

Alabama Transportation Institute: An Overview

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Transportation: Our Lives and Livelihood

- Societal Needs
 - Access
 - Movement
 - Personal
 - Corporate
- “Beam Me Up, Scotty” – Not Yet!



Sources:

https://www.google.com/imgres?imgurl=http://i.dailymail.co.uk/i/pix/2015/01/27/251DF46D00000578-2928265-The_device_has_been_named_Scotty_after_the_head_engineer_ aboard_-a-74_1422381176254.jpg&imgrefurl=http://www.dailymail.co.uk/sciencetech/article-2928265/Prototype-teleporter-scans-objects-rebuilds-using-3D-printer-location-just-like-Star-Trek-s-transporter.html&h=406&w=634&tbnid=i1pEi95GZOR0cM:&docid=4U4ZZjZk5XQqOM&ei=05LRVv65H4nojuPu0q_YAg&tbm=isch&ved=0ahUKewi-74-19zFLahUJ9GMKHW7pCysQMwgtKBawEA
<http://www.npr.org/sections/health-shots/2016/02/25/468110269/beam-me-up-scotty-turns-out-your-brain-is-ready-for-teleportation>
<https://www.google.com/selfdrivingcar/where/>

What Will ATI Do?

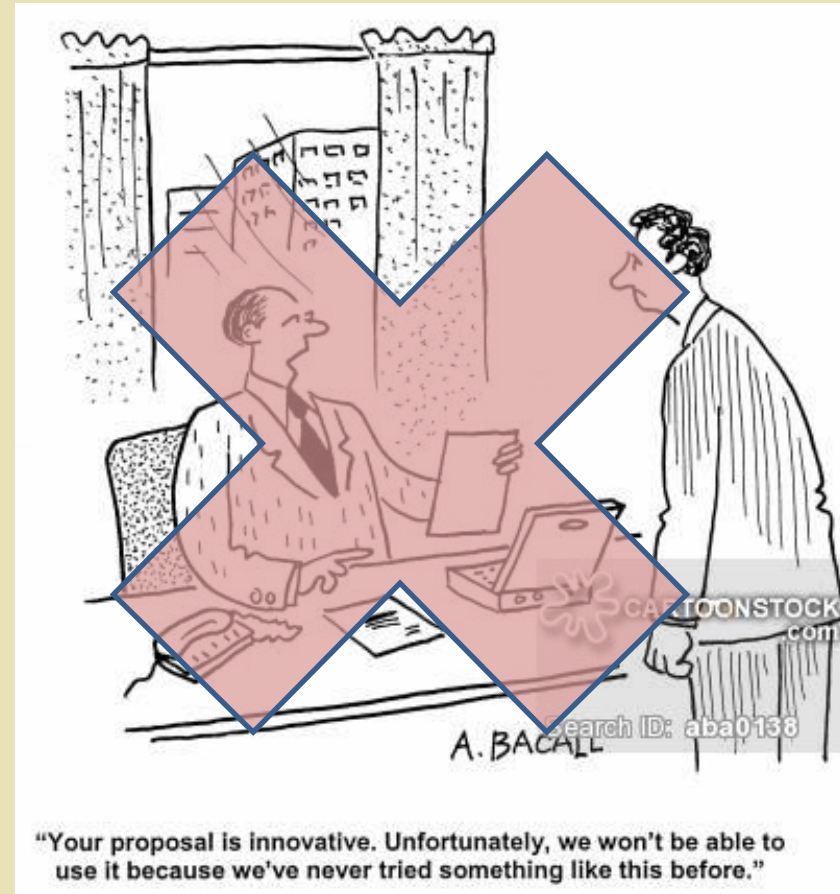
- Address Societal Needs
 - Accessibility and Mobility
 - Trade and Commerce
 - Personal Travel
 - Goods / Freight
- Enhance Quality of Life
- Foster Economic Development
- Leverage Investments
- Demonstrate Impacts
- State of Alabama, and Beyond
- “Go To” Organization for Transportation System Needs
 - Independent and Objective
 - Decision Support

ATI Directions

- Address Societal Needs
 - Current, Emergent, Long-Term
 - Advance Research, Broaden Impacts
 - Enhance Graduate Education
 - Be Inclusive, Foster Diversity
 - Support Work-Life Balance
- Cross-disciplinary / multi-disciplinary
- Across UA and more ...

What the Experts Say

- National Academy of Engineering: Grand Challenges
- U.S. DOT: Strategic Plans
- TRB: Critical Issues in Transportation
- ASCE: Infrastructure Report Card
- Need Bold and Innovative Strategies
- Key Issues
 - Safety
 - Aging Infrastructure
 - Reliability
 - Resilience
 - Funding
 - ...



