Day 2

Socio-economic Impact of Connected/Automated Driving

Benefits Estimation for AV Systems

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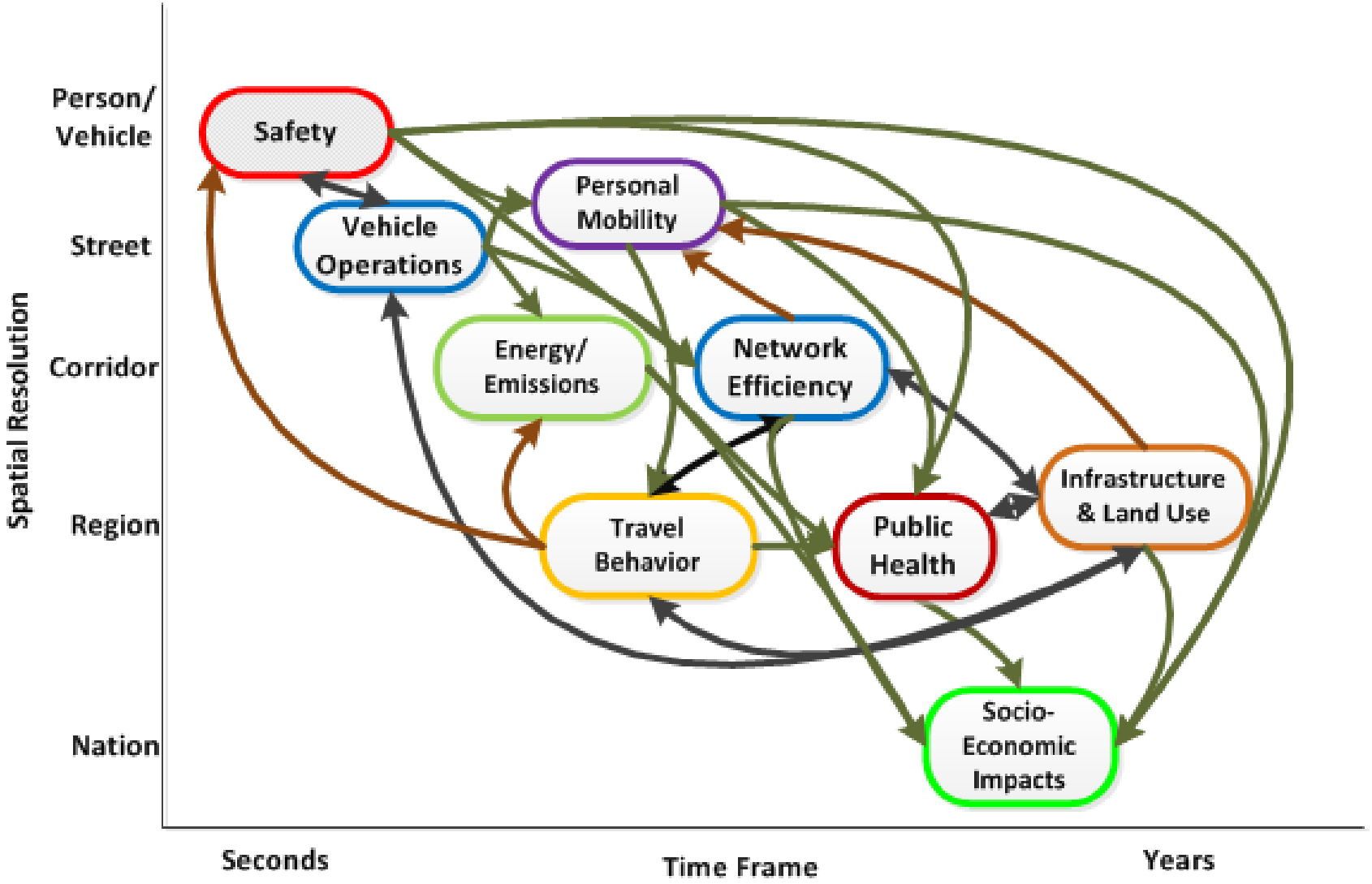
Outline

