
MODERATOR: CHRISTOPHER M. GORDON, Senior Lecturer of Business Administration, Harvard Business School

SPEAKERS: TYLER DUVALL, Associate Principal, McKinsey & Company

FABIENNE HERLAUT, President, Ecomobilite Partenaires

DR. LIU THAI-KER, Chairman, Centre for Liveable Cities' Advisory Board; Director, RSP Architects Planners & Engineers Pte Ltd.

OVERVIEW

America's transportation policy does not seem to be keeping pace with future needs. Sound economic principles are often replaced by political pressures and can play little role in planning transportation infrastructure projects. Funding models should be implanted to ensure projects are financially sustainable, including disciplined use of long-term capitalization plans. Innovation is often disincented by outdated planning and procurement models.

That is not the situation in many countries. Singapore and France exemplify much more forward-thinking, innovation-embracing approaches to sustainable transportation-system planning.

CONTEXT

The panelists shared insights on approaches to transportation-system planning in America, Singapore, and France.

U.S. transportation-infrastructure policy is seriously flawed, primarily due to problems of economics.

Mr. Duvall—who for five years headed transportation policy for the U.S. government—sees major failings in America’s urban-transport infrastructure policy. The flaws are not structural matters of engineering or design but problems of economics. He identified four problems at the root of U.S. transportation-infrastructure policy:

- *Massive misallocation of resources invested in urban-transport infrastructure.* Over the past 15 years, the ROIs of these investments have collapsed. The problem: The planning process underpinning investment decisions at the metropolitan level is driven by political considerations, not economic ones.
- *Exceptionally weak innovation incentives.* This is true across all aspects of project delivery and operation. Procurement processes are siloed versus integrated. The contract model for mega-projects is outdated, less sophisticated than the model used elsewhere. Construction firms lack incentive to bring the latest innovations into public-sector projects. Technology deployment is very weak, unlike in the transportation systems of Tokyo or Singapore, where the latest technology is everywhere. There are meager financial incentives for government agencies or private-sector entities to bring new technology into urban transport, as they cannot keep any returns from efficiencies. Moreover, the government won’t guard competitive secrets. What innovation does occur in urban transport typically happens in spite of government.

“Bring a cool idea to the government, and the government lets it out to everybody. There are weak incentives to do that if you’re a private firm with a good idea.”

—Tyler Duvall

- *Mispriced assets.* The mispricing of highway assets in particular is enormous. That issue must be resolved before sustainable urban transport is possible in America. Mr. Duvall was involved in an initiative (similar to the Department of Education’s Race to the Top) where major U.S. cities could secure federal funding to implement congestion pricing experiments, involving tolls that fluctuate based on real-time traffic congestion. Such schemes

work well to alleviate urban congestion (given commuters’ ample schedule flexibility) and bring in more revenue. Great programs emerged. But the problem was that most were largely implemented solely for new roads; existing highways were largely perceived as “untouchable.”

- *Lack of long-term funding mechanisms for many infrastructure projects.* The gas tax—which is how the federal commitment to urban transportation is funded—is unpopular, but there is nothing to take its place to recapitalize the world’s largest transportation network. There are no resources for recapitalizing 50-year-old assets. The absence of a sustainable funding model is a big reason that there are scant private-sector investment flows into U.S. urban transport.

Mr. Duvall sees a few points of hope for U.S. infrastructure policy, however.

Increasingly, economic discipline and tools such as cost-benefit analyses are playing a greater role in transportation infrastructure planning. In America, civil engineers have typically dominated infrastructure project decision making (unlike in Asia and Western Europe, where economic factors are paramount).

Mr. Duvall also is seeing increased private-sector innovation by large corporations such as IBM, despite lack of a reward mechanism that promotes innovation. He believes that the next generation of public/private partnerships will be technology based. “Companies will operate and maintain their technology mechanisms, trying to capture some of the revenue streams in creative ways.”

Finally, politicians are becoming more educated about the productivity benefits of infrastructure investments, which suggests more sustainable funding in the future.

Singapore and France exemplify more forward-thinking approaches to sustainable urban transportation planning.

Asia and Europe offer examples of more innovative, effective, sustainable mass transportation systems.

SINGAPORE

Singapore has been transformed over the past 20 years, guided by a master urban plan—of which the mass transit system is one integrated part. The plan has beautified Singapore and created infrastructure that works.

