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# Explaining International IT Application Leadership: Intelligent Transportation Systems

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# Today's Presentation

**1**

**What are ITS and what benefits do they deliver?**

**2**

**Which countries lead in ITS?**

**3**

**What factors have led to their success?**

**4**

**What can the U.S. learn from global leaders?**

**5**

**Policy recommendations for the U.S.**

# Categorizing ITS Applications

ITS Category	Specific ITS Applications
1. Advanced Traveler Information Systems (ATIS)	Real-time Traffic Information Provision Route Guidance/Navigation Systems Parking Information Roadside Weather Information Systems
2. Advanced Transportation Management Systems (ATMS)	Traffic Operations Centers (TOCs) Adaptive Traffic Signal Control Dynamic Message Signs (or “Variable” Message Signs) Ramp Metering
3. ITS-Enabled Transportation Pricing Systems	Electronic Toll Collection (ETC) Congestion Pricing/Electronic Road Pricing (ERP) Fee-Based Express (HOT) Lanes Vehicle-Miles Traveled (VMT) Usage Fees Variable Parking Fees
4. Advanced Public Transportation Systems (APTS)	Real-time Status Information for Public Transit System (e.g. Bus, Subway, Rail) Automatic Vehicle Location (AVL) Electronic Fare Payment (for example, Smart Cards)
5. Vehicle-to-Infrastructure Integration (VII) and Vehicle-to-Vehicle Integration (V2V)	Cooperative Intersection Collision Avoidance System (CICAS) Intelligent Speed Adaptation (ISA)

# ITS Deliver 5 Classes of Benefits

1. Safety
2. System performance
3. Mobility and convenience
4. A cleaner environment
5. Economic and employment growth

# ITS Generates Positive Benefit-Cost Ratios

- The benefit-cost ratio of ITS-enabled systems-operations measures is 9 to 1, far above the addition of highway capacity, which has a benefit-cost ratio of 2.7 to 1.
  - Benefits of traffic signal optimization outweigh costs by 38-1.
- GAO estimates implementing a real-time traffic information system would cost \$1.2B but deliver \$30.2B in mobility, safety, and environment savings, a 25-1 benefit cost ratio.

# Which Countries Lead in ITS: Japan



- VICS real-time traffic information. (24M VICS units; 35M vehicle navigation units shipped).
- Smartway—cooperative vehicle-highway system. Melds GPS, real-time traffic information, knowledge of specific roadways to deliver video and visual alerts to drivers.
- 68% of cars traveling on toll expressways have ETC capability.
- Implementing a nationwide bus location system.

# Which Countries Lead in ITS? South Korea



- 9,300 buses and 300 bus stops have real-time bus location.
- Smart cards or mobile phones used for 30M contactless transactions per day on public transit.
- 31% of vehicles use on-board navigation systems.
- ETC system covers 50% of highway roads as of 2009, will cover 70% by 2013, and be nationwide thereafter.

