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KNOWLEDGE FOR INNOVATION
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CONNECTED TRUCK, CONNECTED CAR CONFERENCE

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William and Phyllis
MACK INSTITUTE
for INNOVATION MANAGEMENT

PROGRAM *on* VEHICLE
and MOBILITY INNOVATION

PVMI: Its Roots in IMVP

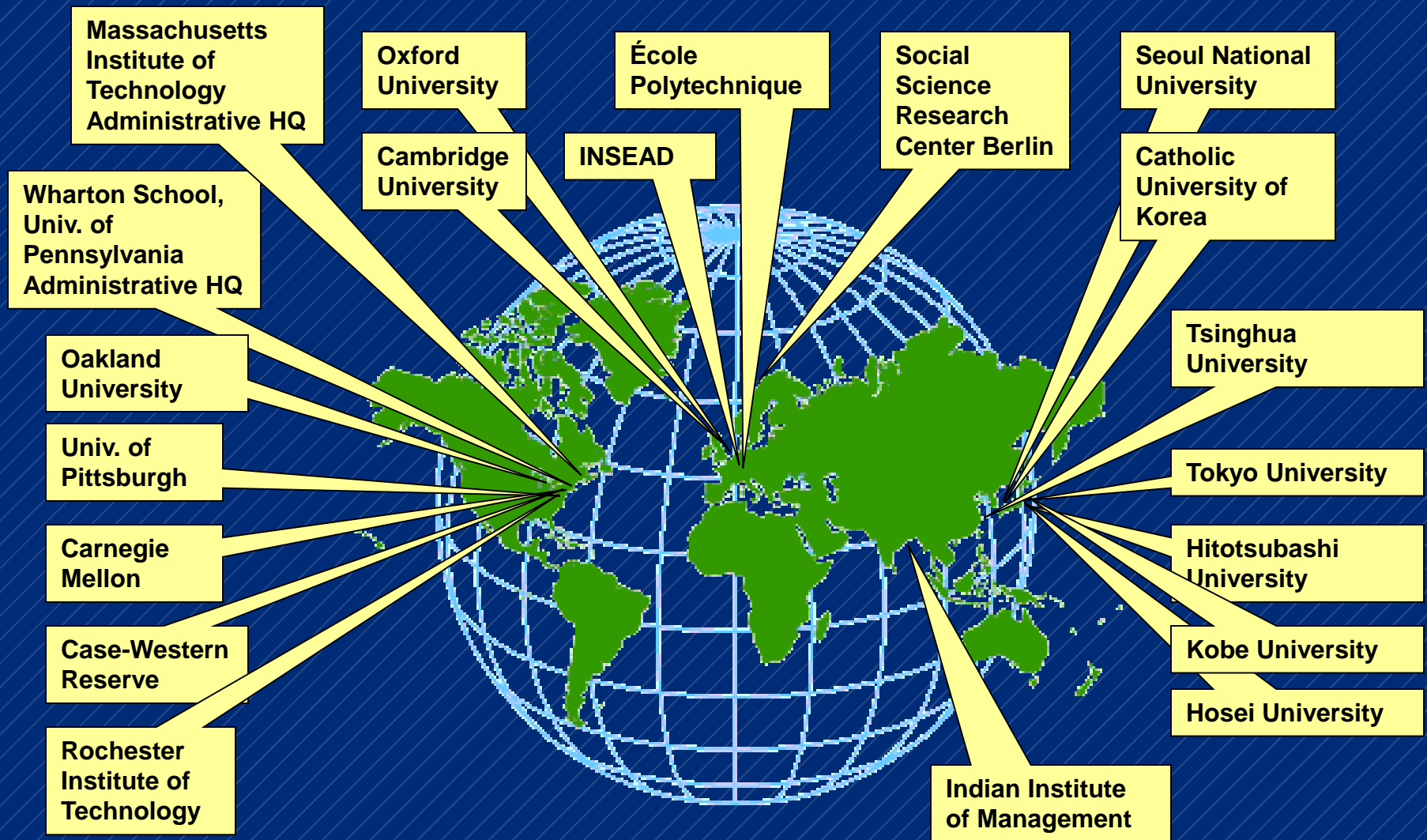
The Program on Vehicle and Mobility Innovations (PVMI) is housed within the Mack Institute, but its roots lie in the International Motor Vehicle Program (IMVP), founded in 1985 at MIT.

IMVP is an international network of faculty, Ph.D. students, and researchers delivering knowledge and insight about the global automotive industry.