- Impacts Framework
- Areas of Uncertainty
- Impact Mechanisms

Framework


Person/ Vehicle
Street
Corridor
Region
Nation
Spatial Resolution
Safety
Vehicle Operations
Personal Mobility
Energy/ Emissions
Network Efficiency
Travel Behavior
Public Health
Infrastructure & Land Use
Socio-Economic Impacts
Seconds
Time Frame
Years

Direct Impacts

- Can be measured in field operational tests
- Can be scaled up to a national level
- Will lead to indirect impacts
- Provide a foundation for assessing the indirect impacts that are of interest to society

Examples

- Response of drivers and other road users
- Vehicle operations
  - **Acceleration**
  - **Car following**
  - **Gap acceptance**
- Safety
- Energy / Emissions
- Personal Mobility
- Cost
- Infrastructure Needs and Operational Design Domain

Indirect Impacts

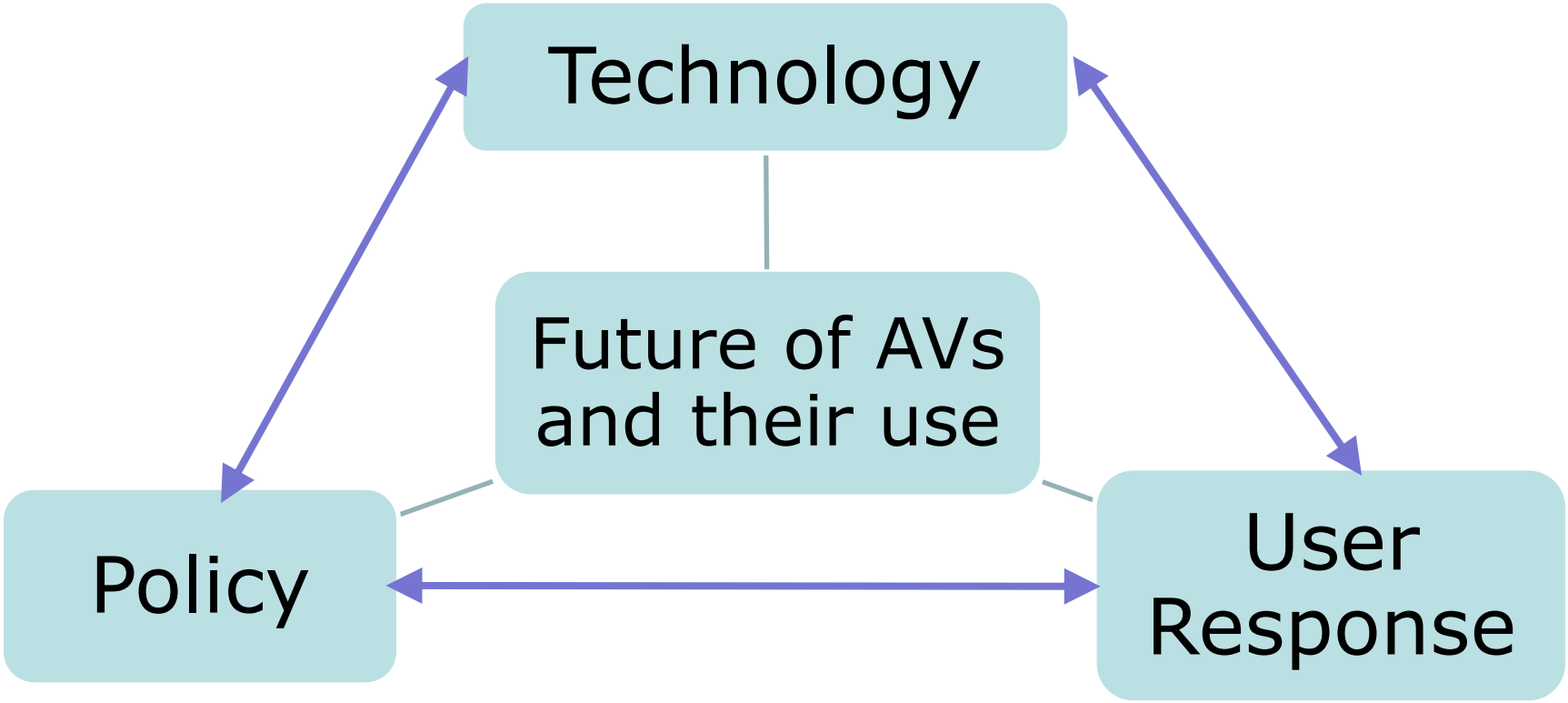
Examples

- Network efficiency
- Travel behavior
- Infrastructure
- Public health
- Land use
- Socio-economic