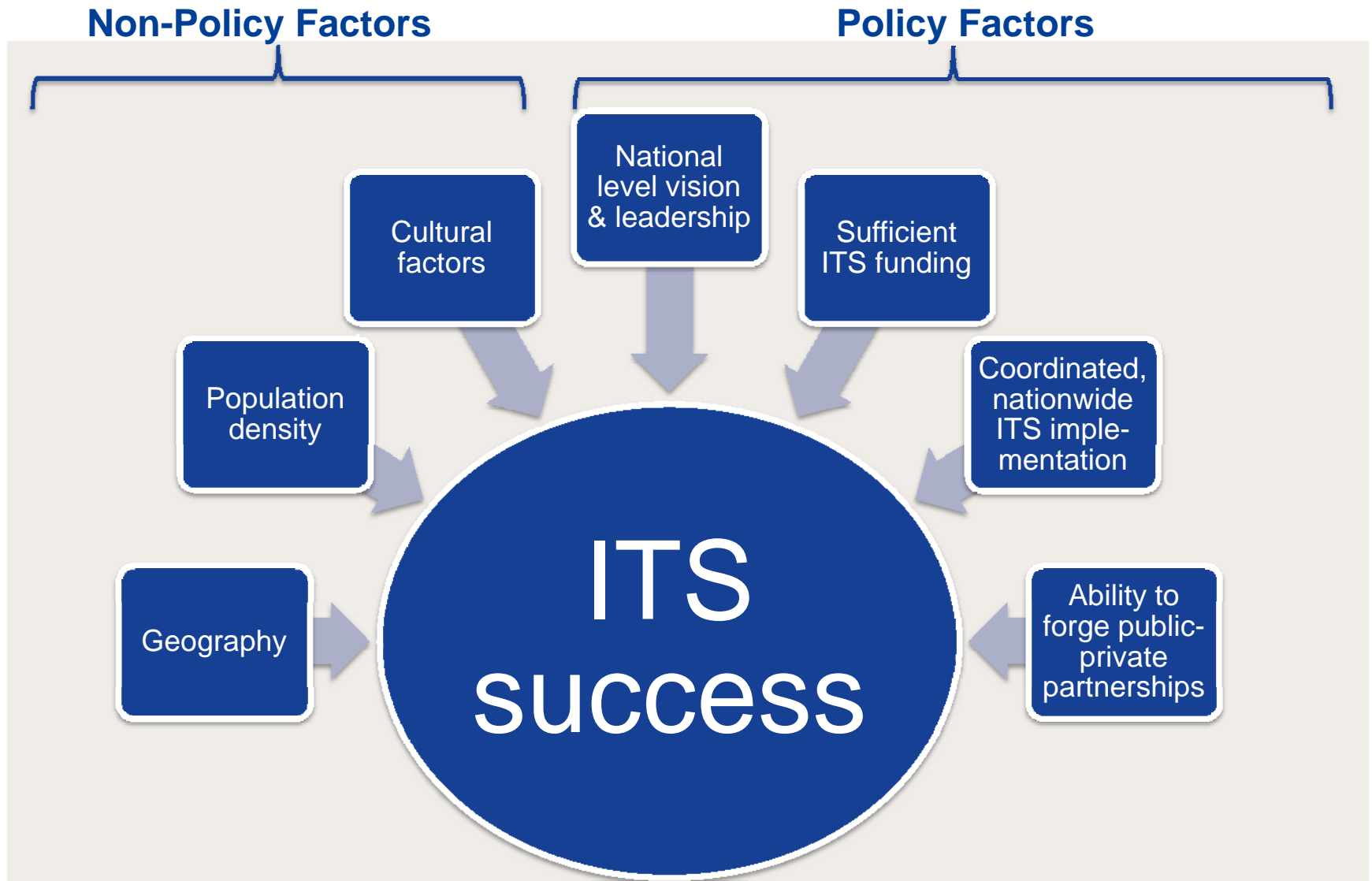
# Which Countries Lead in ITS? Singapore



- First country to implement electronic road pricing in 1998.
- Nationwide adaptive computerized traffic signals.
- Real-time traffic information collection and dissemination using 5,000 probe vehicles generating traffic information.
- Real-time bus arrival panels at all bus stops.
- National parking guidance system.
- Uses traffic input to predict future traffic flows.



# What Factors Explain Country Leadership in ITS?



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- Reliance on states for deployment.
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- ITS not politically compelling, in part because there is no assessment system to validate ITS benefits.
- Lack of funding, which also means vendors less willing to invest in ITS if they are uncertain there will be a market.
- **Lack of sufficient federal vision and leadership.** (By statute, federal role limited to ITS research, not ITS deployment.)

# Policy Recommendations for ITS in the U. S.

- **The federal government must assume a far greater ITS leadership role:**
  - 1) ITS is the 21st century equivalent of the Interstate Highway System, and needs the same level of federal government leadership.
  - 2) U.S. needs a national ITS strategy and a clearly-articulated goal of ITS leadership.

