

# New England University Transportation Center



NE University Transportation Center  
77 Massachusetts Avenue, E40-279  
Cambridge, MA 02139  
Phone: 617-253-0753  
Fax: 617-258-7570  
web.mit.edu/utc

**Principal Investigator:** Joseph Sussman  
**Title:** Professor  
**University:** Massachusetts Institute of Technology  
**Email:** Sussman@mit.edu  
**Phone:** 617-253-4430

**Co-Principal Investigator:**  
**Title:**  
**University:**  
**Email:**  
**Phone:**

## Final Report

*Project Title:*

Transportation Strategy Development Under Economic Uncertainty

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## Transportation Strategy Development Under Economic Uncertainty

The interests of the researchers here were to understand various modes for developing long term – that is strategic – plans with particular concern for the economic uncertainties one invariably faces in such a planning environment. Often resources cannot be confidently projected many years into the future and yet when one talks about transportation systems one is talking about large scale infrastructure that is very long lived. So how does one “do strategy”?

There are two schools of thought on the general question of how strategies are developed. One mode of thought championed by Professor Michael Porter of the Harvard Business School is *deliberative strategy* where one maps out a long-term strategic direction for, in our case, the transportation network and then makes individual decisions within the framework of that strategy statement.

The other major school of thought, championed by Professor Henry Mintzberg at McGill University, is called *emergent strategy*. In essence, that approach argues that in many cases we “discover” our strategy after the fact--by looking at decisions we actually made and backtracking to a statement of “what our strategy must have been.”

Of course, in practice, strategy development in most fields is a hybrid of these two approaches and this is certainly true in the transportation area.

We studied this phenomenon of deliberative and emergent strategy using the transportation highway network in Portugal as our case study. We mapped out how a transportation network would evolve within various strategy regimes, testing the balance between deliberative vs. emergent strategies. We began with the Portuguese highway network in 1995 and modeled how it would have developed under various strategy regimes and then compared it with the actual highway system, as it truly developed, in 2010. In the process, we gained considerable insight into how forms of strategy development play out in real-world transportation applications and ideas about how this plays into the policy architectures that make the most sense. Further work would involve additional case studies using different modes in different national settings and different organizational regimes.

The results of this research were reported in the following paper:

Simulating the Impact of Strategy Development Frameworks on Transportation Infrastructure System Performance (.pdf [ESD-WP-2010-03](#))

Further, they are documented in detail in the PhD dissertation of Dr. Travis Dunn who earned his doctorate in the interdepartmental transportation doctoral program here at MIT.

**The Geography of Strategy: An Exploration of Alternative Frameworks for Transportation Infrastructure Strategy Development, 2010**

**<http://mit.edu/hsr-group/publications.html>**

The paper and thesis contain some ingenious ways of showing the results of strategy development—so-called spider web diagrams- that we hope will provide inspiration to many in the planning profession.

[Related papers and thesis by members of the research team](#)

Megacities and High Speed Rail systems: which comes first? (.pdf [ESD-WP-2012-07](#))

Technology-Enabled Strategy Development Alternatives for Surface Transportation (.pdf [ESD-WP-2008-19](#))

Using Design Structure Matrices to Improve Decentralized Urban Transportation Systems (.pdf [ESD-WP-2005-08](#))

**See also: Dunn, T, Using Design Structure Matrices to Improve Decentralized Urban Transportation Systems, MST thesis, MIT, 2006**

**Website:**

**Regional Transportation Planning and High-Speed Rail Research Group**

<http://mit.edu/hsr-group/publications.html>