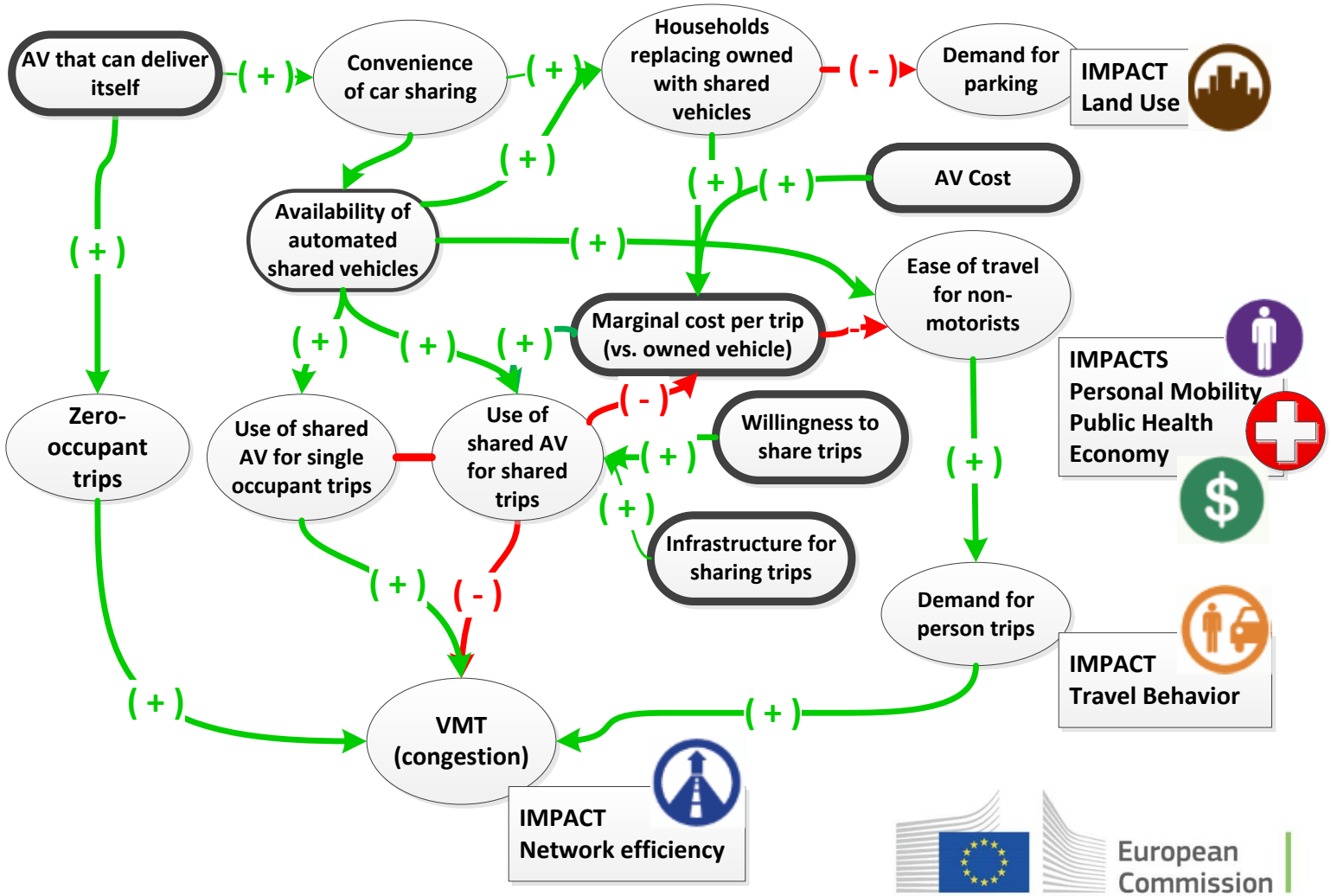
Infrastructure Impacts

- What happens to transit?
- Highway capacity
- Demand (highway, transit)
- Size and weight
- Type of infrastructure
- Implications for revenue and funding
  - Road, transit

