New circumstances, leadership, opportunities

• Objective: Define a new future for TC
  – Accommodate, lead change
  – Position in McC focuses efforts, opens new gateways
  – Interdisciplinary tradition remains strong: McC connections
    • Joint appointments
    • MMM
    • Research centers
McCormick Centers

- Advanced Cement-Based Materials
- Atomic and Nanoscale Characterization Experimental User Center
- Bioengineering Educational Technologies
- Biologically Inspired Materials
- Center for Quantum Devices
- Communications Research
- Devlab
- Infrastructure Technology Institute
- Institute for Design Engineering and Applications
- Intelligent Processing of Composites
- Nanofabrication & Molecular Self-Assembly
- Optimization Technology
- Parallel & Distributed Computing
- Photonic Communications and Computing
- Quality Engineering & Failure Prevention
- Quantum Devices
- Steel research center
- Surface Engineering and Tribology
- Transportation Center

Objective: Renew transportation research

- Criteria
  - Excellence
  - Faculty engagement
  - Salience
  - Advance state of knowledge & practice
  - Educate tomorrow’s scholars & professionals
- Faculty motivation: achievement, success
  - Real & interesting problems to be solved: research opportunities
    - Bridge to BAC, government…
  - Publications
  - Successful students
  - Learning & teaching opportunities
    - For research and academia
    - For business and government
Renewing research (2)

- New directions
  - McCormick connection
    - Materials
    - Energy
    - Design & manufacturing
    - Information technology
  - Center linkages
    - Institute for Design Engineering & Application: IDEA
    - Complexity – NICO – networks, organizations
    - IPR – transportation and social policy

Current Research Thrusts

- Infrastructure and Technology
- Logistics and Network Design, Operations and Reliability
- Mobility, Health, Environment and Sustainability
- Transportation Network Service Security and Safety
- Policy, Planning, and Project Implementation
Corporate Research Connections

• Programmatic – multi-firm
• Partnerships
• Technical links to companies
• State of the practice workshops
  – What’s new
  – what’s needed
• Visits and exchanges

Objective: Maintain educational efforts

• Undergraduate students
  – T & L minor
    • Enrollments are growing
    • Commitment to continuing
    • Requires sustaining support
  – Departmental programs
    • IE/MS, CEE, Econ
    • Co-op & placement connections
  – Graduate programs – MS & PhD
    • KSM, Econ, IE/MS, CEE
    • Professional MS: MPM, MMM, MEM
    • Linked with research for financial support
Objective: New organizational structure

• Julio Ottino, Dean
• Bob Gallamore, Director
• Faculty executive committee: from WCAS, KSM and McC;
• Staffing: driven by needs, limited by resources
• Patterson chair…

Objective: Ensure BAC connection

• Guidance – understanding and advice
• Forum for discussion, exploration, networking
• Access to ideas, problems, data
• McCormick Office of Industrial Relations
• Students
  – Motivation – affecting next generation
  – Placement - hiring next generation
  – Walter P. Murphy Cooperative Education Program
• Collaborative research
• Executive education
• Support of the TC enterprise
  – Academic
  – research
Discussion