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- **Significantly Expand Funding**
  - Reauthorization should include a dedicated funding stream of \$1.5-\$2B annually for deployment of large-scale ITS demonstration projects and \$1B for states to deploy existing ITS and provide for ongoing operations, maintenance, & training.



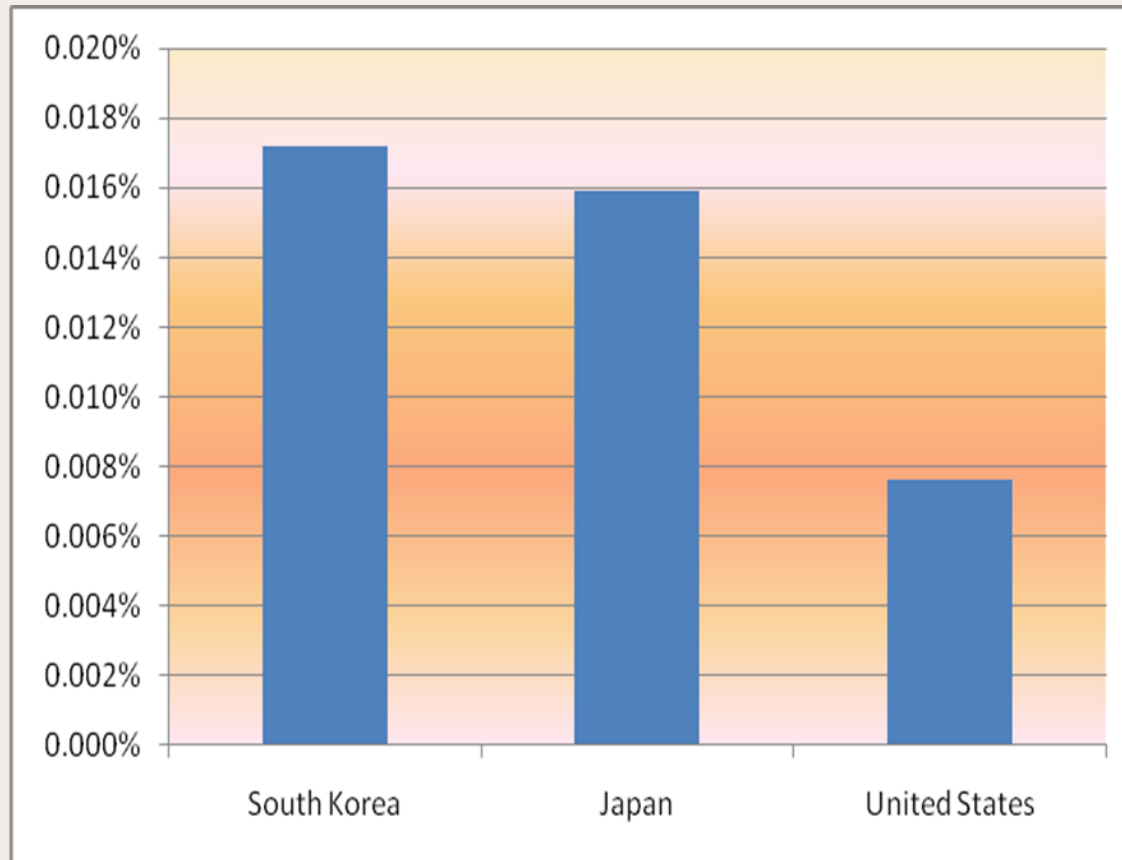
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- **Tie state funding to system performance.**

# ITS Investment as a Share of GDP in Selected Countries



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- Tie state funding to system performance.
- Require states to implement real-time traffic information systems on 80% of freeway and arterial roads by 2014.
- **Make publicly-funded real-time traffic data available to the public.**

# Thank you!



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