Areas of Uncertainty



Example of impact linkages: L4/L5 shared vehicle



—(+)— increase

—(-)— decrease

European Commission

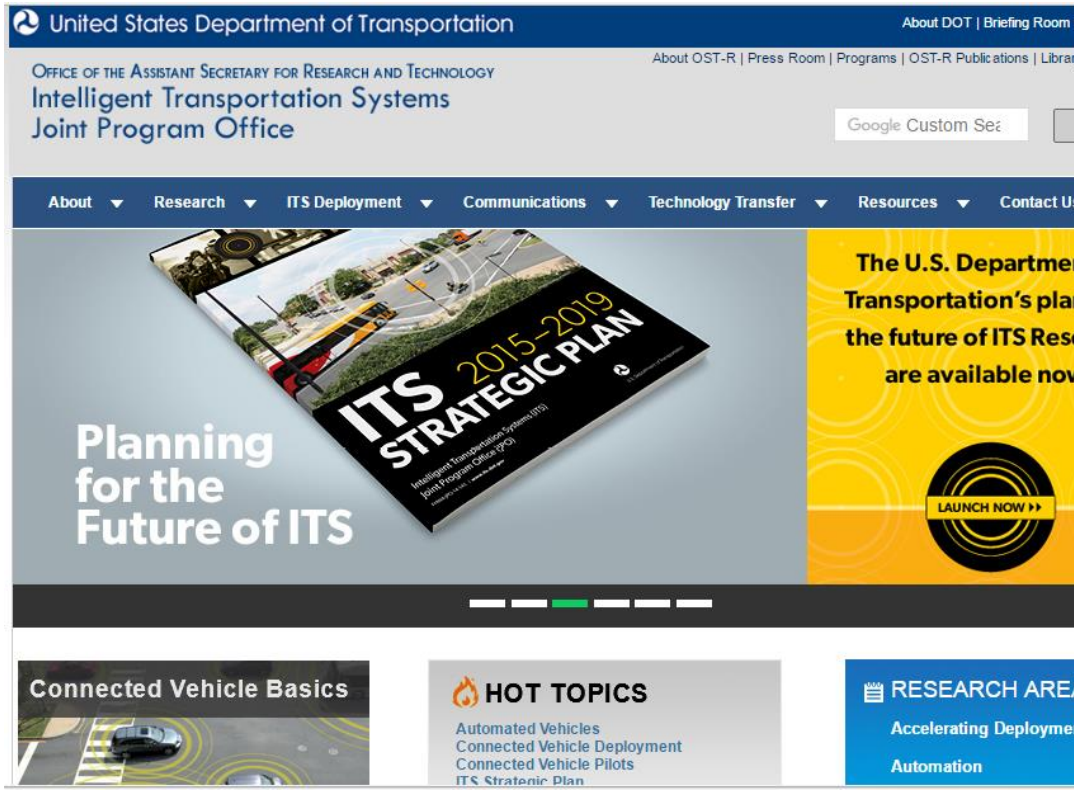
Current Activities

- **Safety modeling**
  - Baseline
  - Improving modeling methodology to deal with AVs
- **Mobility / Energy / Emissions**
  - Traffic Simulation / Emissions Model (VISSIM / MOVES)
- **User response**
- **Engagement with interested communities**
  - Transportation Planning (U.S.)
  - International Collaboration

Framework: Lessons learned and next steps

- **Need for a clearinghouse on research, to facilitate sharing**
  - What data are collected?
  - What methods (models) are used?
  - What are the most important key performance indicators?
  - What results are reported?
- **Understand the big picture, to ensure the right data are collected**
  - For example, a mobility project may affect safety and vice versa

Sponsorship: US DOT Intelligent Transportation Systems Joint Program Office (ITS JPO)



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