

TSL newsletters/Fall 2007

From The Transportation Science & Logistics Society Wiki

< TSL newsletters

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Source: www.lbpaper.com

Word from the President, Martin Savelsbergh

Time flies. The Seattle INFORMS meeting is already more than a month behind us. I hope all of you enjoyed it as much as I did. I was very pleased to see the attendance at the business meeting. We are a thriving and vibrant society. (We will have to do a better job coordinating with INFORMS to ensure that we get a bigger room next time.) As I mentioned during the business meeting, I believe that such a thriving and vibrant society needs a place to come together. What better place than the TSL wiki. The newsletter in which this Letter from the President appears is brought to you on the TSL wiki. The TSL wiki is a great place for sharing and archiving TSL newsletters. No more searching for it through your email folders, just one click away at the TSL wiki. We will keep a record of all award winners too. What better place to announce and find transportation and logistics conferences. And how about test sets for commonly studied problems? Internet searching is easy nowadays, but knowing exactly where to go and knowing you will find what you are looking for there is even easier. What about job postings? Post-doc positions? Summer internships? Or finding someone with specific expertise? It can all easily be done on the TSL wiki. The learning curve for adding information is short. Most can be done simply by cutting and pasting from existing pages or sections. Have a look at the TSL wiki and help to populate it with useful information. In the upper left hand corner of the main page of the TSL wiki is a place for a TSL logo. Please send your suggestions for a TSL logo to one of the TSL officers. The best logo will receive a prize at the next business meeting. You don't know who the TSL officers are? Guess where you can find that information? On the TSL wiki of course!

TSL wiki: [Main Page](#)

Finally, I wish each and every one of you a Merry Christmas and a Happy New Year!

Martin

Barrett Thomas

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Education Corner: International Exchange Continued

by Stein Wallace

In the previous newsletter, I suggested we might set up a service at our web site with the following content:

- Offers from institutions that can receive visiting students (master and PhD - maybe also bachelor) for a semester or more in transportation, logistics or related fields.
- A possibility for students to ask for the same.
- An overview over intensive PhD courses which accept outside participation.

Offers and requests for student placements

I have had only one direct reply. In addition there were comments made to me before I suggested the service. But this still makes me hesitate. Is this something we need? Again, I would like to invite comments and arguments, for and against. Feel free to send them to me, or use the newsletter for taking part in the discussions.

For discussion on this topic, visit the TSL wiki:

http://castlelab.princeton.edu/wiki/index.php/International_Exchange

Stein Wallace is a Professor in Quantitative Logistics at Molde University College in Molde, Norway. Wallace is currently a visiting professor at the Chinese University of Hong Kong. You can contact him at swallace@se.cuhk.edu.hk.

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In Focus *Center for Engineering Logistics and Distribution (CELDi)*



CELDi (<http://www.celdi.ineg.uark.edu/index.asp>) is a multi-university, multi-disciplinary NSF-sponsored Industry/University Cooperative Research Center (I/UCRC). Member organizations join CELDi with a minimum \$50,000-a-year contribution. The mission of the Center is to solve integrated design and analysis problems in logistics and distribution via simulation and mathematical modeling, analysis, and the development and application of powerful, intelligent, real-time algorithms. Member organizations come from the commercial and government sectors (including the military) of the economy.

CELDi was initiated in 2002 as a multi-university I/UCRC. Initial partnering universities with the UA include the University of Louisville, the University of Oklahoma, and Oklahoma State University (these three universities were renewed concurrently with the UA). In 2004, Lehigh University and the University of Florida were added to CELDi. In 2005, the University of Nebraska and Texas Tech University were added, and in 2006 Clemson University was added. An additional four universities are currently under planning grants and two others have submitted planning grant proposals. Each university must maintain at least three member organizations. There are currently more than 30 member organizations that partner with CELDi universities. CELDi has built a strong foundation and is working to achieve national prominence in logistics and distribution research.

