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Northwestern Engineering

Northwestern University Transportation Center

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

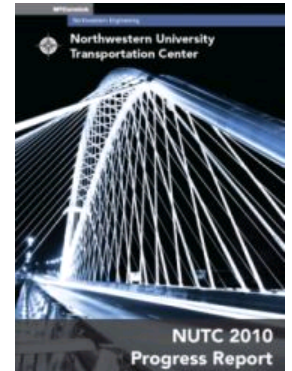
- **7** new companies, **9** new members

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)

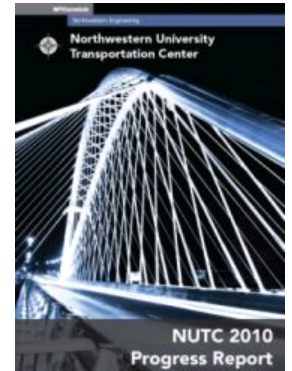




Progress Highlights: 2010-2011 (II)

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*

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BAC: New Member Companies (I)



Clarendon Group



Centerpoint Properties



Delta Airlines



Fifth Third Bank



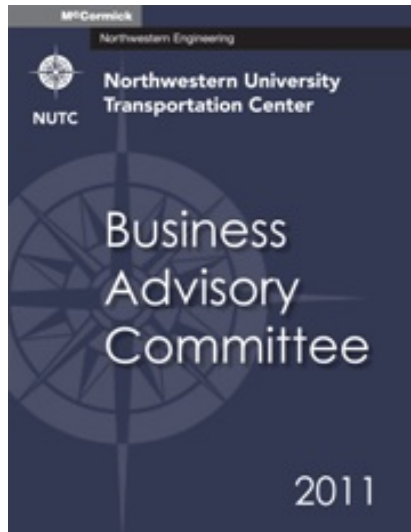
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BAC: New Member Companies (I)



Heidrick & Struggles HEIDRICK & STRUGGLES

Littlejohn & Co. LITTLEJOHN & CO.

Mercator International



MERCATOR
INTERNATIONAL LLC
Logistics & Infrastructure Advisors

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BAC: Target Sectors for New Members



Shippers with significant logistics operations

International Carriers

Trucking / Logistics companies

Transportation Equipment / Systems Manufacturers

Technology Providers

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BAC: New Members Here Today(I)



Farrukh Bezar
Partner



Neil Collins
*Managing Partner,
Transportation & Logistics*

HEIDRICK & STRUGGLES



Tom Morrison
*Director of Transportation
Operations*



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BAC: New Members Here Today(II)



