UMTRI’s Automotive Futures Group

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UMTRI Overview

• The University of Michigan Transportation Research Institute (UMTRI), founded in 1965, is committed to interdisciplinary research for automotive safety and sustainable transportation. It is one of the leading transportation research institutions in the world.
  • Collaboration with academic, government and industry partners
  • Interdisciplinary approach with a wealth of knowledge and different technologies

• UMTRI has conducted over 1,000 research projects in broad areas: accident data collection and traffic safety analysis, bioengineering, human factors, mechanical engineering, psychology, economics, automotive industry analysis, and public policy.
  • Currently, 16 research groups
  • Earned national and international high recognition and reputation for outstanding research projects

• UMTRI focuses on research not only on the highway aspect of transportation but also on the vehicle, driver, the direction of technology, and the university, industry, and government relationships within the global automotive industry. This is the uniqueness of UMTRI.
UMTRI Automotive Futures Group
Overview/Objectives

- UMTRI’s Automotive Futures Group led by Bruce Belzowsk has more than 30 years of combined experience in automotive research.
- Automotive Futures focuses on advanced powertrain, globalization, and ITS and has provided analysis for powertrain strategies, powertrain technologies, and market trends in the domestic and global automotive industry.
- With extensive and broad knowledge and expertise, Automotive Futures has offered an affiliate program to industry partners to provide:
  - Knowledge enhancement
  - Insights and analysis for future domestic and global automotive industry and market
  - Affiliate Program Cost: Manufacturers $10,000, Suppliers $7,500
Automotive Futures
University of Michigan
Transportation Research Institute

Funding

Affiliate Program
- Supporting Members
- Research Partners

Research
- Globalization
- Powertrains
- IT / ITS / Autonomy

Conferences
- 5 Annual Conferences
Automotive Futures
Research Partners

**IT Organizations**
- HP
- IBM
- Oracle Corporation
- Siemens-PLM

**OEMs**
- FCA LLC
- Ford Motor Company
- General Motors
- Nissan Tech Center
- Toyota Tech Center

**Government/NGOs**
- Argonne National Labs
- CALSTART
- CARB
- Energy Foundation
- Federal Motor Carrier
- The Hewlett Foundation
- ICCT
- NRDC
- Michigan DOT
- NREL
- NSF

**Government/NGOs**
- Union of Concerned Scientists
- US Army-TARDEC
- US DOT
- US EPA
- US DOE

UMTRI

AUTOMOTIVE FUTURES
# Automotive Futures

## Research Partners

### Suppliers
- BASF
- BorgWarner
- Bosch
- Chevron
- Continental
- Denso
- Dana
- Delphi
- Dow
- Eaton
- JATCO

### Suppliers
- JCI
- Lear
- Magna
- Means
- Michelin
- Peterson Spring
- TRW
- Yazaki
- Visteon
- Valeo

### Consultants
- AT Kearney
- AVL
- FEV
- McKinsey
- Ricardo
- Roland Berger
## Automotive Futures Affiliate Program

### Affiliate Members

- Argonne National Labs
- BorgWarner Inc.
- Bosch Corporation
- Denso Corporation
- FCA LLC
- Ford Motor Company
- Green Traffic Management
- ITS America
- Oracle Corporation
- UAW-Ford
- Valeo Corporation
Automotive Futures
Current Research Programs

• Powertrain Strategies for the 21st Century
  • Total cost of ownership: a diesel versus gasoline comparison (2012-2013)
  • Alternative powertrain strategies and fleet turnover in the 21st century
• Engine system development: change, challenges, and value
• High efficiency trucks: new revenues, new jobs, and improved fuel economy in the medium and heavy truck fleet
Automotive Futures
Current Research Programs

• IT/ITS
  • Nine conferences since 2008 that focus on IT within the organization and within the vehicle

• The Future of Automotive Safety Sensors (Sponsor: NHTSA)

• Comprehensive V2X Retrofit Study of Heavy Trucks (Sponsor: NHTSA)

• Integrated Mobile Observations: Micro-level weather reporting using cell phones in MDOT vehicles (Sponsor: MDOT and FHWA)
  • Final report available.
Automotive Futures
Current Research Programs

