffic Congestion

Most flight delays are created by imbalances between demand and capacity at busy airports. Absent large increases in capacity, airport congestion can only be mitigated through improvements in (i) the utilization of airport capacity to enhance operating efficiency at the tactical level (over each day of operations) and/or (ii) the allocation of airport capacity to the airlines to limit over-capacity scheduling at the strategic level (months in advance of the day of operations). This thesis develops an integrated approach to airport congestion mitigation that jointly optimizes capacity utilization and the design of capacity allocation mechanisms, subject to scheduling, capacity and delay reduction constraints. First, the capacity utilization part involves controlling the runway configuration and the balance of arrival and departure service rates to minimize congestion costs, as a function of observed congestion and operating conditions. It is formulated as a Dynamic Programming model. Then, the capacity allocation part involves designing a mechanism for airport scheduling interventions. It starts with an airline preferred schedule of flights, and reschedules a selected set of flights to reduce the demand-capacity mismatches while minimizing interference with airline competitive scheduling. We develop an original modeling architecture that integrates a Stochastic Queuing Model of airport congestion and a Dynamic Programming model of capacity utilization into an Integer Programming model of scheduling interventions. We develop an iterative solution algorithm that converges in reasonable computational times. Extensive computational results for JFK Airport suggest that (i) our model of airport capacity utilization can reduce congestion costs significantly at busy airports and (ii) very substantial delay reductions can be achieved through limited and equitable adjustments in airline schedules of flights. It is also shown that the proposed integrated approach to airport congestion mitigation performs significantly better than the typical sequential approach where scheduling and operational decisions are made separately.

Robert Herman Lifetime Achievement Award

The Robert Herman Lifetime Achievement Award in Transportation Science is awarded by the INFORMS Transportation Science and Logistics Section to an individual who throughout his or her professional career has made fundamental and sustained contributions to transportation science and logistics, and has influenced the field through her or his writings, teaching, service, and nurturing of younger professionals. This years committee was composed of chair Michel Bierlaire (Ecole Polytechnique Fédérale de Lausanne), along with comittee members Cynthia Barnhart (MIT), Martine Labbé (University of Brussels), Bernard Gendron (University of Montréal) and Samer Madanat (UC Berkeley / New York University Abu Dhabi).

Winner: Michel Gendreau

The laureate of this year has significantly contributed to the field of transportation science over the past 30 years. He has published about 220 articles in scientific journals, and close to 100 other published contributions such as proceedings and book chapters. He has co-edited 6 books, three of which in the field of transportation. He has significantly contributed to the development of theoretical and algorithmic results in his field. He has conducted research on vehicle routing, freight transportation, rapid transit, railways, container operations, arc routing, network design, intelligent transportation systems, road maintenance, transportation of dangerous goods, disaster response, combinatorial auctions in freight transportation, forestry applications, military applications, ambulance location and dispatch, as well as on several related areas such as location, scheduling and packing. He is the co-author of a seminal paper on the vehicle routing problem published in Management Science that earned more than 1175 citations and has become a classic. Overall, his scientific contribution shows breadth, depth and excellence. He has also been very active on the international scene, traveling around the world (despite the nasty interference of various volcanos). He has given numerous presentations in scientific conferences, at least 35 of which as keynote speaker. He has been on the organizing or scientific committees of several major conferences, including TRISTAN and Odysseus. He has been Fellow of INFORMS since 2010, editor in chief of Transportation Science, and member of several editorial boards. Finally, the winner of the Robert Herman Lifetime Achievement Award in Transportation Science 2015 is a fantastic person. He is professor at the Department of Mathematical and Industrial Engineering of Polytechnique Montréal. Congratulations to Michel Gendreau!

TSL Best Paper Award

The 2015 TSL Best Paper Award committee consisted of Markos Papageorgiou (chair), Marielle Christiansen, Andres L. Medaglia, M. Grazia Speranza and Konstantinos Zografos.

Winners: Belgacem Bouzaiene-Ayari, Clark Cheng, Sourav Das, Ricardo Fiorillo and Warren B. Powell, From Single Commodity to Multiattribute Models for Locomotive Optimization: A Comparison of Optimal Integer Programming and Approximate Dynamic Programming

We present a general optimization framework for locomotive models that captures different levels of detail, ranging from single and multicommodity models that can be solved using commercial integer programming solvers, to a much more detailed multiattribute model which we solve using approximate dynamic programming. Both models have been successfully implemented at Norfolk Southern for different planning applications. We use these models, presented using a common notational framework, to demonstrate the scope of different modeling and algorithmic strategies, all of which add value to the locomotive planning problem. We demonstrate how ADP can be used for both deterministic and stochastic models which capture locomotives and trains at a very high level of detail.

INFORMS Fellow Award

Pitu Mirchandani (Arizona State University)

INFORMS Fellows are examples of outstanding lifetime achievement in operations research and the management sciences. They have demonstrated exceptional accomplishments and made significant contributions to the advancement of OR/MS over a period of time. Pitu Mirchandani has been elected to the INFORMS Fellow Award for his fundamental research contributions to dynamic and stochastic networks, location models, adaptive control of transportation systems, and traffic modeling and analysis.