Mike Mullen
CEO, Co-Founder



CenterPoint Properties®



Steven Rothberg
Founding Partner



MERCATOR
INTERNATIONAL LLC
Logistics & Infrastructure Advisors

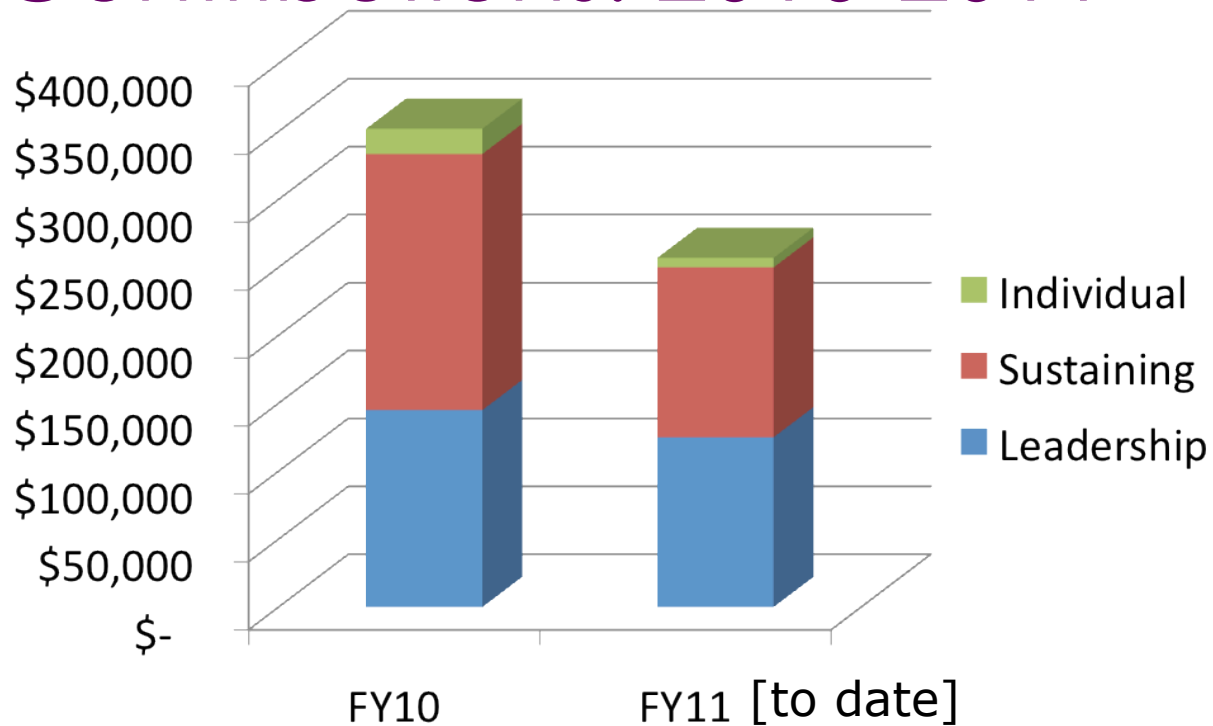


Joshua Schank
President, CEO





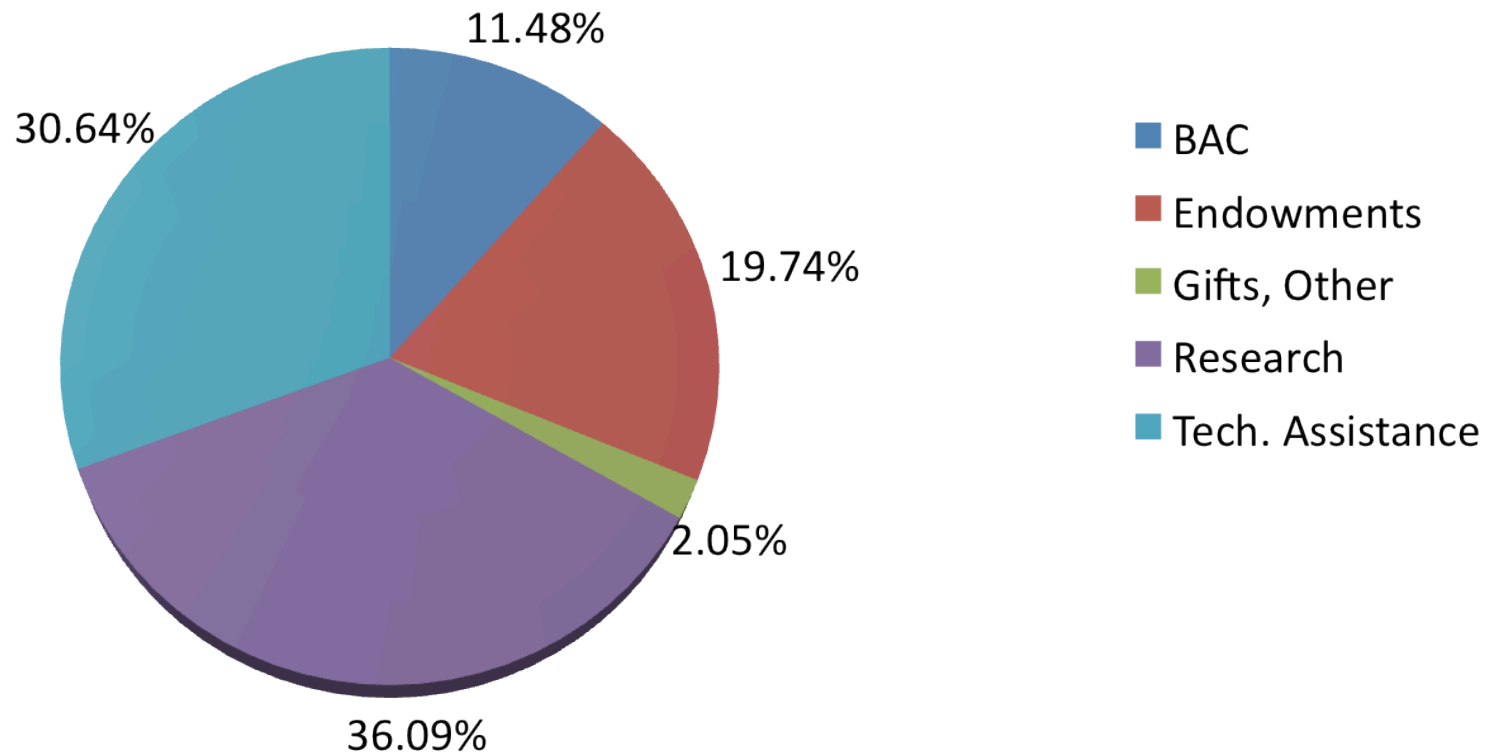
BAC Contributions: 2010-2011