- IT/ITS
  - Roadway Evaluation Project: Measuring road roughness via accelerometers in cell phones mounted in MDOT vehicles
    - Final report available
  - Deploying Safety Technologies in Commercial Vehicles
    - Familiarity and penetration currently and in the future of: Forward Collision Warning / Lane Departure Warning / Blind Spot Detection / ESC / Vehicle Communications
    - Final report available (Sponsor: ITS America)
Automotive Futures
Current Research Programs

• Globalization
  • Shifting Strategies: The Big Three in ASEAN
  • Establishing Production in North America: Challenges for Overseas Assemblers and Suppliers and Implications for the Domestic Automotive Industry
  • Workforce Planning for a Global Automotive Economy
  • Inside China and Inside India reports
  • Inside China conferences for 8 years
  • Inside India, Brazil, Russia, Japan conferences
Automotive Futures
Recent Research Programs

• IT
  • The Potential Benefits of PLM in the Automotive Industry
  • Automotive System Integrators: Spiders or Flies in the E-Business Web
  • Destroying Boundaries: Integration and Collaboration in the Automotive Value Chain
  • Information Technology and the Dealership of the Future
  • Beyond Y2K
Automotive Futures
Recent Research Programs

- Intelligent Transportation Systems
  - Roadway Evaluation Project: Measuring Road Roughness Using Cell Phones
  - Stuck in traffic: analyzing real time traffic capabilities of personal navigation devices and traffic phone applications
Automotive Futures
Recent Research Programs

• Advanced Safety Systems
  • Deploying Safety Technologies in Commercial Vehicles
  • Tracking the use of onboard safety technologies across the truck fleet
  • Analysis of the potential benefits of larger trucks for U.S. businesses operating private fleets
Automotive Futures
Recent Research Programs

• Manufacturer-Supplier-Dealer Relations
  • Supply chain management: new competitive realities in the automotive value chain
  • The 21st century supply chain: the changing roles, responsibilities and relationships in the automotive industry
  • Competing for customers: the future of automotive retailing
Automotive Futures Research Approach

Automotive Futures uses a variety of research approaches:

• Face to face / Phone interviews with industry executives
• Web surveys of industry experts for particular subjects
• Secondary data analysis from a variety of industry and government sources
• All of the results are statistically-based using the latest statistical methods to measure relationships
Upcoming UMTRI-AF Conferences

• February 15, 2017: New Mobility Conference. Our 3rd annual New Mobility conference in collaboration with UM-SMART will investigate new modes of transport that support sustainability as well as transport.

• April 12, 2017: The Many Automotive Truths of NAFTA. The role of NAFTA in the automotive industry will be discussed from a variety of perspectives in order to understand the positive and negative effects of NAFTA on Canada, the U.S., and Mexico.

• July 19, 2017: Powertrain Strategies for the 21st Century: Our 9th annual conference that focuses on major issues related to the future powertrains. This conference is also the place to see the results of our annual Powertrain Strategies for the 21st Century expert survey that estimates powertrain technology penetration for 2020 and 2025.
Upcoming UMTRI-AF Conferences

• September 13, 2017: *The Future of Automotive IT: Driving Organizations, Vehicle Development, and Connected/Autonomous Vehicles.* Our 9th annual conference focused on the Future of Automotive IT shows the different sides of automotive IT and how it continues to change automotive organizations and vehicles.

• November 8, 2017: *Inside China: Understanding China’s Current and Future Automotive Industry.* Our 10th annual Inside China conference has traced the rapid rise of the Chinese auto industry. The largest automotive market in the world is such a unique market that it demands that we continue to examine both its current and future trends from a variety of perspectives: consumer choice, marketing, product development, government support and regulations, alternative energy, automotive research and development, industry structure, labor, economic impact, and manufacturing.
## Recent and Past UMTRI-AF Conferences

|--------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|
### Recent and Past UMTRI-AF Conferences

#### 2012-2013

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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>9/12/2012</td>
<td>The Business of IT: Transforming the Organization and the Vehicle</td>
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<td>11/7/2012</td>
<td>Inside China: Understanding China's Current and Future Automotive Industry</td>
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<td>2/13/2013</td>
<td>Automotive Product Portfolios in the Age of CAFE</td>
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<tr>
<td>4/19/2013</td>
<td>Inside Japan: Understanding Japan's Current and Future Domestic and Global Automotive Industry</td>
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<td>7/24/2013</td>
<td>Powertrain Strategies for the 21st Century</td>
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#### 2011-2012