INFORMS TSL Workshop 2015 in Berlin

The 2015 TSL Workshop was hosted by Freie Universität Berlin, Germany, and organized by Catherine Cleophas, Jan Fabian Ehmke and Ann Melissa Campbell. It was the first time that the TSL workshop was hosted outside the US. This year's theme was "Recent Advances in Urban Transportation through Optimization and Analytics". A total of 75 participants from all over the world listened to 40 talks and two keynotes given by Mike Ball and Arne Strauß. An industry panel moderated by Bruce Golden brought together researchers and experts from urban transportation industry. The scientific program was accompanied by a city boat tour and a conference dinner in a traditional German restaurant. We hope that everybody had a good time in the unusual hot summer environment of German's capital!

Results of the 2015 TSL Membership Survey

Thank you to all of those who took part in our membership survey this last year. The results were very helpful as we plan for TSL's future. We would like to share the results that we received from the 66 respondents.

Why are you a member of TSL? (check all that apply)	
Networking	54
To Stay Current with Cutting Edge Research	46
Access to the TSL Mailing List	42
To Present in the TSL Cluster at the Annual Meeting or at the TSL Workshop	34
Professional Recognition (Awards)	20
Other	2

As the table above shows, the majority of respondents felt that the networking that TSL provides is the most significant membership benefit. Fortunately, respondents also noted that networking is something that TSL does well. Similarly, the results showed that the mailing list is a reason for membership and something that many feel that TSL is doing well. The survey also sought to gauge interest in the TSL Conference. As shown in the table above, almost 75% of respondents plan to attend the TSL conference, which we hope is reflective of the membership in general. The new format of the TSL Business Meeting was also appreciated by virtually every respondent, even some who were not in attendance.

	Yes	No
Do you anticipate attending the TSL Conference in Chicago in 2017?	48	17
Did you attend the TSL Business Meeting at the recent INFORMS Annual Meeting in Philadelphia?	31	35
If yes, would you like to see the new format continue (e.g. the focus on networking and awards)?	34	1

How long have you been a TSL member?	
0 - 5 years	30
5 - 10 years	15
10+ years	20

The survey also asked, "What is TSL doing well?" The responses fell within several main categories. As discussed previously, many felt that the networking is important ("Great group of leaders establishing a great community to belong to"). Other respondents felt that the mailing list is helpful ("circulating information of general interest to our community"). Many of the remaining comments reflected that both the TSL Workshops and the TSL Conference have been well received ("Workshops are a great addition;" "I like the idea of the TSL conference and hope we can do this regularly").

Respondents perspectives on "What could TSL do to increase its value to you?" were particularly enlightening. One respondent suggested that TSL "Enhance the activities of the SIGs and the international activities." As the incoming president's letter indicates, this is a priority for the year. Despite recent efforts to change the perception and including a recent European-based President, one member wrote that TSL should "Be less U.S. centric and more active in Europe." Other topics that were raised that we hope to consider this year include focusing on the quality of TSL talks at INFORMS, using TSL profits for the good of members and better pooling TSL related resources. The entirety of the survey results can be found at:
https://www.informs.org/content/download/313112/2985965/file/TSLMemberSurvey.pdf

50 years of Transportation Science

A Google Scholar Transportation Science page has been created that lists all papers that have appeared in the fifty years of Transportation Science' existence. The link can be found here:
https://scholar.google.com/citations?user=6hCT3tYAAAAJ&hl=en

As mentioned above, Transportation Science is celebrating its 50th anniversary this year. As part of the celebration, the editorial team has selected 12 Transportation Science Classics. They can be found at the following link:
http://pubsonline.informs.org/page/trsc/classics

INFORMS has graciously allowed us to make these articles available for free, i.e., they can be downloaded by anyone, not only INFORMS members.

Upcoming Conferences

VeRoLog 2016: Annual workshop of the EURO working group on Vehicle Routing and Logistics optimization. Hosted at Mines Nantes Graduate School of Engineering, Nantes, FR, June 06-08, 2016.

The VeRoLog conference is the regular meeting of the large community of researchers and practitioners interested in Vehicle Routing optimization and its relations with Logistics. The conference is open to high quality methodological contributions and relevant, real-world applications from the industry and services. Nantes is the 6th largest city in France. Its urban area accounts for more around 590,000 inhabitants spreading over 24 municipalities. Nantes is an eco-friendly destination, proud of its natural environment; it was named European Green Capital in 2013. From an historical point of view, Nantes benefits from a tremendous heritage: the medieval Castle of the Dukes of Brittany, the old biscuit factory Lu which has become an atypical art centre, the Passage Pommeraye, a shopping arcade built in the late 19th. For more information visit http://verolog2016.sciencesconf.org/.

TRISTAN IX: Triennial Symposium on Transportation Analysis. Aruba, June 13-17, 2016.