“We have a number of schools that we’d like to see join CELDi so that we are able to cover what our members need in terms of research capabilities,” Meller said. “We all work together to see that each school is able to recruit member organizations to support their goals.”

Logistics and distribution costs are significant for almost all products. For some products, these costs represent a majority of the total product cost. Logistics costs in the United States were estimated to be \$1.2 trillion in 2005, or roughly 9.5% of the U.S. Gross Domestic Product (GDP), according to cost studies^[1] Worldwide, logistics and distribution costs total about \$4.5 trillion annually.

Equally important is the fact that logistics is the fundamental link, sometimes the only link, between most suppliers and their customers. As a result, increasingly, logistics and distribution systems are being measured by performance on quality and service measures^[2], which suggests that firms realize that many measures of customer service are also measures of the performance of the logistics value chain. In a sense, Meller said, “distribution centers have become the factories of the service economy.” A recent Department of Energy study reports that there are more than 36,000 warehouses larger than 100,000 square feet, and nearly 3,000 larger than 500,000 square feet, in

the United States alone.^[3]

Increasing global competition, customer requirements, and the evolution of the Internet are dramatically and continually changing the way companies operate. These challenges are forcing companies to rethink the way they do business, the products and services they offer, and the transportation modes they use to bring these products to market. Through collaborative, applied research that is motivated by a particular member organization's need, and then selection of the top projects for additional funding to support generalized, basic research, CELDi is able to deliver on the promise of an I/UCRC through member organization synergy and leveraging multiple funding sources. CELDi has been structured to serve as the catalyst for developing the engineering logistics methodology necessary for logistics value chain optimization. CELDi can provide the foundation and structure for educating the next generation of engineers in logistics and distribution centers. "CELDi is uniquely positioned to be the one-stop source for logistics and distribution problem-solving that looks at system design by considering operational impact," Meller said.

References

- ↑ Explosive Growth For Logistics Costs, *Logistics Today*, June, 2006; Maltz, Arnold and Nicole DeHoratius, Warehousing: The Evolution Continues, Warehousing Education and Research Council, Research Report, 2004.
- ↑ Energy Information Administration, 2003 Commercial Buildings Energy Consumption Survey, Technical Report, Department of Energy, 2006.
- ↑ Tompkins, John A., White, John A., Bozer, Yavuz A., Tanchoco, J. M. A. *Facilities Planning* (3rd edition), John Wiley and Sons, Inc., 2003.

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Reports from the TSL Annual Business Meeting

The TSL Annual Business Meeting took place at the recent INFORMS Annual Meeting in Seattle, Washington. The following are synopses of reports given by various officers of the Society. The minutes of the meeting are available from: 2007 Business Meeting Minutes.

Report of the Secretary/Treasurer Huseyin Topaloglu

The Society is doing well from financial perspective. TSL's bank balance as of September 30, 2007, is \$18,284. The revenue from our membership dues in 2007 is \$4,040. Our major expenses are related to sponsoring TRISTAN meeting, funding the plaques and prizes for the TSL awards, and catering for the business meeting. Overall, our annual revenue should exceed our annual expenses in 2007. Our current member count is 790, with 396 regular members, 382 retired members, 10 retirees, and 2 non-INFORMS members.

Report of the TSL Cluster Chair Kevin Gue

SL broke all previous records at INFORMS Seattle, with 54 sessions and more than 200 talks. Congratulations to all. Martin Savelsberg chaired a special Panel Session entitled, "Transportation 2030: Trends and Challenges." Panel members were Brenda Dietrich of IBM, Woody Richardson from Schneider National, and Mike Meyer and Chip White, both from Georgia Tech. The session was very interesting and very well received. The INFORMS 2008 cluster chair is Dave Lovell of the University of Maryland.