	GOAL	BY APRIL	ACTUAL
FY 10	\$300,000	\$260,000	\$352,000
FY 11	\$350,000	\$257,000	

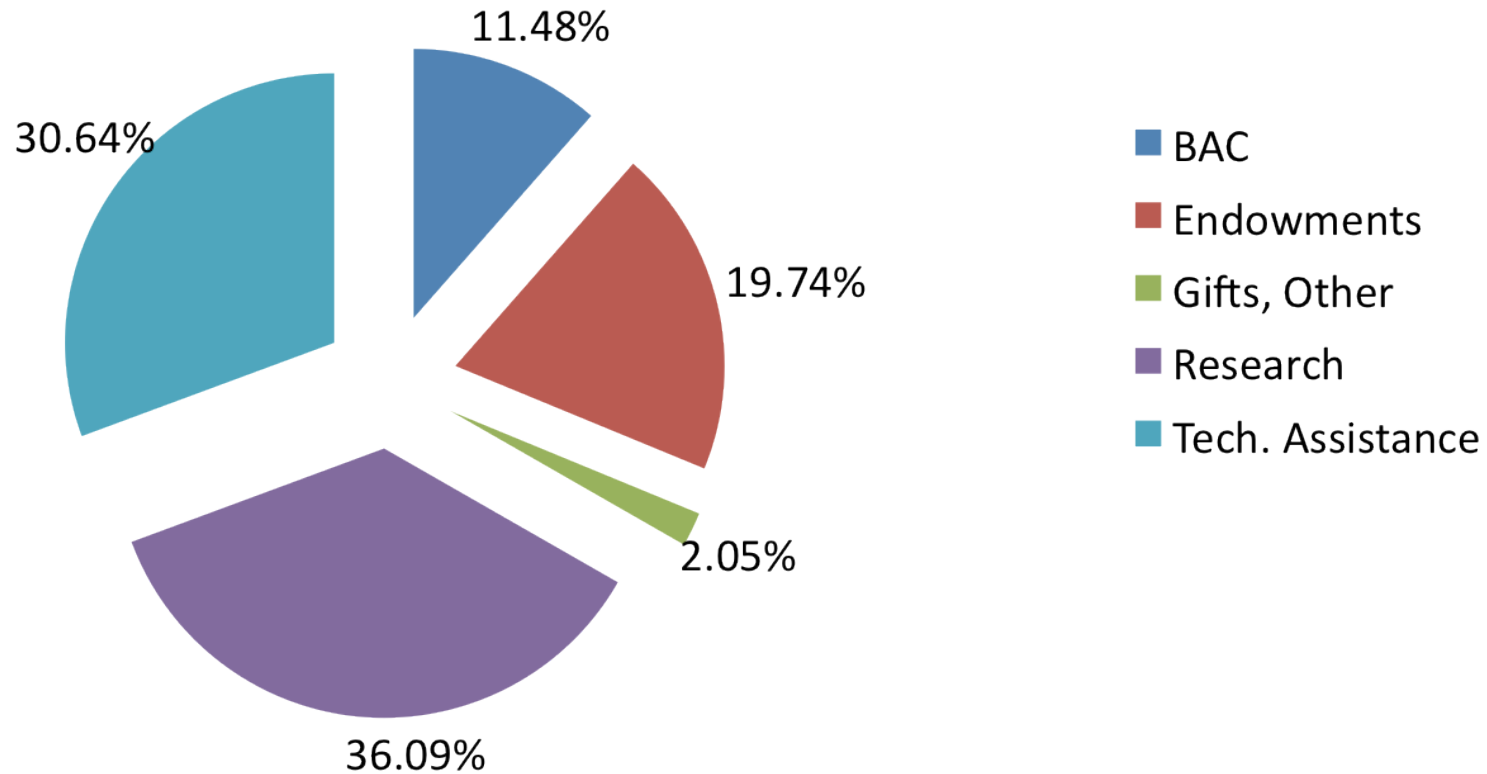


NUTC Revenue: 2010 - 2011 (FY11)



