Our Transportation Center: Making Things Count

Hani S. Mahmassani

Presentation to the BAC April 6, 2011
Strategic Vision: A Refresher

- Pre-eminent think-tank and laboratory in the world for cutting-edge research that matters on a global scale.
- Provide the premier educational program in transportation systems.
- Essential academic partner for novel, high-impact collaborative research.
- Advance state of practice industry applications through a mix of engaged application-driven research and fundamental advances.
Progress Highlights: 2010-2011 (I)

BAC Membership
- 7 new companies, 9 new members

Sponsored Research Activity
- Active: 19 projects $3.73 M, 15 faculty
- Submitted: 16 proposals, $2.05 M, 12 faculty

Students
- 20 supported via research projects
- 5 supported via dissertation year fellowships
- $580,000 in support (travel, tuition, stipend, fellows)
Progress Highlights: 2010-2011 (II)

Executive Education

- 3 programs – previously reported in fall 2010
- 2011 – Chinese Logistics Executive Program for China Communications and Transportation Association
- 2011 – Partner with Chalmers University, Supply Chain Management program (open to 5 BAC members)

International Technical Assistance

- Strategic Priorities Workshop, Umm-Al-Qura Univ, Saudi Arabia
- New National Transportation Center for Ministry of Transport, KSA

Outreach, Events, Public Policy

- Fourth Annual William O. Lipinski Symposium on Transportation Policy – *Public Transit: A Sustainable Ride to the Future*
BAC: New Member Companies (I)

Clarendon Group

Centerpoint Properties

Delta Airlines

Fifth Third Bank
BAC: New Member Companies (I)

Heidrick & Struggles  Heidrick & Struggles

Littlejohn & Co.  Littlejohn & Co.

Mercator International  Mercator International LLC

Logistics & Infrastructure Advisors
BAC: Target Sectors for New Members

Shippers with significant logistics operations
International Carriers
Trucking / Logistics companies
Transportation Equipment / Systems Manufacturers
Technology Providers
BAC: New Members Here Today(I)

Farrukh Bezar
Partner

Neil Collins
Managing Partner,
Transportation & Logistics

Tom Morrison
Director of Transportation Operations
BAC: New Members Here Today (II)

Mike Mullen
*CEO, Co-Founder*

Steven Rothberg
*Founding Partner*

Joshua Schank
*President, CEO*
# BAC Contributions: 2010-2011

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<thead>
<tr>
<th></th>
<th>GOAL</th>
<th>BY APRIL</th>
<th>ACTUAL</th>
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<tr>
<td>FY 10</td>
<td>$300,000</td>
<td>$260,000</td>
<td>$352,000</td>
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<tr>
<td>FY 11</td>
<td>$350,000</td>
<td>$257,000</td>
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NUTC Revenue: 2010 - 2011 (FY11)

- 36.09% (Research)
- 30.64% (BAC)
- 19.74% (Endowments)
- 11.48% (Tech. Assistance)
- 2.05% (Gifts, Other)
NUTC Revenue: 2010 - 2011 (FY11)

- BAC: 36.09%
- Endowments: 11.48%
- Gifts, Other: 19.74%
- Research: 2.05%
- Tech. Assistance: 30.64%
Industry Outreach Expenditure
Exec Ed, Sandhouse, BAC, Marketing, Etc.

* Projected
Executive Program Classes

Progressively and selectively building new executive program offerings—

- Targeting timely, business-relevant and high-specialization topics where NUTC faculty has unique expertise

- Consideration of both visibility/reputation/positioning impact as well as revenue generation potential.

Coping With Carbon: Sustainable Strategies for the Transportation and Logistics Enterprise
September 14 – 16

Freight Transportation: Strategies for a Changing Landscape
October 12 - 14

Pricing Transportation Infrastructure
October 18 - 20
New Faculty Affiliates 2010-2011 (I)

Elodie Adida (UIC)
Assistant Professor of Mechanical and Industrial Engineering
Mathematical modeling, optimization, game theory, supply chain management, disaster preparedness and OR in health care

Zdenek Bazant
McCormick Institute Professor and Walter P. Murphy Professor of Civil and Environmental Engineering
Mechanics of materials and structures and structural safety, nanomechanics, and hygrothermal effects
New Faculty Affiliates 2010-2011 (II)

**J. Edward Colgate**
Allen and Johnnie Breed University Professor of Design, Mechanical Engineering; Co-Chair, Segal Design Institute
*Human-machine interface, haptics, mechatronic systems*

**Alberto Salvo**
Assistant Professor, Management and Strategy, Kellogg School of Management
*Industrial organization, international trade, environmental economics, applied microeconomics, strategy*
Faculty: Selected Awards

Jan Achenbach
Theodore von Karman Medal

Irina Dolinskaya
2010 Best Dissertation Award of the Transportation Science and Logistics Society of INFORMS