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SIG News *Facility and Logistics*

International Material Handling Research Colloquium 2008

The 10th International Material Handling Research Colloquium (IMHRC) will be held on 28 May - 2 June 2008 in Dortmund, Germany. IMHRC 2008 will be hosted by the Fraunhofer Institute for Material Flow and Logistics (IML) and will include a day of programming at the CeMAT tradeshow in Hanover, Germany along with facility tours at several industrial sponsor sites.

The purpose of the Colloquium is to share research accomplishments and directions in the field of material handling and facility logistics. As in the past, the Colloquium will operate on an immersion philosophy of complete participation by all participants in all the Colloquium events (presentations, poster sessions, breakout sessions, tours, social events) with all local expenses paid by the Colloquium sponsors. The call for papers and other information related to the Colloquium can be found at: <http://www.mhia.org/cicmhe/colloquium> (<http://www.mhia.org/cicmhe/colloquium>) .

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2008 Outstanding Material Handling and Logistics Research Paper Award

The College Industry Council on Material Handling Education (CICMHE) and the Material Handling Industry of America (MHIA) are interested in recognizing excellent material handling and logistics-related research papers published in the last two years (January 1, 2006 - December 31, 2007). We are interested in groundbreaking papers in a broad sense on material handling and logistics in the fields of manufacturing, distribution, warehousing, and logistics, ranging from the application of material [http://list.informs.org/mailman/listinfo/urban-tsl-society] handling and logistics technologies to the improvement of material handling and logistics performance.

The call for nominations will go out over the TSL-Facility Logistics listserve (<http://list.informs.org/mailman/listinfo/facility-tsl-society>) in January. Sign up now so as to not miss out.

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Engineering Virtual Organization for Discrete-Event Logistics Systems Opportunities for Involvement Signup for Listserve

NSF has funded a two-year study to establish an engineering virtual organization (EVO) addressing discrete-event logistics systems (DELS). DELS are networks of resources through which materials flow; each arc in the network corresponds to some resource (or set of resources) by which the materials are either converted in some way (refined, shaped, coated, assembled, disassembled, etc.), moved (transported within a facility or between facilities), or simply held for some period of time (as work-in-process or stored in a warehouse). Material handling and transportation are key components of DELS. DELS are "discrete" in part because the materials move in discrete quanta, and in part because their behavior can be characterized effectively in terms of discrete events; e.g., the start or end of some conversion, transport, or storage process. A DEL system may take the form of a single warehouse, a portion of a factory, a complete factory, or a global supply network.

An EVO, is created by a group of individuals whose members and resources may be dispersed globally, yet who function as a coherent unit through the use of cyber infrastructure (CI). EVOs will extend beyond small collaborations and individual departments or institutions to encompass wide-ranging, geographically dispersed activities and groups. This approach has the potential to revolutionize the conduct of science and engineering research, education, and innovation. These systems provide shared access to centralized or distributed resources, such as community-specific sets of tools, applications, data, and sensors, and experimental operations, often in real time.

The vision of the DELS EVO is that the rapid evolution of cyber-infrastructure presents an opportunity for innovative research that would yield significant societal returns in the form of higher DELS performance with lower costs and less risk, both to firms and to the society in which they operate. For DELS researchers and practitioners, a well-designed, implemented, and maintained CI would enable an EVO to pursue a new generation of collaborative research, based on digital meetings, unified domain models, open-source software and standards, high-fidelity digital mockups, distributed analysis, large data repositories, and high bandwidth data sharing.

The scope of the two-year NSF-funded effort is to establish a consensus description of the DELS EVO, addressing its purpose, principles, goals, and method of operation, to establish the detailed technical and operational requirements for the CI necessary to support the EVO, to identify the specific research most likely to be enabled by the EVO, and to develop a CI-enabled prototype. Maximum use will be made of existing CI technology in the proposed project, in order to engage the broadest possible cross section of researchers and practitioners in DELS.