While population density doubled over those years, congestion is minimal and traffic flows well. Most of the population (65–70%) uses public transportation. The government encourages public transportation and discourages car ownership. The transportation system is financially sustainable. The costs have been dropping relative to household income. Train operations are profitable and citizens receive a dividend.

Critical success factors include conditions that promote successful partnerships between public and private sectors. Singapore has a government that delivers on its promises. After setting the strategic vision, the government gives autonomy to the private-sector professionals doing the work. Government credibility and transparency are key. These are accompanied by clear vision, a long-term systematic plan, pragmatic strategies, and public campaigns prior to passing legislation. With minimal interference from government and rules designed to be simple, good ideas get implemented.

“If I were to describe the Singapore situation: The government creates a workable stage, leaving it to the private sector to act out the drama.”

— Liu Thai-Ker

City planners’ aims can be summarized in five “E” words: environment, ecology, education, egalitarian, and economics.

Liu Thai-Ker is involved in planning mega-cities in China as well—which must be built rapidly. Systematic, integrated master planning is critical to success. The Singapore model is highly transferrable to China, as there is clear accountability in local Chinese governments. In India, the Singapore model might not work as well.

FRANCE

In France, transportation operator SNCF is facing diverse business pressures.

Paris’s heavily used mass transit system is old-fashioned and congested. There is tremendous need to revamp the entire structure to improve quality of service.

- Demand has risen rapidly, with passenger counts up 16% from 1995 to 2008.
- Customers increasingly want more and better service: faster, cheaper, and delivering a better customer experience.
- Supply-side challenges are coming from trends that include a rise in carpooling. Car manufacturers are offering a new type of subscription service providing various modes of transportation.

Public transportation is under rising pressure to customize the travel experience. Among the new market entrants are large companies from other industries, such as energy, IT, and telecommunications, that provide travelers with real-time data that gives them increasing options regarding, for example, routes.

“Mass transit is becoming customized transit, customized to match the user.”

— Fabienne Herlaut

To address these challenges, SNCF is changing how it thinks about transporting people. Instead of moving people from station to station, a more relevant paradigm is moving people from door to door. To this end, SNCF is launching a number of partnerships with innovative startups, providing them with funding and market access.

Today’s world of mobility requires partnerships. Competitors have to work together in innovative ways. The winning partnerships will be those that create the most giant and innovative transport systems.

There are diverse opportunities for private-sector innovation in various areas of sustainable transportation.

Ms. Herlaut sees market potential for innovation in GPS technology to provide passengers with more route choice, efficiencies in ticketing experiences, improvements in transportation logistics and infrastructure, “mobility passes” that allow people to travel by various modes of transportation, and energy-saving electric bikes.

But she stressed that rarely are startups in the transportation space profitable without a large partner to help them scale up.

Mr. Duvall sees great opportunity for entrepreneurs on the technology-related operations side of transportation. For example, needed are more IT solutions for real-time pricing of highways based on current utilization, as well as the technology to operate and maintain systems.

Dr. Liu sees electric cars as holding great potential for sustainable transportation. An audience participant described a bike-share program he is involved in as a “massive economic engine.” Members of bike-share programs also become members of electric car-share programs. So a car manufacturer that funded bike-share programs would be seeding a future customer base for electric vehicle ownership.

Thinking in interconnected ways such as this is what innovation in sustainable transportation requires.

CHRISTOPHER M. GORDON (MODERATOR)

Chris Gordon is a senior lecturer at Harvard Business School, teaching and writing in the real estate group, primarily on the subject of complex capital projects. He also is a lecturer at the Massachusetts Institute of Technology's Center for Real Estate, teaching a nationally recognized course on project delivery, and serves as an adviser on complex capital projects worldwide.

Prior to his appointment at HBS, he served as the chief operating officer (COO) for the Allston Development Group at Harvard University from 2005 to 2010. In that role, he oversaw all aspects of the development of Harvard's campus expansion in the Allston section of Boston as well as development projects on the historic Cambridge campus.

Before stepping into the role of COO for the Allston Development Group, Gordon was director of capital programs and Logan modernization for the Massachusetts Port Authority. During his decade at Massport, he was responsible for capital programming and project delivery for all capital projects at all Massport facilities, including Logan International Airport (the 13th busiest airport in the world), Hanscom Airfield, Tobin Memorial Bridge, Maritime Terminals on the Port of Boston, and the Worcester Regional Airport. He oversaw the successful completion of the \$4.4 billion Logan Modernization Project and as director of capital programs, oversaw a \$500 million annual budget.