IMVP organizes international teams of researchers to do collaborative research on topics throughout the automotive value chain.

PVMI now provides the new direction for the IMVP network and increasingly connects to mobility-related initiatives at the University of Pennsylvania.

IMVP Global Network



IMVP is best known for introducing “*lean production*” and its competitive advantages over mass production

- “Lean” – *“because it uses less of everything compared to mass production – half the human effort in the factory, half the investment in tools, half the engineering hours to develop a new product in half the time, and far less than half the needed inventory on site.”*
- “Production system” -- from Product Development and Supply Chain to Manufacturing and Distribution
- Comparing and contrasting the logic and philosophy of mass vs. lean as well as their management practices
- Performance differences documented through primary data collection and global benchmarking

IMVP Is Now PVMI



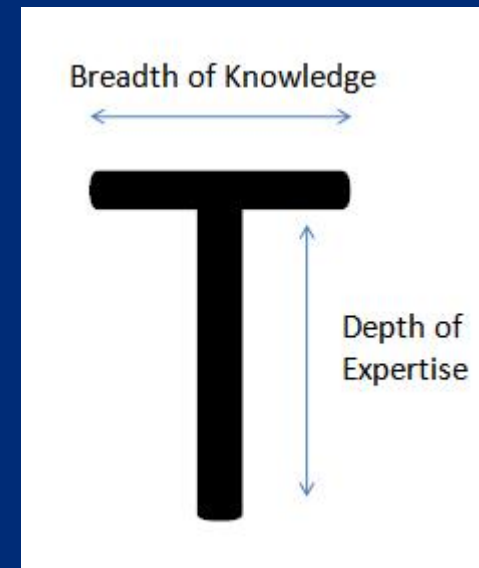
PVMI PROGRAM *on* VEHICLE
and MOBILITY INNOVATION

IMVP Developed Deep Expertise in an Industry Vertical



PVMI takes a T-shaped approach

- *Depth on auto industry*
- *Breadth to incorporate:*
 - *Wide array of disruptive technologies*
 - *Innovation in business models*
 - *Comparison across industries*



PVMI Research Topics

Strategies for managing a portfolio of new technologies (alternative drive trains/fuels; connectivity for safety and services; autonomous vehicles)

“Last gasp” (spurt of innovation in incumbent technologies when threatened by replacement or obsolescence)

Vehicle as network node (V-2-V, V-2-I, V-2-G) + complementary infrastructure policies

Governments as customers and experimenters (cities), rule-setters and investors (state, regional, and national)

Mobility services: new business models and platforms, network effects, and dynamics of collaboration and competition

CONFERENCE THEME:

**CONNECTED TRUCKS,
CONNECTED CARS**

Connectivity as Foundation for New Strategies: Services, Safety, Efficiency, Autonomy

How will the connected vehicle ecosystem evolve?

- Network effects; Standards and interoperability
- Relationships among OEMs, suppliers, complementors
- Acceptance by regulators, individual drivers, the public

How will firms make strategic decisions in the face of uncertainty?

- How are firms thinking about and planning for these new technologies?
- How differently do incumbents vs. new entrants cope with uncertainty?

How will society be affected?

- Cities vs. suburbs/exurbs vs. rural
- Public safety and wellbeing (deaths; injuries; congestion; emissions)
- Those rich and poor in mobility options

Today's Sessions:

- **Connected Strategies in Mobility**
- **How the Automotive World Looked at an Earlier Inflection Point: Reflections from MIT's Int'l. Motor Vehicle Program & Implications for the Present Moment**
- **Future Strategies for Connected Mobility: Who Will Prevail?**
- **Faster, Smarter, Greener: Future of the Car & Urban Mobility**
- **Prospects for Autonomous Vehicles**

Topics for today's lunch table discussions:

Impact of Connected Strategies on Cities (two tables)

Erick Guerra (City and Regional Planning, University of Pennsylvania) and Gilles Duranton (Real Estate Department, Wharton School)

Safety and Autonomous Vehicles (two tables)

Rahul Mangharam (Penn Engineering) and Flaura Winston (Director, Center for Child Injury Prevention Studies, Children's Hospital of Philadelphia)

Work and Employment Consequences of Mobility Innovations (two tables)

Jerry Jacobs (Sociology, UPenn) and John Paul MacDuffie (PVMI, Wharton School)

Regulatory Issues at Federal, State, and City Levels (two tables)

Sarah Light (Legal Studies & Business Ethics, Wharton School) and Shari Shapiro (Head of Public Affairs, PA & DE, Uber)



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