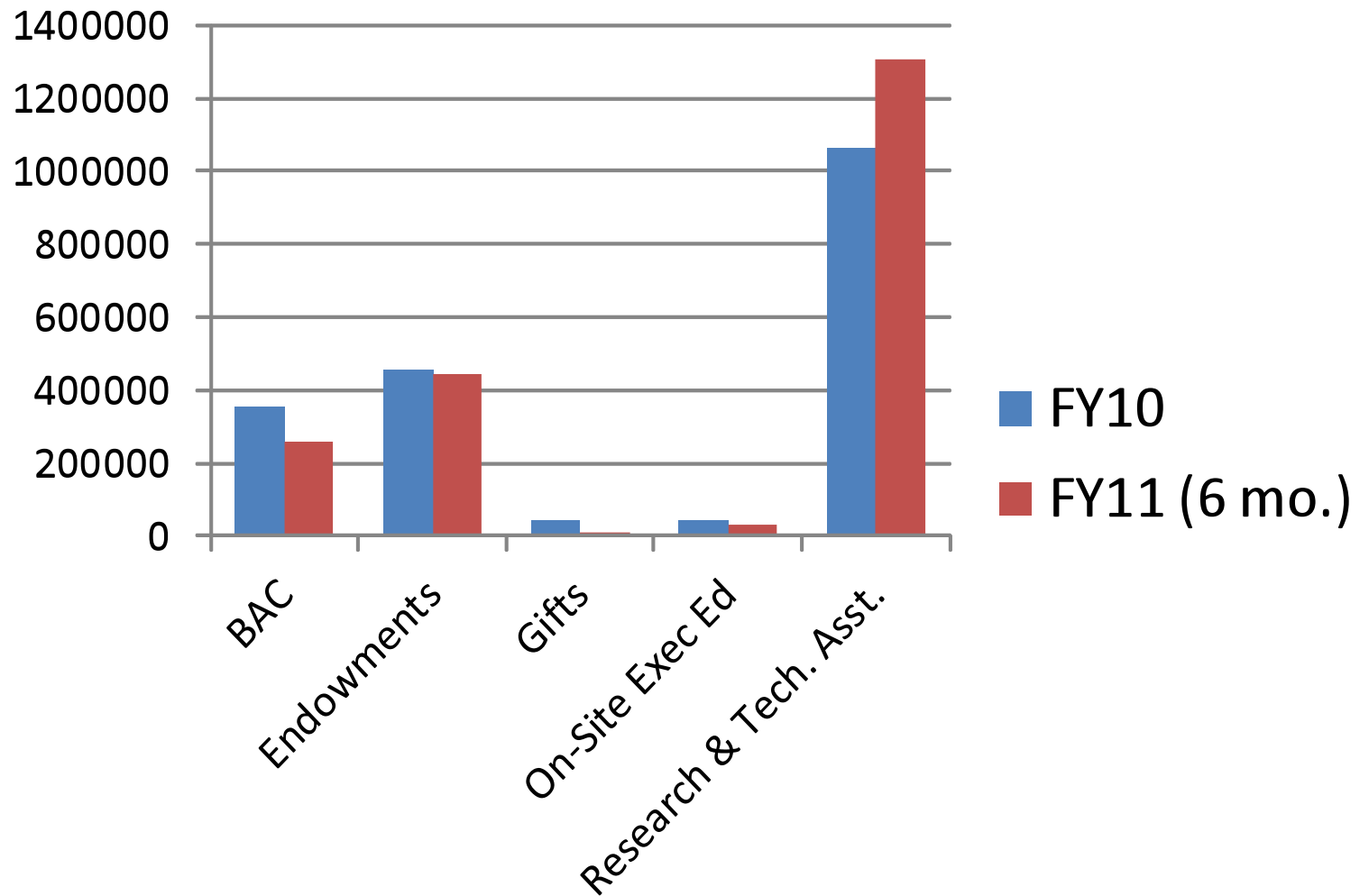


NUTC Revenue: 2010 - 2011 (FY11)





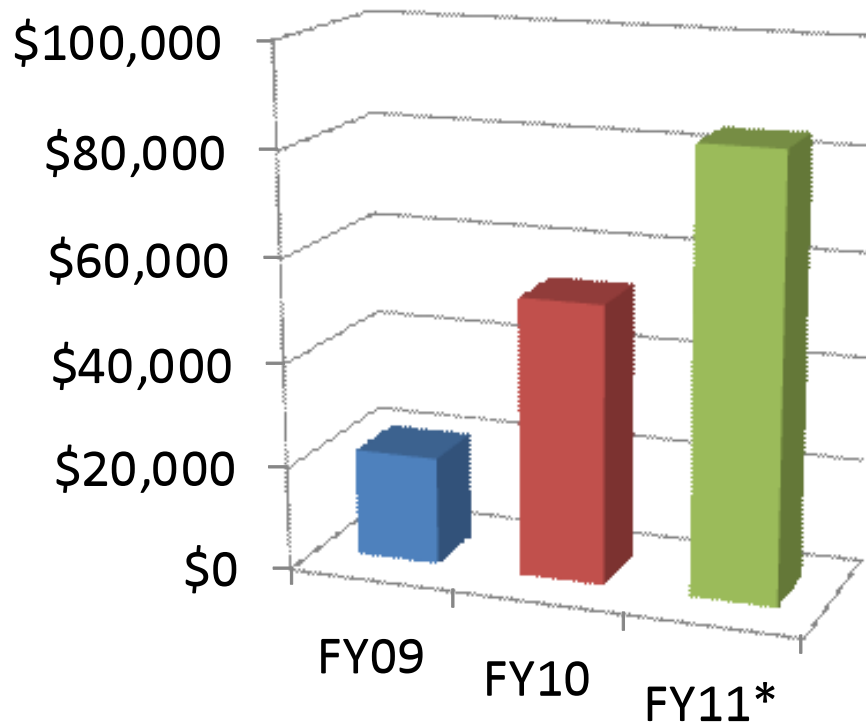
NUTC Revenue by Source





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

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58 NUTC Faculty Affiliates – Highly Interdisciplinary

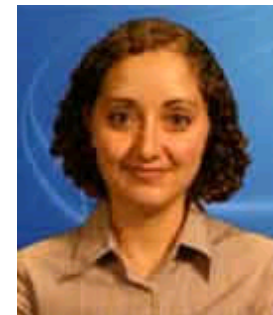
New Faculty Affiliates 2010-2011 (I)



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





58 NUTC Faculty Affiliates – Highly Interdisciplinary

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.