For more information on the DELS EVO, visit www.delnet.gatech.edu.

To join the listserv associated with the DELS EVO: Subscribe at <http://www2.isye.gatech.edu/mailman/listinfo/delnet> or send an e-mail to delnet-request@mail.isye.gatech.edu (<mailto:delnet-request@mail.isye.gatech.edu>) with the subject "subscribe."

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New Book in the Area of Facility Logistics, Edited by TSL Facility Logistics Member, Maher Lahmar

Facility Logistics member, Maher Lahmar, an assistant professor at the University of Houston, has edited the new book *Facility Logistics: Approaches and Solutions to Next Generation Challenges*. The trend towards more globalization and outsourcing and the greater emphasis on facility sustainability have lead to new challenges for plant managers and logistics practitioners. By evaluating the impact of these issues on facility logistics, this volume is intended to provide the interested reader with ways to improve the design and management of facilities. This book explores recent developments in the technology, industrial practices, and business environments of facility logistics. It discusses the main trends impacting facility logistics operations, examines the basic functionalities and capabilities of warehouse management systems, and outlines a comprehensive yet simple method that allows a quick assessment of warehouse performance. The book also presents a set of solutions to emerging challenges in the design and management of facility logistics, along with procedures to better plan and manage the logistics activities within a production or storage facility. The final chapter reviews educational resources and offers examples of how multimedia tools can be used to develop new teaching material.

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Joining a SIG Mailing List

We now have separate email lists for each special interest group. Anyone can join (even if you are not a member of Informs). You may also join more than one. If you have not joined a special interest group, please click on any of the links below to join:

Freight Transportation and Logistics (<http://list.informs.org/mailman/listinfo/freight-tsl-society>)

Urban Transportation (<http://list.informs.org/mailman/listinfo/urban-tsl-society>)

Facility Logistics (<http://list.informs.org/mailman/listinfo/facility-tsl-society>)

Intelligent Transportation Systems (ITS) (<http://list.informs.org/mailman/listinfo/its-tsl-society>)

Air Transportation (<http://list.informs.org/mailman/listinfo/air-tsl-society>)

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News and Announcements

Council of University Transportation Centers Annual Awards

The Council of University Transportation Centers makes six annual awards to graduate students in Transportation, including individual dissertation and thesis awards in Policy and Planning (the Wootan Awards), individual dissertation and thesis awards in Science and Technology (the Pikarsky Awards), and two paper awards, one in Policy and Planning and one in Science and Technology (the Parker Awards). The work for the current competition must have been completed and accepted during the 2006-07 academic year. Winners will be recognized at the CUTC Awards Banquet held on Saturday, January 12, 2008, immediately preceding the 86th Annual Meeting of the Transportation Research Board, January 13-17, 2008. The 2007 winners have just been announced, and are as follows:

Pikarsky PhD â Dr. Xiaokun Wang (The University of Texas at Austin)

Paper Title: âCapturing Patterns of Spatial and Temporal Autocorrelation in Ordered Response Data: A Case Study of Land Use and Air Quality Changes in Austin, Texasâ

Nominator: Prof. Kara M. Kockelman (The University of Texas at Austin)

Pikarsky MS â Mr. Peter Jenior (Georgia Institute of Technology)

Paper Title: âObservation and Modeling of Traffic Operations at Intersections in Malfunction Flash Modeâ

Nominator: Prof. Michael Hunter (Georgia Institute of Technology)

Wootan PhD â Dr. Konstantina Gkritza (Purdue University)

Paper Title: âEconomic Development Effects of Highway Investmentâ

Nominator: Prof. Kumares C. Sinha (Purdue University)

Wootan MS â Mr. Nathan Parker (University of California, Davis)

Paper Title: âOptimizing the Design of Biomass Hydrogen Supply Chains Using Real-World Spatial Distributions: A Case Study

Nominator: Prof. Evelyn Blumenberg (University of California, Los Angeles)