Source: https://s3.amazonaws.com/lowres.cartoonstock.com/business-commerce-innovative-innovates-innovations-new_ideas-boss-aba0138_low.jpg

Opportunities

- Safety and Security
- Intelligent Systems
- Energy
- Environment
- Sustainability
- Public Health
- Aging Infrastructure
- Advanced Materials
- Cyber Infrastructure
- Sensors and Sensor Systems
- Hazards and Risk Management
- Economy / Finance
- Federal Agencies
- State Agencies
- Local Agencies
- Quasi Governmental Agencies
- Not-for-Profit Organizations
- Private Sector
- International

Initial Focus Areas

- Surface Transportation Systems
- Accessibility and Mobility
- People and Freight
- Safety and Risk Analysis
- Economics and Finance
- Policy, Planning, Design, Construction, Operations, Management
 - Modeling, Simulation, and Visualization
 - Data Analysis and Analytics: Statistical, Econometric, ...
 - Communications and Information Systems & Technologies
- Education and Workforce Development
- Energy, Environment, Sustainability
- Human and Legal Factors



Source: http://www.its.dot.gov/cv_basics/index.htm

Alabama Transportation Systems

- Current Conditions
- Cost of Doing Nothing
- Desired Conditions
- Investments Needed: Financial, Human, ...

“State of the System”

- Key System Indicators
 - Condition
 - Performance
- Key considerations list
 - Safety
 - Freight Movement
 - Road, Bridge Conditions
 - Accessibility and Mobility
 - Travel Time Reliability
 - Delay and Congestion

Illustrative Efforts

- “Smart” Infrastructure
- Information Systems and Technologies
- Connected, Automated, and Autonomous Vehicles
- Sensors, Sensor Systems, and Networks
- Examples
 - Law Enforcement and Emergency Management
 - Operational Improvements of Signalized Corridors
 - Bridges and Structures
 - Energy and Power Systems for Vehicles

Emerging Considerations

- Trends, Opportunities, and Concerns
 - Technologies
 - Social-Behavioral Changes
 - Financing
 - Policy
 - Planning
 - Design
 - Construction
 - Operations
 - Management
 - Social-Behavioral Changes
 - ...
- Impacts of Efforts in Proximate states
- Revenue Trends

What's Needed?

- Expertise
 - Beyond Engineering
 - **Across UA, and Then Some ...**
- ... Work Together!

Plenty of Opportunities...



May I ask where you studied engineering?

Who at UA?

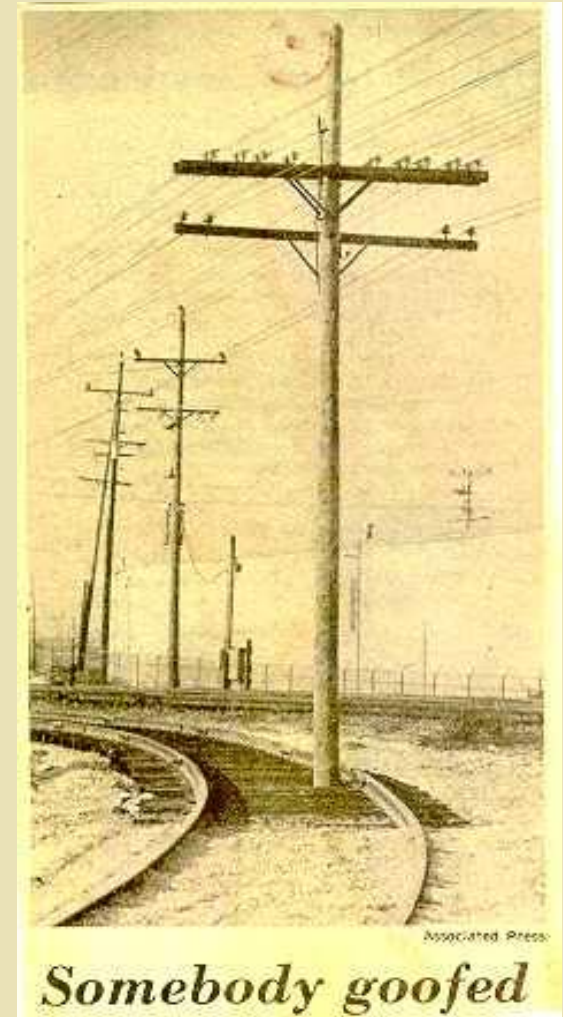
- Colleges / Schools / Departments
 - **Engineering**: CCEE; Comp Sc; Electrical & Comp; Mechanical; M&M; MTE
 - **Business**: Econ; Finance; Ops Mgt; Supply Chain Mgt; Statistics
 - **Arts & Sciences**: Geography / GIS / Regional Planning; Psychology; Public Policy
 - **Education**: Curriculum and Instruction; Edu Psychology and Research
 - **Communication and Information Sciences**: Comm. Studies; Journalism & Creative Media
 - **Law**
 - **Social Work**: Sociology
 - ...
- Centers / Institutes
 - Center for Advanced Public Safety (**CAPS**)
 - Center for Advanced Vehicle Technologies (**CAVT**)
 - Center for Sustainable Infrastructure (**CSI**)
 - University Transportation Center of Alabama (**UTCA**)
 - *Transportation Policy Research Center (TPRC)*
 - Center for Business and Economic Research (**CBER**)
 - Alabama Center for Insurance Information and Research (**ACIIR**)
 - Alabama Research Institute on Aging (**ARIA**)
 - Aging Infrastructure Systems Center of Excellence (**AIS**)
 - ...