TRISTAN is an international scientific conference that provides a high-quality forum for the presentation of mathematical models, methodologies and computational results, and for the exchange of ideas and scientific discussions on advanced applications and technologies in transportation. TRISTAN IX will be held June 13 through 17, 2016, on the island of Aruba (Welcome reception is on the 12th of June 2016). Located in the southern Caribbean Sea, Aruba is famous for its tropical climate, turquoise seas, white sandy beaches, and hospitable and vibrant culture. This "one happy island" aspires to be fully sustainable by 2020, and to this end is innovating its pedestrian, road, rail, maritime, and air transportation systems. In line with the TRISTAN tradition, the scope of TRISTAN IX covers the fields of transportation optimization, traffic engineering, and transit and shared mobility. For more information visit http://tristan-symposium.org/.

TSL Workshop 2016: Analytics and Automation in Logistics. Hosted at H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA, USA, June 19-22, 2016.

Supply chains increasingly produce and encounter large amounts of data that contains valuable information. Concurrently, the modern demands on a logistics enterprise require performance at high speed and low latency. The convergence of these two trends imply that supply chains must translate incoming data into decisions and actions at ever faster rates – in real-time and automatically in a variety of applications. These emerging concerns mean that the intelligent, efficient deployment of data analytics for automated decisions is not just an enabling technology, but rather a new decision paradigm whose ramifications will shape the design and management of modern logistics. This theme encompasses a variety of applications, including (but not limited to) urban logistics, dynamic and real-time routing, e-commerce, next- and same-day delivery, modular production, make-to-order production, and automated storage and retrieval. We welcome extended abstract submissions in these and other areas under the TSL umbrella. For more information visit https://www.informs.org/Community/TSL/TSL-Workshop-2016-Call-for-Submissions.

News and Notes

The 1st TSL Conference focusing on the scientific issues relevant to TSL members will be held in Summer 2017 at the Loyola University, Chicago, IL, USA. Details and registration information to follow soon.

Anna Nagurney has co-authored a new book, "Competing on Supply Chain Quality: A Network Economics Perspective," published in 2016 by Springer Publishing International Switzerland, and written with Dong Li. The book is the second book in the Springer Series on Supply Chain Management edited by Professor Christopher S. Tang, UCLA Distinguished Professor at the Anderson School. The book provides a network economics perspective to supply chain quality competition and explores such issues as outsourcing and supplier selection, make or buy decision-making, information asymmetry, product differentiation, as well as freight service provision, in both static and dynamic settings. Anna will continue her research on supply chain networks and quality issues as a Visiting Fellow at All Souls College at Oxford University in England during the 2016 Trinity Term.

IMUS-MSRI-2016 School on Mixed Integer Nonlinear Programming, Seville (Spain), June 20th- July 1st, 2016. This school is an exceptional event that will take place once and it

is oriented to the presentation of theory, algorithms and applications for the solution of mixed integer nonlinear problems (MINLP). Its goal is to present, in a unified way, the current theory together with the more recent algorithms designed to address some families of problems; we will also introduce the participants to the use of specific solvers devoted to formulate and to solve instances of these problems. The lecturers will start with basic concepts, in order to be interesting for beginners, finalizing discussing advanced topics of this emerging area of mathematical optimization. This school is intended for PhD students and young researchers (a maximum of 30) who wish to advance knowledge or to gain expertise in this specific field. MSRI and the local organizers will select a number of candidates (between 20-25) that will receive a grant to support their expenses to attend the school. The registration deadline is February 20th, 2016.

Victor Pillac, Michel Gendreau, Christelle Guéret and Andrés L. Medaglia won the 2015 EURO EJOR Best Paper Award for their paper "A review of dynamic vehicle routing problems". The paper can be found here: http://www.sciencedirect.com/science/article/pii/S0377221712006388

The latest TROPLOG Newsletter (Issue 2) can be found here: http://goo.gl/fDmdtr

Harilaos Psaraftis' book "Green Transportation Logistics: The Quest for Win-Win Solutions." has been published. This book examines the state of the art in green transportation logistics from the perspective of balancing environmental performance in the transportation supply chain while also satisfying traditional economic performance criteria. Part of the book is drawn from the recently completed European Union project Super Green, a three-year project intended to promote the development of European freight corridors in an environmentally friendly manner. Additional chapters cover both the methodological base and the application context of green transportation logistics. Further information can be found here: http://www.springer.com/us/book/9783319171746.

The latest issue of ACCESS Magazine has been released. (see www.accessmagazine.org for more details)

Call for Papers BISE 3/2017 - Computational Mobility, Transportation and Logistics. Authors are invited to contribute a research paper addressing new approaches, models and systems for planning and control of modern mobility, transportation and logistics services (MTL). For more information visit http://www.bise-journal.com/?p=1127.

To suggest items for future newsletters, contact Jan Fabian Ehmke at janfabian.ehmke@fu-berlin.de or Mike Hewitt at mhewitt3@luc.edu.