

# Innovation, Governance Structures and the Transport Sector

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# Key Questions

- What are the barriers to innovation in the transport sector -- considering need to respond to
  - Growing activity levels
  - Needed performance improvements:
    - Service quality
    - Environment
    - Social inclusion
    - Safety
    - Security
- How do institutions, public and private, affect the ability of the transport sector to innovate and the efficacy of innovation efforts?
- How can we tackle barriers to innovation, especially those with institutional roots?

# Defining Innovation: A Systems Perspective

- The development and deployment of
  - New technologies
  - New services
  - New planning, operations and management techniques, methods, and processes
  - New policies and regulatory strategies

=>NOT just hardware – innovations can include any element or combinations of elements of a system, or new systems approaches

Examples: new pavements; new traffic advisory systems tied to road sensors; variable speed regulations based on weather and traffic conditions; organizations charged with integrated urban land use and transport planning without regard to mode

=>NOT a simple outcome or object – a dynamic **PROCESS**

# Many examples of transport innovation, so why the worry?

- Innovations are in fact plentiful: containerization, ABS brakes, computer controlled engines, more crashworthy vehicles, longer lived asphalt, quieter pavements, lower carbon fuels, more energy efficient and less polluting vehicles, electronic toll tags, detector based traffic control, GPS systems for tracking and directions, build/operate/transfer contracting, full body scan security equipment....

## HOWEVER

- Innovations have not been sufficient wrt key issues of congestion, environment, safety, security, equity
- Financing remains problematic in many countries
- Complex institutional structure for system components: public, private, corporate, individual – multiple actors and overlapping roles; conflicts – all making innovation processes seem especially murky

# Common Barriers to Innovation

- Lack of funding for R&D , testing, deployment (trucking?)
- Misunderstanding that a new idea is not the same as an innovation; not enough attention to implementation process improvements (ITS?)
- Strong supporters for the status quo (transit agencies hostile to broader mobility management strategies, labor unwilling to accept labor saving strategies)
- Irrational optimism in existing practices (all drivers think they are better than average and so don't need safety devices)
- Emphasis on producing reliable, consistent products/services faster, cheaper - to the exclusion of riskier undertakings (GM?)
- Not enough attention to markets, consumers of products and services – don't understand what they need or what might attract them

# In transportation (and other sectors) institutional barriers often include:

- Complex, slow process of decision-making – can miss windows of opportunity
- Many rules, steep hierarchy, mass production model
  - Fear of failure – and punishment for it
  - Fear of change and intolerance for ambiguity, chaos
- Competing alternatives for change and no process / inadequate process for testing alternatives, also risk averse
- Unclear /conflict-ridden roles and relationships between the private sector and government, labor and management, various agencies and levels of govt.
- Financing mechanisms that separate investment and use, mask costs of externalities
- Contracting mechanisms that focus on low bid for standard product
- Lack of incentives and rewards for innovation

## Contrast to Characteristics of Innovative Organizations:

- Use analysis as a tool, but favor action
- Pay attention to client / user needs and preferences
- Support learning, internally and through external networks
- Know what they can and cannot do well
- Like competition, and often build it into internal org.!
- Look for, participate in, build strategic partnerships and alliances
- Have few administrative layers
- Execs know the business
- Encourage /support entrepreneurial employees
- Expect hard work and high quality, and tolerate some chaos
- Recognize that failure happens and learn from it
- Reward successes at all levels

# Improving the Prospects for Innovation

- Measuring and Benchmarking
  - OECD/EC Oslo Manual
  - Lisbon R&D investment guidelines
  - Boston Consulting Group International Innovation Index
- HOWEVER
- To the extent that the problem is institutional, need to give more attention to the “soft side” of innovation: organizations, laws, policies, procedures; how to create a culture of learning, loose networks for sharing innovative practices