Hani Mahmassani
2010 IEEE Outstanding Intelligent Transportation Systems Application Award
Students: Our Core Mission (I)

• TC adds *value to student experience* through industry exposure, seminars by authorities in the field, travel funds for conferences, fellowship stipends—essential differentiator for recruiting top talent

• Many opportunities for *undergraduates* interested in transportation; increasing engagement in research, *internship* placement with *BAC* companies

• *Industry support is critical* to our mission and to making a Northwestern Education in Transportation the unique experience it is.
Students: Our Core Mission (II)

- **10** New graduate students in Fall 2010
- **5** Dissertation Year Fellows (2010-11)
- **3** Transportation & Logistics graduating seniors
Direct Student Funding Through TC

![Bar Graph]

- FY09
- FY10
- FY11* (Projected)

- $0
- $200,000
- $400,000
- $600,000
Students: More Receiving Support
Students: Dissertation Year Fellows (I)

Hamed Babai
Properties of Simulated Path Travel Times

Elaine Croft McKenzie
EIO-LCA Framework for the Development of Sustainable Transportation Infrastructure

Bill Pun
Topics in Airline Revenue Management for Passenger and Cargo Sectors
Students: Dissertation Year Fellows (II)

Xing Wu
Routing and Traffic Assignment in Stochastic Networks

Zitao Zhang
Economic Analysis of Transportation Systems
Students: External Awards (I)

- **Charlotte Frei**, Civil Engineering PhD candidate
  - Women’s Transportation Society Leadership Legacy Award

- **Ken Fuller**, Transportation & Logistics Minor
  - 2011 Containerization & Intermodal Institute Award

- **Christopher Lindsey**, Civil Engineering PhD candidate
  - Eno Transportation Foundation Leadership Development Fellowship Conference Award
  - 2011 Containerization & Intermodal Institute Award

- **Bill Pun**, Industrial Engineering & Management Science PhD candidate
  - 2011 Containerization & Intermodal Institute Award
Students: External Awards (II)

- **Luis de la Torre**, Industrial Engineering & Management Science PhD candidate
  - 2011 Containerization & Intermodal Institute Award

- **Zitao Zhang**, Civil Engineering PhD candidate
  - 2011 International Road Federation Scholar Fellowship
  - 2011 The Terry L. Priest Scholarship
  - 2010-2011 Fellowship in Leadership, Center for Leadership, Northwestern University
Research Update: Strategic Focus Areas

1. Re-inventing the user experience in transportation
2. Transportation energy and sustainability
3. Humanitarian logistics and disaster relief
Research Update:
Strategic Focus Areas
Re-inventing the User Experience in Transportation

<table>
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<tr>
<th>Industry</th>
<th>Public Sector</th>
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<tr>
<td>• American Airlines</td>
<td>• Pace Suburban Bus</td>
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<tr>
<td>• DSC Logistics</td>
<td>• Chicago Transit Authority</td>
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<td>• Lan Chile</td>
<td>• Chicago Department of Transportation</td>
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<td>• Lufthansa</td>
<td>• Illinois Tollway</td>
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<td>• Teradata</td>
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<td>• Bruce Mau Design</td>
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Research Update: Strategic Focus Areas

Transportation Energy and Sustainability

- **Diego Klabjan / Timothy Sweda**
  - Modeling Best Location for Electric Vehicle Charging (CCITT)

- **Pablo Durango Cohen / Elaine Croft McKenzie**
  - EIO-LCA Framework for the Development of Sustainable Transportation Infrastructure

- **Partner with Initiative for Sustainability & Energy at Northwestern (ISEN)**
  - Greening of Transportation Workshops 1 & 2
Research Update: Strategic Focus Areas
Humanitarian Logistics & Disaster Relief

• Karen Smilowitz / Irina Dolinskaya / Luis de la Torre
  – Decision Making Tools for Distribution Networks in Disaster Relief (CCITT funded)

• Newly launched Humanitarian Logistics Initiative at the McCormick School

• Hosting 2nd International Conference on Evacuation Modeling & Management (ICEM’11) – August 2011
MORE
HERE
Research Connections in Our Region

• Argonne Transportation Analysis group
  – Workshop under new ISEN initiative
  – Researcher seminars and visits

• Illinois Center for Transportation (UIUC)
  – Partnering in projects with IDOT
  – Closer strategic coordination

• Local and State Government & Agencies
  – Governor of Illinois’ Office
  – CREATE/IDOT
  – CMAP, RTA, CTA
  – IL Tollway Authority
  – Pace Suburban Bus
Current research engagements with BAC and other industry partners

• Research engagements via TC

• Research engagements via CCITT
Closing Thoughts

• Challenging times in the transportation sector—industry, public sector

• **AT NORTHWESTERN**
  – Uniquely successful industry-engaged approach to transportation research and education

• What we do at the NUTC matters

• BAC engagement and support critical to what we do, and how well we do it
Thank you!