Networking Transportation
The Digital Revolution

Computers | The Internet | Digital Devices | Data Storage | Sensors

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Coronation of a Pope

2005

Benedict

2013

Francis
Platforms & Networks

A **platform** serves as a base upon which others can build, play, and/or iterate new applications, processes or technologies.

A **network** is a group of interconnected people and things.

A **network effect** occurs when a good or service becomes exponentially more valuable as more people use it.
Urban Areas Are Physical Platforms...
…That Are Being “Digitized”
Transportation Options

Now

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Competing Transportation Theories

Auto-Oriented
Increase Mobility

Active/Sustainable
Increase Accessibility

Digital
Increase Information
Future Shared Mobility Scenarios

Cooperative, Partnerships

A Tale of Two Regions

Moore Growth

Slower Growth

Filling a Niche

TNCs Take Off

Faster Growth

Individualistic, Fragmented
Filling a Niche

TNC operators don’t grow beyond specialized trips. Transit and regional transportation largely remains in status quo.
A Tale of Two Regions

TNCs and transit agencies build partnerships in denser developed areas. Outside the core, the traditional auto-oriented transportation remains.
TNCs Take Off

TNCs operate independently and are able to quickly respond to changing market conditions. This has led to a significant scaling down of transit operations.
Moore Growth

Mobility-as-a-Service and partnerships between TNCs and transit agencies blurs the line between them. Convenient motorized options, growing traffic volumes and vehicle speeds reduce walking and biking.
Potential Disruptors: HAVs

Punctuated Equilibrium

Equilibrium Period (stable / incremental change)

Step Function (paradigm change / disruption occurs)

Gap (temporary decline in conditions)

Source: Local Motors
Preliminary Thoughts on HAVs

- Will use existing infrastructure
  - Safer with better pavement, lane markings & signs
- No ‘sharing’ guarantee
  - Major changes to TNCs
- Significant benefits unlikely in shared facilities
- Unknown land-use implications
  - Network effects?
- Add system ‘complexity’
- Pricing is overlooked
- Full AV fleet may double regional VMT
  (TDMs showing 12% to 68% increase)
- Connected, autonomous?
Digital Infrastructure Implications
Networking Transportation

- Digitization + shared mobility = opportunity for network reset
- Government needs to coordinate network integration
- Existing service providers can be successful if they are flexible and adaptable
- Funding may rely more heavily on the private market
- Race between shared mobility and HAVs
- Digitization doesn’t change the basic fundamentals of good urban design
Goal:
Build an Integrated, Multimodal Transportation Network


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Thank You!

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