Parker S/T â Ms. Andrea Osgood (University of California, Los Angeles)

Paper Title: âCurb Dreams: Allocating On-Street Parking for Carsharing. An Analysis of Local Government Agenciesâ Options for Encouraging Carsharing Use Through On-Street Parking Programsâ

Nominator: Prof. Evelyn Blumenberg (University of California, Los Angeles)

Parker P/P â Mr. Juan-Carlos Cuervo (The City College of New York, CUNY)

Paper Title: âDevelopment of a Strategic Management Model for Combined Fixed and Moving Transportation Assets: A Case Study and Project Description of the Transmilenio-Bogota Bus Rapid Transit Systemâ

Nominator: Prof. Neville A. Parker (The City College of New York, CUNY)

Congratulations to these transportation graduate students, their nominators, and their advisors.

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IFORS 2008 Call for Submissions



Dear TSL friends,

This is a reminder of the upcoming triennial IFORS conference, to be held in South Africa on 13-18 July 2008. Conference information can be found at <http://www.ifors2008.org/> (<http://www.ifors2008.org>) .

TSL is helping to organize sessions for the transportation science and logistics track. The following people are putting together streams of sessions for the TSL track:

- Freight Transportation and Logistics: Peter Francis (ifors.tsl@gmail.com (<mailto:ifors.tsl@gmail.com>))
- Urban transportation: Siriphong (Toi) Lawphongpanich (lawphong@ise.ufl.edu (<mailto:lawphong@ise.ufl.edu>))
- Facility Logistics: Sunderesh S Heragu (s.heragu@louisville.edu (<mailto:s.heragu@louisville.edu>))
- Railroad applications: Paolo Toth (ptoth@deis.unibo.it (<mailto:ptoth@deis.unibo.it>))
- Intelligent transportation systems (ITS): Travis Waller (S.Travis.Waller@engr.utexas.edu (<mailto:S.Travis.Waller@engr.utexas.edu>))
- All other transportation science and logistics topics: Anton Kleywegt (anton@isye.gatech.edu (<mailto:anton@isye.gatech.edu>)) or Paolo Toth (ptoth@deis.unibo.it (<mailto:ptoth@deis.unibo.it>)) .

If you would like to submit an abstract, you can either submit a "contributed abstract" using the "contributed abstract submission form" at <http://www.euro-online.org/ifors2008> (note this web page is different from the one above), or you can send an email message to one of the people listed above, who will send you a "submission code" to submit your abstract to a particular session through <http://www.euro-online.org/ifors2008>.

Please submit your abstracts soon (and start planning some great excursions).

I welcome your questions and comments.

Anton Kleywegt, TSL Cluster Chair

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INFORMS Southwest Regional Conference *Call for Submissions in Transit and Paratransit*

I am soliciting papers for a session on "Transit and Paratransit: Modeling, Planning and Scheduling" and related topics at the INFORMS Southwest Regional Conference, which will be held at Texas A&M University in College Station, Texas on April 18-19, 2008. Please see <http://meetings.informs.org/regional/southwest08/> for the conference webpage and details.



Papers on OR models/techniques (optimization, simulation, continuous approximations, etc...) applied to the Transit/Paratransit general topic are welcome to be submitted.

Contact me directly with your title and abstract to have you talk included in this session.

Thank you and I hope to see you at TAMU!

Luca Quadrioglio (lquadrioglio@civil.tamu.edu (<mailto:lquadrioglio@civil.tamu.edu>))

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Book Announcement *Approximate Dynamic Programming*

Approximate Dynamic Programming: Solving the curses of dimensionality (<http://www.castlelab.princeton.edu/adp.htm>)
 by
 Warren B. Powell
 Published by John Wiley and Sons (2007)

Drawing on decades of research in transportation, the book shows how to use approximate dynamic programming to overcome the three "curses of dimensionality" that arise in complex resource allocation problems. The book is primarily aimed at masters students and professionals, but it can be used by advanced undergraduates as well as Ph.D.'s. This is the first book to bring together the fields of math

programming, simulation and statistics to produce practical solutions to complex stochastic, dynamic programs.