Key Constituent (?) Units

No.	Center Name	Year Created
1	Center for Advanced Public Safety	2000
2	University Transportation Center for Alabama	1999
3	Center for Advanced Vehicle Technologies	1998
4	Center for Sustainable Infrastructure	2013
5	Center for Business and Economic Research	1930
6	AL Center for Insurance Information and Research	2013
7	Alabama Research Institute on Aging	2002
8	Aging Infrastructure Systems Center of Excellence	2005
9	...	
10	...	

Approach and Investments

- Take Calculated Risks
 - Nothing Ventured, Nothing Gained!
 - No Pain, No Gain?
- Research, Education, and Outreach
- People
- Partnerships
- Programs
- Support Infrastructure
 - Physical
 - Policies
 - Procedures



Programs

- Areas of Emphasis: Selective
- Targeted Competitive Research Initiatives
 - New Initiatives, New Participants
 - Cross-Disciplinary
 - Exploratory Efforts
 - Partnerships with Other Universities
 - Partnerships with the Private Sector
- Seminar Series: Industry and Academe Leaders
- Others ...



Source: http://www.its.dot.gov/v2i_guide.htm

People

- Resident (“In-House”) and Non-Resident
 - Faculty Members
 - Research Staff: Engineers, Scientists, Planners, Economists, ...
 - Support Staff: Admin, Communications / Publications, IT, Tech, ...
 - Scholars: Post-Doctoral, Visiting
 - Students: Doctoral, Masters, Undergraduate
- Others: Short-Term and Long-Term
- External Supporters and Champions
 - University Leadership
 - Elected Officials
 - Appointed Officials
 - Career Officials
 - Alumni, Benefactors, and Well-Wishers

Partnerships

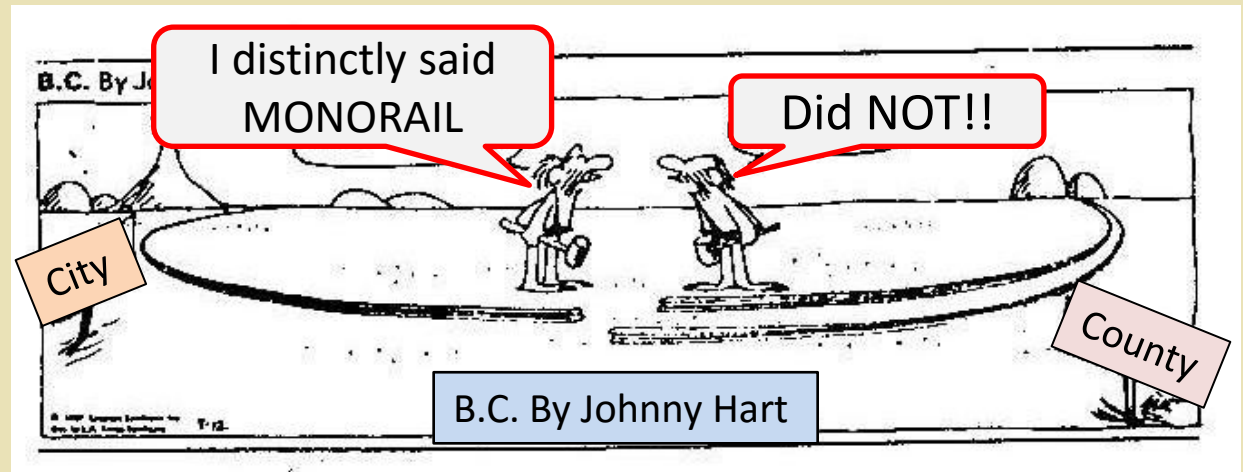
- Cross Disciplinary (Inter-, Multi-)
 - Collaborative
 - Cooperative
- Strategic Partnerships
 - At the Department, School, College, and University Levels
 - Transportation Related Organizations
 - Federal, State, Local Agencies
 - Private Sector Firms
 - Not-for-profit Organizations
 - International



