



Automated Vehicles: What Are the Policy Implications?

James Anderson

Image by H. Miller.

Revolution in Transportation?



Image courtesy of Mercedes

Lessons from the past temper optimism

Airbags first
patented
1953



1950s

Airbags first
introduced in
luxury models



1970s

Airbags
required
after 1999



1990s

NHTSA's 1971 Plan



Radar controlled automatic brakes



Low tire pressure warning



Warn other vehicles of high speeds



Alcohol interlocks

Considerations for policymakers

- What are the **advantages and disadvantages** of automated vehicle technology?
- What **obstacles** prevent us from realizing the benefits?
- What can policymakers **do**?

Considerations for policymakers

- What are the **advantages and disadvantages** of automated vehicle technology?
- What obstacles prevent us from realizing the benefits?
- What can policymakers do?



SAVE LIVES



Image shared by steve via Flickr; no known copyright restrictions



SAVE LIVES



U.S. accident statistics



SAVE LIVES

IMPROVE
MOBILITY



Film still from Google via YouTube.



SAVE LIVES

IMPROVE
MOBILITY

FUEL
CONSUMPTION



Image by roo reynolds via [unsplash](#) (no known copyright restrictions)

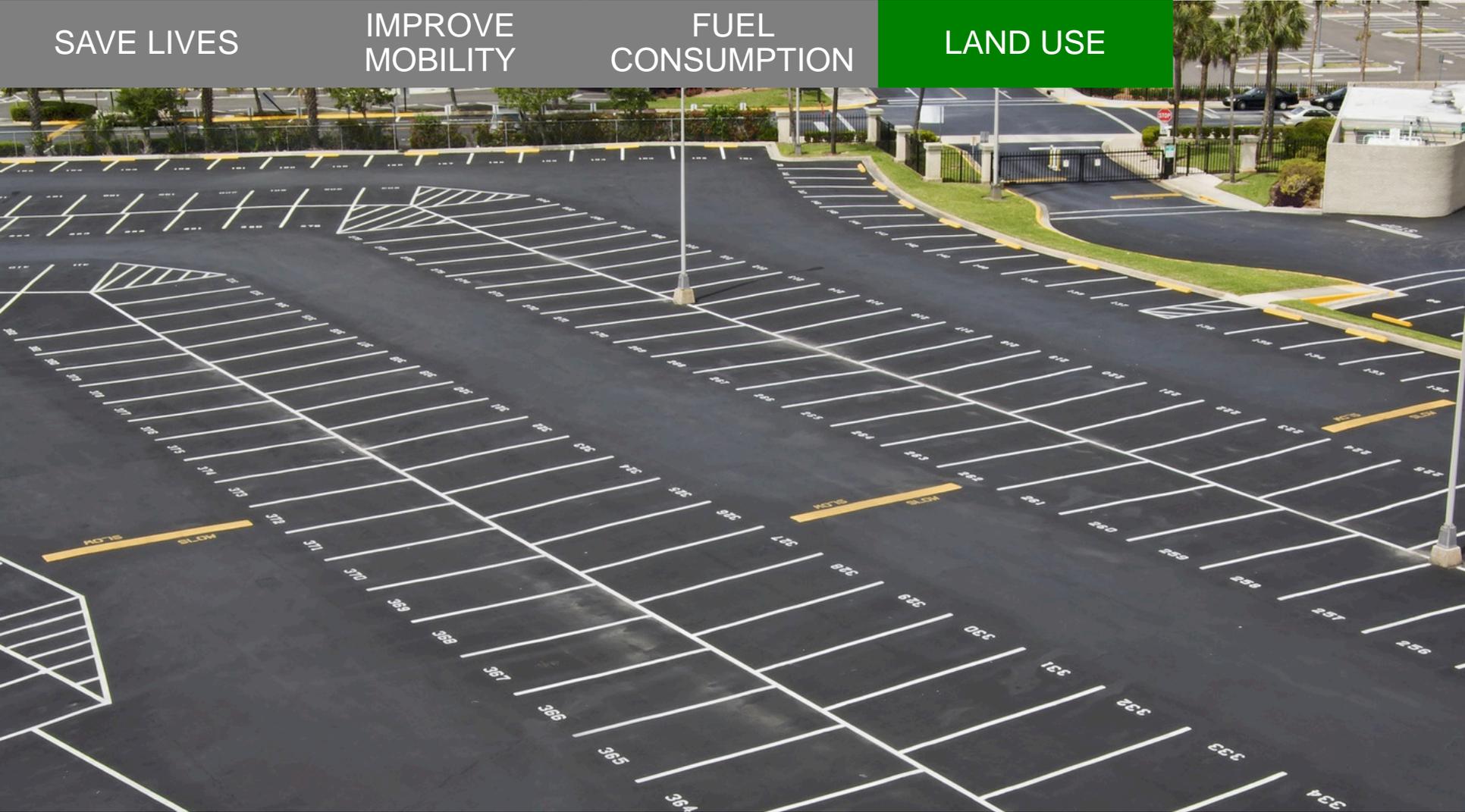


SAVE LIVES

IMPROVE
MOBILITY

FUEL
CONSUMPTION

LAND USE





SAVE LIVES

IMPROVE
MOBILITY

FUEL
CONSUMPTION

LAND USE

CONGESTION



Image by [Frederick Olsen](#) under [CC BY 4.0 International license](#). No copyright restrictions.



CONGESTION



PUBLIC TRANSIT

CONGESTION



ECONOMIC
DISRUPTION

PUBLIC TRANSIT

CONGESTION



Image by Kenny Louie via Flickr; no known copyright restrictions.



ECONOMIC
DISRUPTION

PUBLIC TRANSIT

CONGESTION



Image by Stan Wiechers via Flickr; no known copyright restrictions.



**ECONOMIC
DISRUPTION**

PUBLIC TRANSIT

CONGESTION



Image by Jeff Kubina via Flickr; no known copyright restrictions.



Overall societal benefits almost surely exceed costs



Considerations for policymakers

- What are the advantages and disadvantages of automated vehicle technology?
- What **obstacles** prevent us from realizing the benefits?
- What can policymakers do?