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<td>9/12/2011</td>
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<td>11/16/2011</td>
<td>Inside China: Understanding China's Current and Future Automotive Industry</td>
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<td>2/15/2012</td>
<td>Marketing New Powertrain Technologies: Strategies in Transition</td>
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<tr>
<td>4/18/2012</td>
<td>Inside Brazil: Understanding Brazil's Current and Future Domestic and Global Automotive Industry</td>
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<td>7/25/2012</td>
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#### 2010-2011

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<td>9/15/2010</td>
<td>The Business of IT: Transforming the Organization and the Vehicle</td>
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<td>2/16/2011</td>
<td>Automotive Safety: How Far Have We Come and Where Are We Going?</td>
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<tr>
<td>4/20/2011</td>
<td>Inside India: Understanding India's Current and Future Domestic and Global Automotive Industry</td>
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Automotive Futures
Sponsorship Benefits

- Affiliates sponsoring Automotive Futures will receive industry research reports performed by the Automotive Futures Group.
  - Industry analysis and perspectives by academic and industry experts
  - Research subjects based on requests by affiliates.
- Automotive Futures will host 5 conferences in a year. Sponsorship includes free registration for all conferences including the “Powertrain Strategies for the 21st Century” conference, industry research and analysis.
  - Presentations by academic and industry experts and leaders
  - Networking
  - Discussion with experts
- Affiliates are given the opportunities to enhance knowledge and expand networks.
Automotive Futures
Sponsorship Benefits

The four main advantages of the program for your company are:

1) Early results of research projects before they are released to the public. Some of our results are not made public for a year in order to provide our affiliates exclusive access. This is the case for our Powertrain Strategies for the 21st Century survey results.

2) For projects related to your products, we will ask for your advice about potential questions we could ask. We might ask if there are any questions you think we should ask our sample of industry manufacturers, suppliers, government, academics, NGOs, and consultants.

3) Free attendance at our five annual conferences at the UM.

4) Free presentations of results of our projects at your facility and free access to our researchers for industry and research questions.
Benefits Provided in 2016

• Affiliates received the following reports:
  • The Connected Driver: Integrated Mobile Observations 2.0 (2014-2015)
  • The 2014/2015 Powertrain Strategies for the 21st Century Survey Results
Benefits Provided in 2016

- Affiliates received:
  - Invitations to our five conferences
  - Summaries of all the conference materials
  - Links to all the conference presentations
  - Highlights from the recent EPA/NHTSA Draft Technology Assessment Report
  - Links to presentations from the 2015 and 2016 GERPISA: The International Network of the Automobile
  - Background information on the New Mobility goods movement
  - Link to Bruce Belzowski’s video analysis of the 2016 North American International Auto Show
Automotive Futures
Social Benefits

• Affiliates are able to develop the strong global relationships and mutual understanding through this program.

• Affiliates are able to use the research results for their corporate social responsibility (CSR).
  • Understanding powertrain perspectives is key to developing the most effective technologies to improve the environment in the global society.

• This program provides students who work on our projects with opportunities to experience real world research and enhance their research capabilities under the instruction of researchers with expertise.
Bruce M. Belzowski

Bruce M. Belzowski is a Managing Director of UMTRI's Automotive Futures Group. Mr. Belzowski joined UMTRI in 1994 after working for R.L. Polk as a Senior Research Analyst. He has more than 28 years experience in automotive research and has authored many research reports including product development, manufacturer-supplier-dealer relations, globalization, information technology, knowledge management and human resources. His current research topics include powertrain strategies, intelligent transportation systems, and globalization of the automotive industry.

Mr. Belzowski is a director of the Automotive Future's Group China Automotive Program and Powertrain Strategies Program. He is also a steering committee member of the GERPISA global automotive research group in France and a Joint Researcher at the Institute for Technology, Enterprise, and Competitiveness at Doshisha University in Kyoto, Japan.

Mr. Belzowski is a frequent speaker on the automotive industry in conferences and in the media, as well as his testimony before the U.S. Congress.

He received BA from UC Berkeley and MA from the University of Michigan.