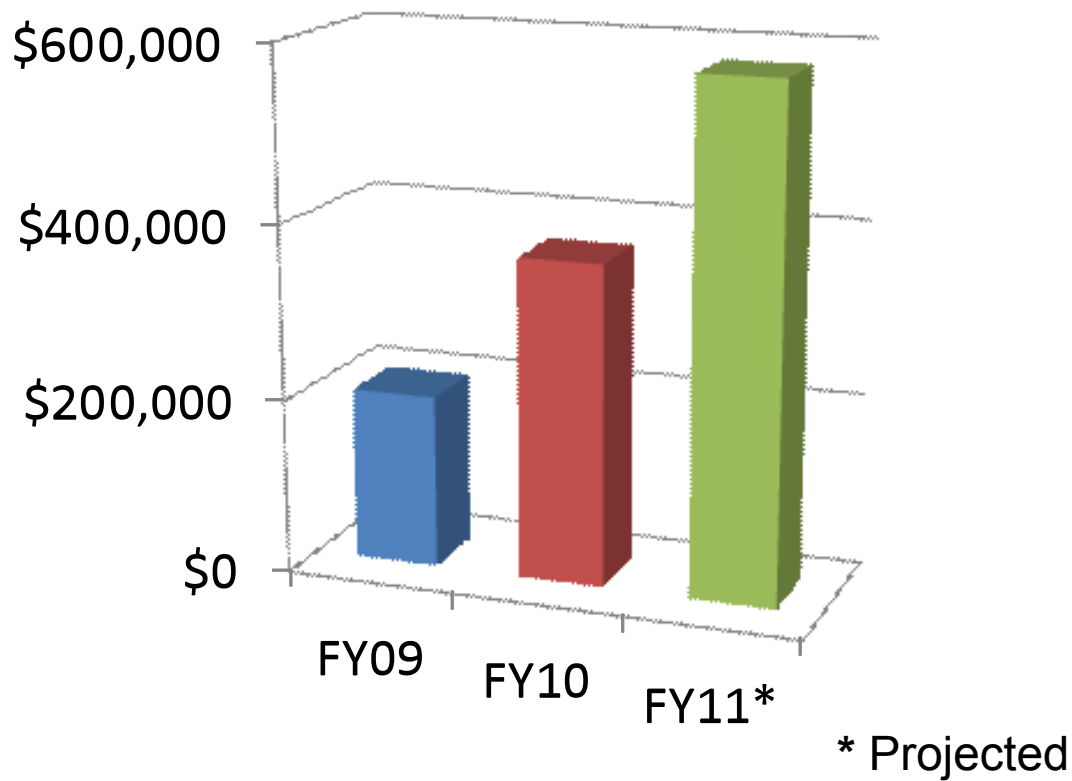


Students: Our Core Mission (II)