OVER-
CONFIDENCE

SAFETY

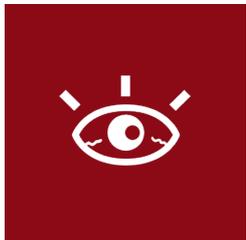
TRAINING



Driver overconfidence/safety undervalued



Automaker perception that safety does not sell



Early stages will require trained, alert drivers

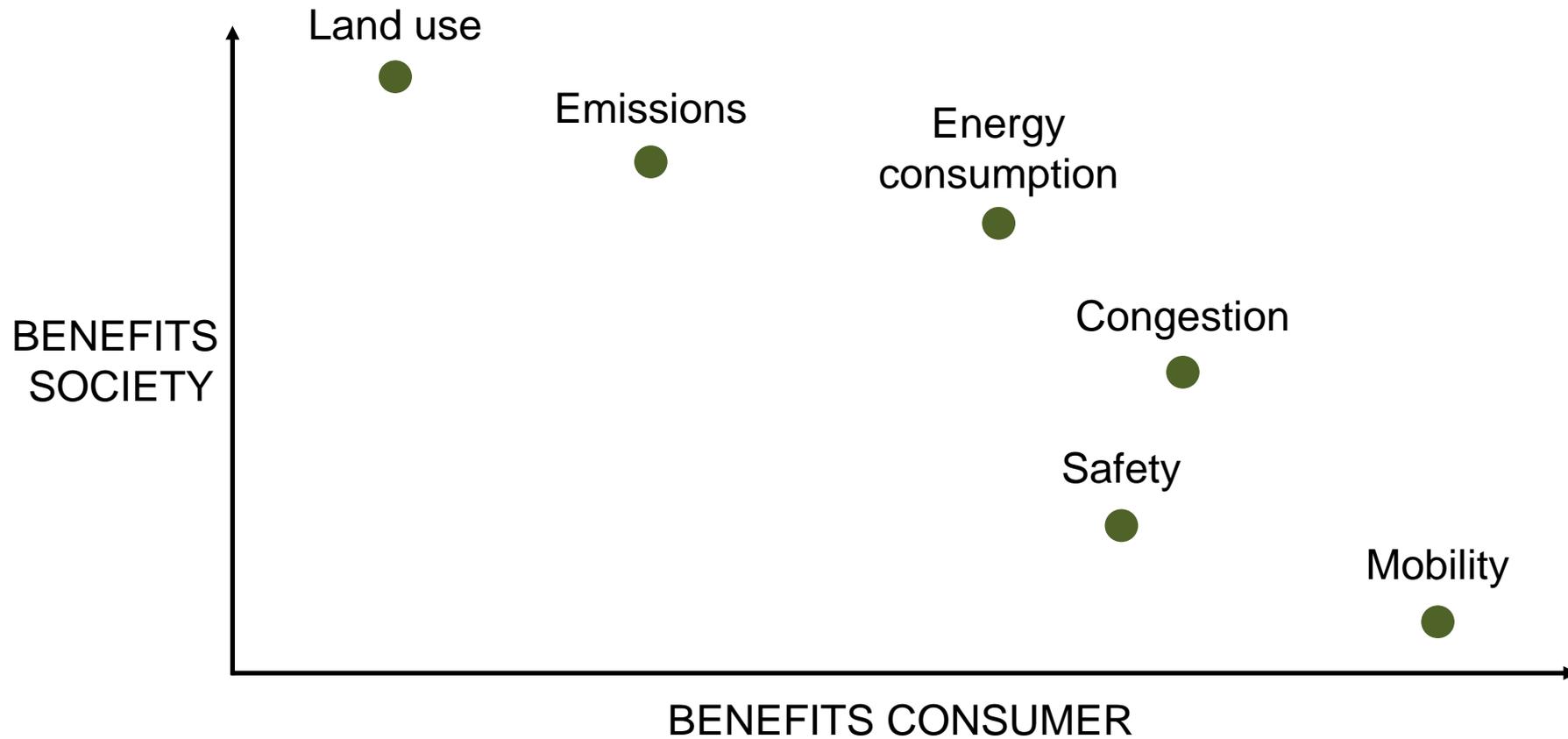


OVER-
CONFIDENCE

SAFETY

TRAINING

EXTERNALITY





OVER-
CONFIDENCE

SAFETY

TRAINING

EXTERNALITY

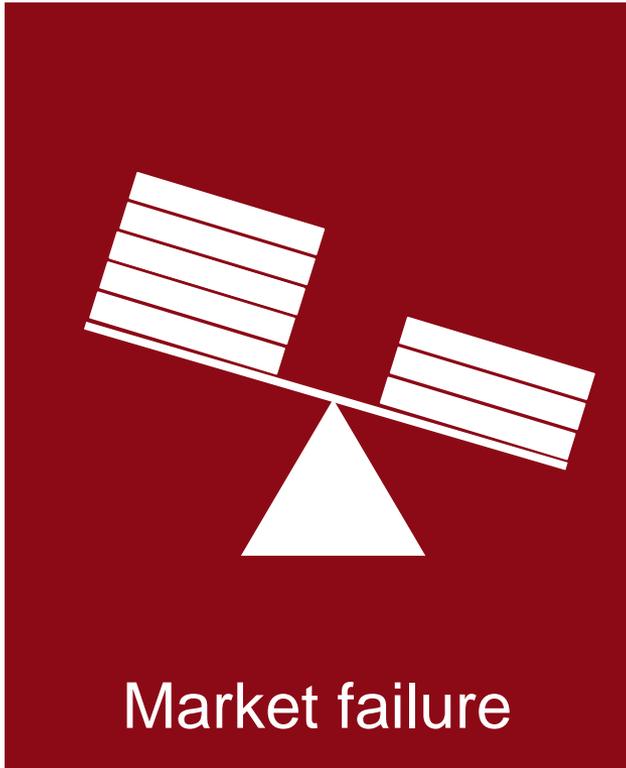
AUTOMAKER
LIABILITY



Image shared by jimmywy via Flickr; no known copyright restrictions.



These factors together may result in market failure or slow adoption



Outline Image by misirlou/nounproject

Considerations for policymakers

- What are the advantages and disadvantages of automated vehicle technology?
- What obstacles prevent us from realizing the benefits?
- What can policymakers **do**?

Subsidies, privileges, mandates, user fees equalize public and private benefits



Image shared by Toyota UK via Flickr; no known copyright restrictions.



Liability law changes might help

Vs.