The material should be useful for three types of applications: a) solving hard dynamic programs, b) making classical discrete-event simulation models more intelligent, and c) providing a decomposition strategy for very large-scale math programs (deterministic or stochastic). The methods in this book have been used to build production systems for modeling truckload motor carriers and railroads, as well as a range of other applications.

More information about the book is available here (<http://www.castlelab.princeton.edu/adp.htm>) . A short summary of CASTLE Lab activities is given here (<http://www.castlelab.princeton.edu/SupportingDocuments/CastleBrochureJuly302007.pdf>) .

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Book Announcement *Fleet Telematics*

Fleet Telematics - Real-Time Management and Planning of Commercial Vehicle Operations (<http://www.springer.com/978-0-387-75104-7>)

by Asvin Goel

Operations Research/Computer Science Interfaces Series , Vol. 40, Springer, 2007. ISBN: 978-0-387-75104-7

In the past 30 years, commercial transport traffic has more than doubled in both Europe and North America. Asian commercial transport traffic over this period of time has likely increased even more. Traffic jams are routine and they can happen in any segment of the highway system at any time. Moreover, manufacturing companies increasingly apply just-in-time practices in order to cut down inventory costs. As any mismatch between supply and demand can result into significant disturbances of manufacturing processes, just-in-time practices necessitate punctual, reliable, and flexible transportation. Emerging technologies in real-time communications systems provide the means for commercial vehicle operators to meet the increasingly complex customer expectations in a highly dynamic environment with unreliable traffic conditions.

Fleet Telematics: Real-Time Management and Planning of Commercial Vehicle Operations combines wireless telematics systems with dynamic vehicle routing algorithms and vehicle-positioning systems to produce a telematics-enabled information system that can be employed by commercial fleet operators for real-time monitoring, control, and planning. The book presents a Messaging & Fleet Monitoring System that automatically identifies deviations between the planned and the current state of the transportation system and a Dynamic Planning System (DPS) that provides real-time decision support considering the current state of the transportation system. The DPS uses newly developed dynamic vehicle routing algorithms to find high-quality solutions and adjust schedules and routes immediately.

Further information: <http://www.fleettelematics.net>.

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Introducing BizGames

The BizGames website (<http://www.uiowa.edu/~bizgames>) was designed with the simple goal in mind: collect comprehensive information on available simulation-based games that can be used in Operations Management courses. Games have become one of the most effective teaching tools for OM. Games make the learning process not only fun for students, but the hands-on experience helps the students understand the concepts at a deeper level. BizGames presents information in a straightforward manner, detailing basic requirements of the games, a description of how the game is played, material covered, and contact information. If you have questions or have games to submit, please contact Ann Campbell (ann-campbell@uiowa.edu (<mailto:ann-campbell@uiowa.edu>)) .

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Newsletter Link Exchange

To encourage our Society members to engage members in other research communities, the TSL News is engaging in a series of link exchanges. This issue, we offer:

- INFORMS Computing Society (<http://computing.society.informs.org/newsletter.php>)
- The newsletter (<http://www.martrans.org/news/index.html>) of the Laboratory for Maritime Transport (LMT) of the National Technical University of Athens (NTUA). NTUA is the oldest and largest engineering university in Greece and it shows a most distinguished record of achievement, going back to its foundation in 1836. LMT holds a long-standing experience in the design, development and simulation of maritime and intermodal transport, marine environmental protection, safety analysis and human elements. Following Greece's rich maritime tradition, LMT is active in practically all areas of maritime transport R&D, having completed or being involved in projects in areas such as technology, management, economics, logistics, telematics, human aspects,

environment, and safety.

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