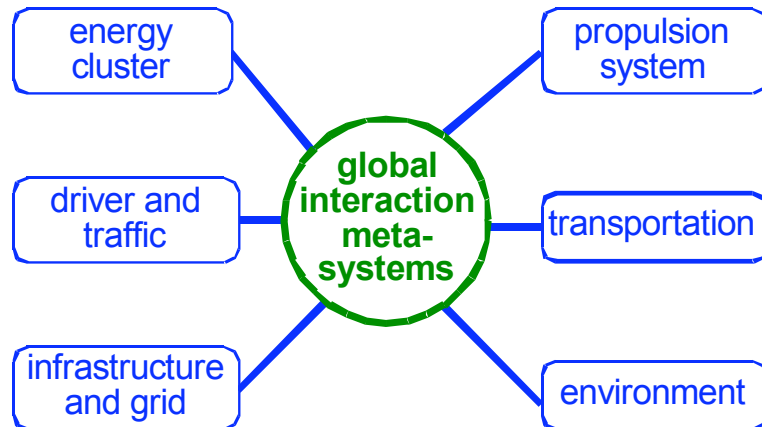


# Large-scale interaction: energy, vehicle and traffic

Transportation Research Institute: System-level energy and transportation



System-generic global functional interaction among energy, traffic, driver, environment, transportation and infrastructure.

## Objective:

Develop flexible engineering solutions on broad-domain system-generic interaction among energy, traffic, vehicle, transportation and infrastructure and large-scale energy flow, motion flow and system level performance prediction and evaluation.

## Approach:

- Generalized modeling of combined energy, vehicle and driver based on functional performance and constraint identification.
- Application to large-scale, system-level interactions incorporating energy, trip purpose, traffic and highway conditions.
- Efficient large-scale simulation via reconfigurable and modularized meta-systems – providing high level representations of energy, power and motion at all scales.

## Impact:

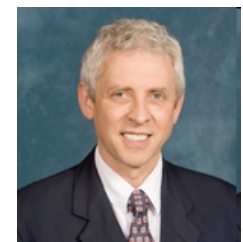
- Exploring emergent properties of interacting global energy and transportation toward large-scale, flexible hybrid energy flow technologies and their extension.
- System-generic energy interaction systems provide flexibility of insertion and replacement of new energy, control, and hybridization for system-level energy R&D.
- Providing improved understanding of the global issues and quantitative predictions that can be used by policy makers to guide technology development and the associated public/private investment.

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