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

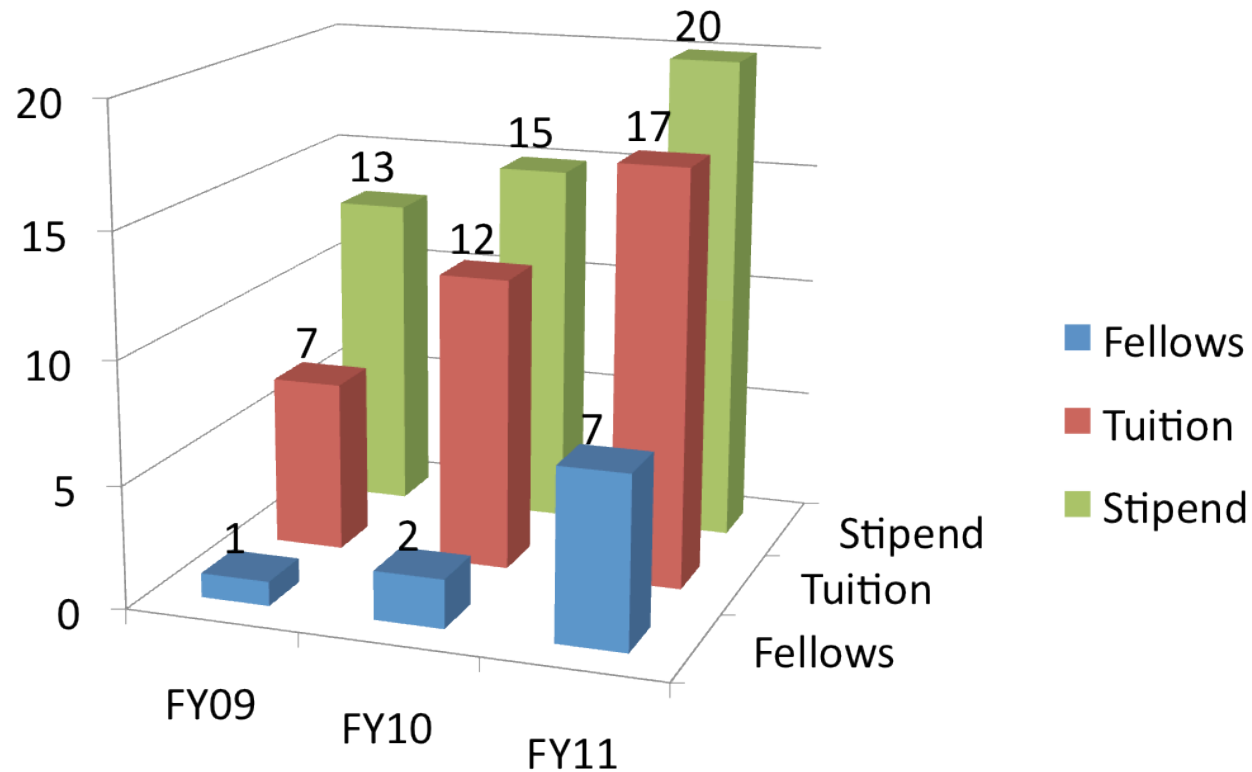


Direct Student Funding Through TC





Students: More Receiving Support





Students: Dissertation Year Fellows (I)



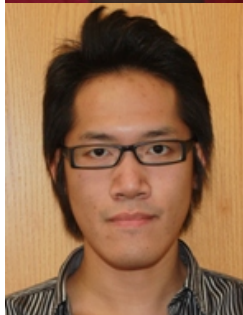
Hamed Babai

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

Industry

- American Airlines
- DSC Logistics
- Lan Chile
- Lufthansa
- **Teradata**
- Bruce Mau Design

Public Sector

- Pace Suburban Bus
- Chicago Transit Authority
- Chicago Department of Transportation
- Illinois Tollway



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

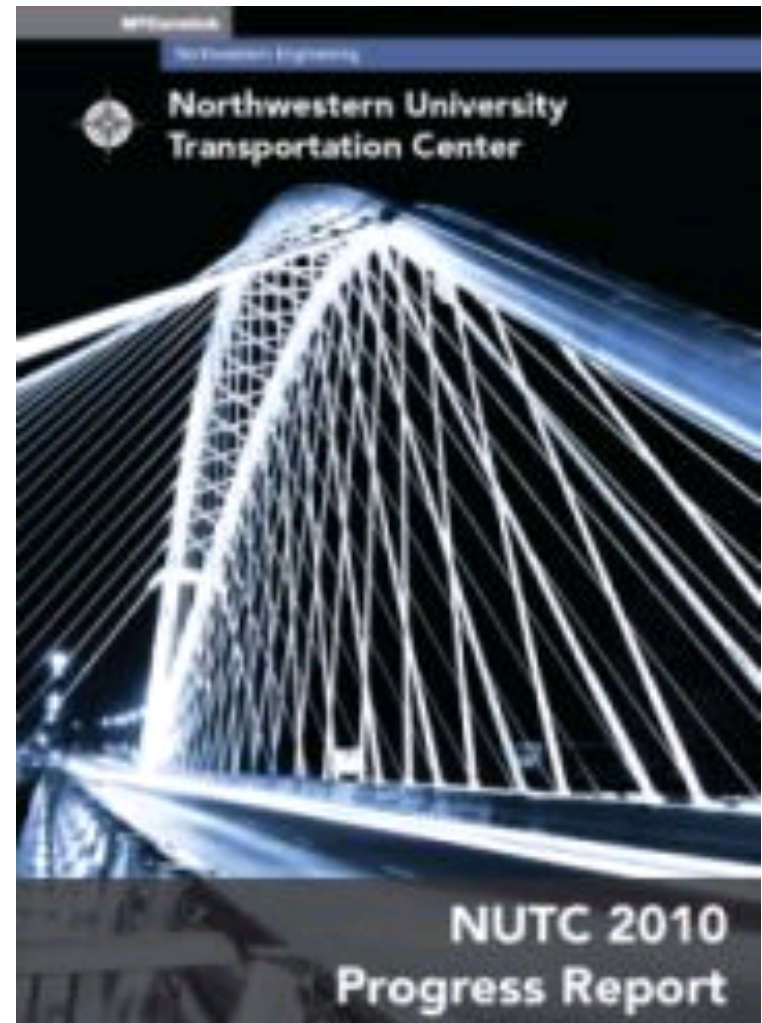
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**MORE
HERE**





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



CenterPoint Properties®



- 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

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Thank you!