Source: https://s3.amazonaws.com/lowres.cartoonstock.com/weather-loan-bank_loan-banker-credit_history-loans_officer-hscn1273_low.jpg

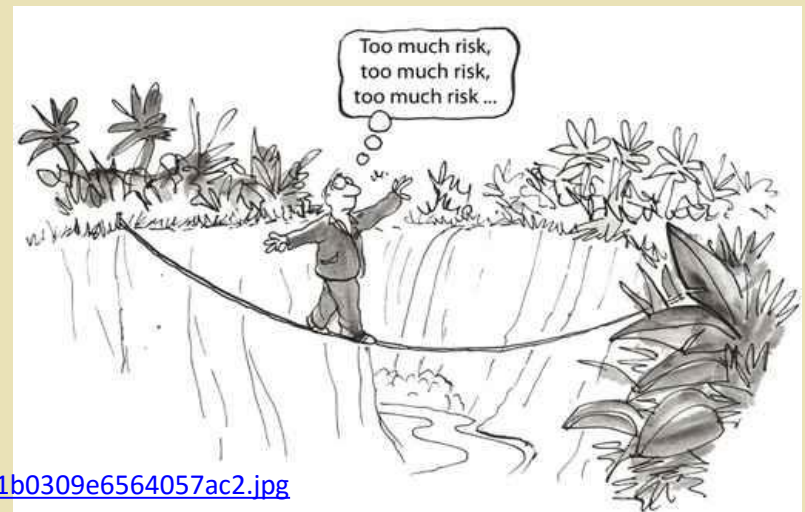
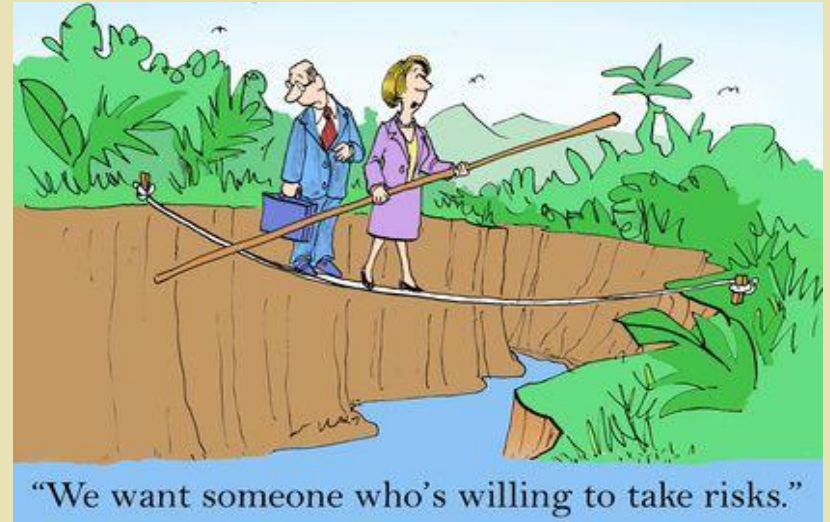
Key Factors for Success

- Institutional Commitment
- Stakeholder and Partner Support / Confidence
- Shared Vision
- Cohesive Team
- **Open Communications**
- Demonstrable
 - Benefits
 - Results



Game Plan

- Set Challenging Goals
 - For Individuals and Organization
 - Take Calculated Risks
 - Be Agile and Flexible
- Work as a Team
 - Internal and External
- Go Beyond Alabama
 - National
 - International
- Communicate
- Stay Focused, Don't Give Up
- Have Fun!



Sources: <https://s-media-cache-ak0.pinimg.com/564x/58/e2/9f/58e29f938d463101b0309e6564057ac2.jpg>
<http://www.processrenewal.com/wp-content/uploads/2015/10/word-image.jpg>

Next Up?

The woods are lovely, dark and deep.
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.

Robert Frost, *“Stopping By Woods on a Snowy Evening.”*

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