Gordon has served as a member of the National Research Council's Board on Infrastructure and the Built Environment, a trustee of the Engineering Center Education Trust, and a corresponding editor of the American Society of Civil Engineers' Engineering Management Journal. In 2003, he received the Manuel Carballo Governor's Award for Excellence in Public Service. He was Governor Mitt Romney's appointee as a co-chair of the Special Commission on Public Construction Reform; in 2004, this resulted in landmark reform of all public construction laws in the Commonwealth. Most recently, Gordon served as the chief judge for 2010 for the Engineering Excellence Awards for America.

Prior to joining Massport, Gordon worked for Cambridge Systematics in the Program Management Group, for Bechtel Corporation in the Civil Division, and for H.E. Bergeron as a project manager.

Gordon holds a bachelor's degree in civil engineering from the University of Maine and a master's degree in civil engineering from the Massachusetts Institute of Technology and is a registered professional engineer in several states.

TYLER DUVALL

Tyler Duvall is an associate principal at McKinsey. He joined the company as a senior advisor in the firm's Washington, D.C., office. In his time with McKinsey, Duvall has helped develop the Travel, Infrastructure, and Logistics practice and has assisted with ongoing strategy work in Panama and the State of Georgia.

Prior to joining McKinsey, Duvall ran the policy office at the U.S. Department of Transportation as both the acting under secretary for policy and assistant secretary for transportation policy.

FABIENNE HERLAUT

Fabienne Herlaut is a graduate of Ecole Supérieure de Commerce de Paris (1980) and holds an MBA from Harvard Business School (1984).

After graduation from HBS, she joined Bain and Co., a leader in management consulting, in the Boston and Paris offices.

From 1990 until 2001, she worked for Harwanne, a diversified holding company (mining, packaging, electronics), listed in Paris and Geneva, as general manager. She was in charge of managing the portfolio of participations (M&A) and supervising the operational performance of Harwanne subsidiaries, to drive them toward leadership positions.

In 2001, she joined Pechiney as head of corporate strategy and following the Alcan takeover, she co-led the integration between Alcan and Pechiney. In 2005, she joined ArcelorMittal, Flat Carbon division, in charge of business development and partnerships with Nippon Steel (Japan).

In 2007, she joined SNCF as head of corporate strategy and sustainable development, and as a member of the Executive Committee. Currently, she is in charge of creating and developing a SNCF corporate venture fund dedicated to sustainable mobility, Ecomobilite Partenaires, with investments in electric vehicles, last mile logistics, car-sharing and carpooling, and renewable energy.

LIU THAI-KER

Dr. Liu Thai-Ker is an architect-planner. Since 1992, he has been director of RSP Architects Planners & Engineers Pte. Ltd., a consultant firm of over 1,000 people, with 10 overseas offices and projects in 18 countries.

Liu also has been the founding chairman of the Centre for Liveable Cities since 2008.

Liu has served as an adjunct professor at the School of Design and Environment and the Lee Kuan Yew School of Public Policy at the National University of Singapore. He is also an adjunct professor in the College of Humanities, Arts, and Social Sciences at Nanyang Technological University. He is a member of several governmental bodies in Singapore and planning adviser to over 20 cities in China.

As architect-planner and chief executive officer of the Housing and Development Board (1969–89), he oversaw the completion of more than a half-million dwelling units.

As chief executive officer and chief planner of the Urban Redevelopment Authority (1989–92), he spearheaded the major revision of the Singapore Concept Plan and key direction for heritage conservation.

In the cultural arena, he served as the chairman of the National Arts Council from 1996 to June 2005 and the Singapore Tyler Print Institute from 2000 to 2009. He has served as the chairperson of the External Review Panel, Arts Quality Framework (appointed by the Ministry of Education), and is a founding member of the Board of Trustees, Arts and Culture Development Fund, Ministry of Information, Communications, and the Arts.

Liu obtained his bachelor of architecture with first class honours and the University Medal from the University of N.S.W. in 1962, and a master's in city planning, with the Parson's Memorial Medal, from Yale University in 1965. He later attended INSEAD Advanced Management Program in Paris, in 1980. In 1995, he received a doctor of science honoris causa by the University of New South Wales.

Among his awards are the Public Administration Medal (Gold) 1976; the Meritorious Service Medal 1985; the Singapore Institute of Architects Gold Medal; and the Medal of the City of Paris, France, in 2001. In 1993, he received the 2nd ASEAN Achievement Award for Outstanding Contributions to Architecture.