Senate Transportation and Housing Committee Subcommittee on Ports and Goods Movement

The Potential of Transportation Technology and Innovation

An Informational Hearing

May 5, 2009

Sacramento, California

Introduction

One of the key contributors to California's economy and quality of life is transportation, and the mobility of people and freight it provides. In order to remain competitive and meet the challenges of population growth, land use, and sustainability, California will need to move people and goods with efficiency and environmental responsibility.

A critical component to meeting these 21st century challenges is to harness the potential of existing technologies, including Intelligent Transportation Systems (ITS), and the innovation of emerging technology. Achieving this goal is dependent on the agile, responsive, and well networked development of research and technology deployment.

The Innovation and Implementation Process

In its Freight Management and Operations 2005 report, "The Freight Technology Story: Intelligent Freight Transportation and Their Benefits," (***ops.fhwa.dot.gov/freight/Intermodal/freight_tech_story/freight_tech_story.htm).*** The US Department of Transportation explains the process of taking a technology from an idea to market application and deployment:

> Successful technology innovations follow a four-step process: (1) A *bright idea* that sets the stage for (2) *tests and demonstrations*. Successful results and a strong business case combine to move market leaders to (3) *initial adoption and deployment*. Once the viability of a new technology is established and its benefits are clear, (4) *wide adoption* will occur. Step 4 cements the transition of the bright idea to market penetration. However, the biggest hurdle in the process is building sufficient confidence in the technology, through tests and demonstrations, to prompt initial adoption—the move to step 3.
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> The report notes three triggers that cause businesses to implement intelligent freight technologies:

1. **Pursuit of competitive advantage** is likely to be the main trigger for market leaders and innovators as they seek to

2. **Keeping up with competitors** is the apparent catalyst for market followers. Success by market leaders progressively erases doubt and skepticism about new solutions and shifts the debate in other firms from *whether* to *when and how.*
3. **Compliance** may arise from customer demands or government regulations. Commercial compliance comes into play when customers demand innovation as a condition of doing business. Regulatory compliance is self explanatory.

The report also outlines the following barriers to new technologies and operating practices:

- Skepticism about **efficacy**.
- Immature **standards**.
- Concerns about **negative operational impacts**.
- The **credibility of the business case** is often the dominant concern, with skepticism reserved for estimates of cost and benefits.

Maintaining its preeminent role in state-of-the-art technology development and providing a world class transportation system could be problematic for California, according to the June 2008 Milken Institute State Technology and Science Index study **(www.milkeninstitute.org).**

The highlights of this study, outlined below, indicate that California is losing its technology competitive advantage:

- California placed 4th in the nation in the study, slipping from its 2nd-place finish in 2004. While California remains a national leader among states, it shows signs of faltering behind Massachusetts, Maryland, and Colorado.

- While it remains one of the nation's top five performers, the state continues to falter under the pressure of a growing population. Systemic problems, inadequately addressed in previous years, are now becoming more apparent. Strains on the educational system are being felt from the kindergarten level all the way up through the university system. California does attract many highly educated specialists in technology and science fields, but its basic education system, the foundation for cultivating future knowledge workers, needs attention.

- In terms of Risk Capital and Entrepreneurial Infrastructure, the state dominates its competitors with its ability to capture both traditional and non-traditional business capital, employing a historical legacy advantage as well as the ability to creatively translate human capital into usable assets now.

California's ranking in the major indicators of the study:

- Human capital: from 7 in 2004 to 13 in 2008.
- Technology and science workforce: from 3 to 6.
- Technology concentration and dynamism: from 4 to 7.
- Research and development inputs: from 2 in 2004 to 3 in 2008.
- Risk capital: remains 1.

Conclusion

Research, technology, and innovation are and will continue to be vital for sustained economic growth and quality of life. Advancing technology, with strategic investment, can be cost effective and potentially provide a driving force that can help efficiently address California's increased congestion, environmental challenges, doubling of trade volume, and land use issues.

Witnesses

The Subcommittee hearing will hear from witnesses of following three panels.

Regional Overview of Present and Future Transportation Technology Deployment

Steve Heminger, Executive Director, Metropolitan Transportation Commission will give an overview of transportation technology deployment for the Bay Area. He will be joined by Has an Ikhrata, Executive Director, Southern California Association of Governments and Gary Gallegos, Executive Director, San Diego Association of Governments they will give an overview of transportation technology deployment for the Los Angeles and San Diego regions.

State Overview of Present and Future Transportation Technology Deployment

Michael (Mike) Miles, Caltrans Deputy Director, Maintenance and Operations will present a statewide perspective of transportation deployment.

Cost and Benefits of Technology Investment

Dr. Elizabeth Deakin, Director, University of California, Berkeley will make a presentation on the costs and benefits of transportation technology investment.