Plaintiff,

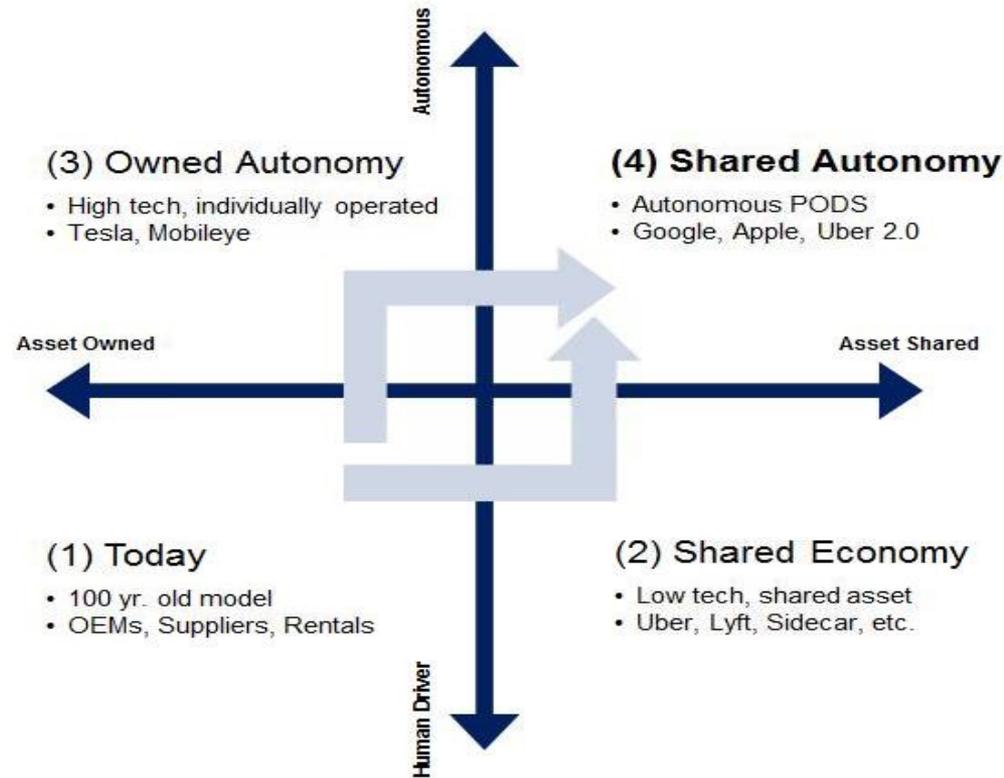
Clarify liability standards

Federal vs. state law

Operator responsibility



Liability and Insurance Effects Depend on Model



Collaboration is key



Technological concepts differ widely

States should coordinate regulations

Premature regulation can halt evolution



Challenges for transportation planners



Models may change

Adaptive policy making

Information collection

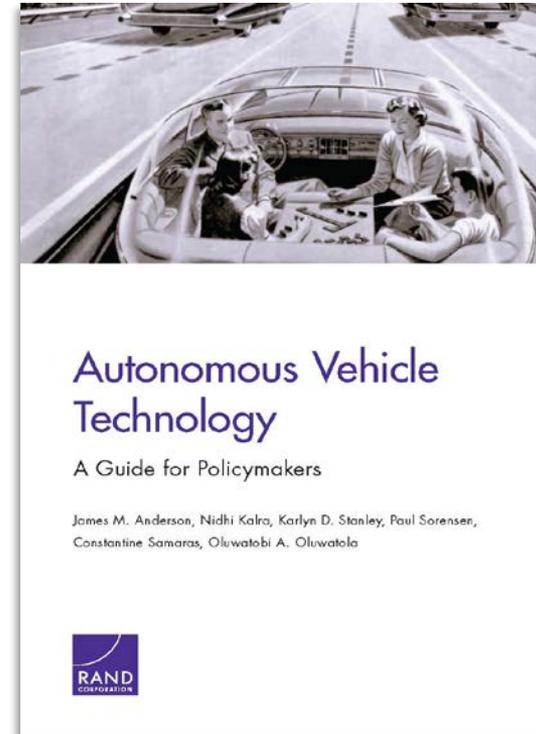


Key points

- **Benefits** outweigh disadvantages
- Purchaser does not get all benefits; may be **unwilling to pay**
- **Subsidies** could help
- **Adaptive policymaking** critical

Study Available for Free Download at RAND.org

- State of technology
- Costs and benefits
- Communications
- Current state law
- Liability issues
- Recommendations for policymakers



Still...

“It’s tough to make predictions... especially about the future.”

-- Yogi Berra





Image by H. Miller.