

# Intelligent Transportation Systems Opportunities and Challenges

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**ITS is Great, Right?**

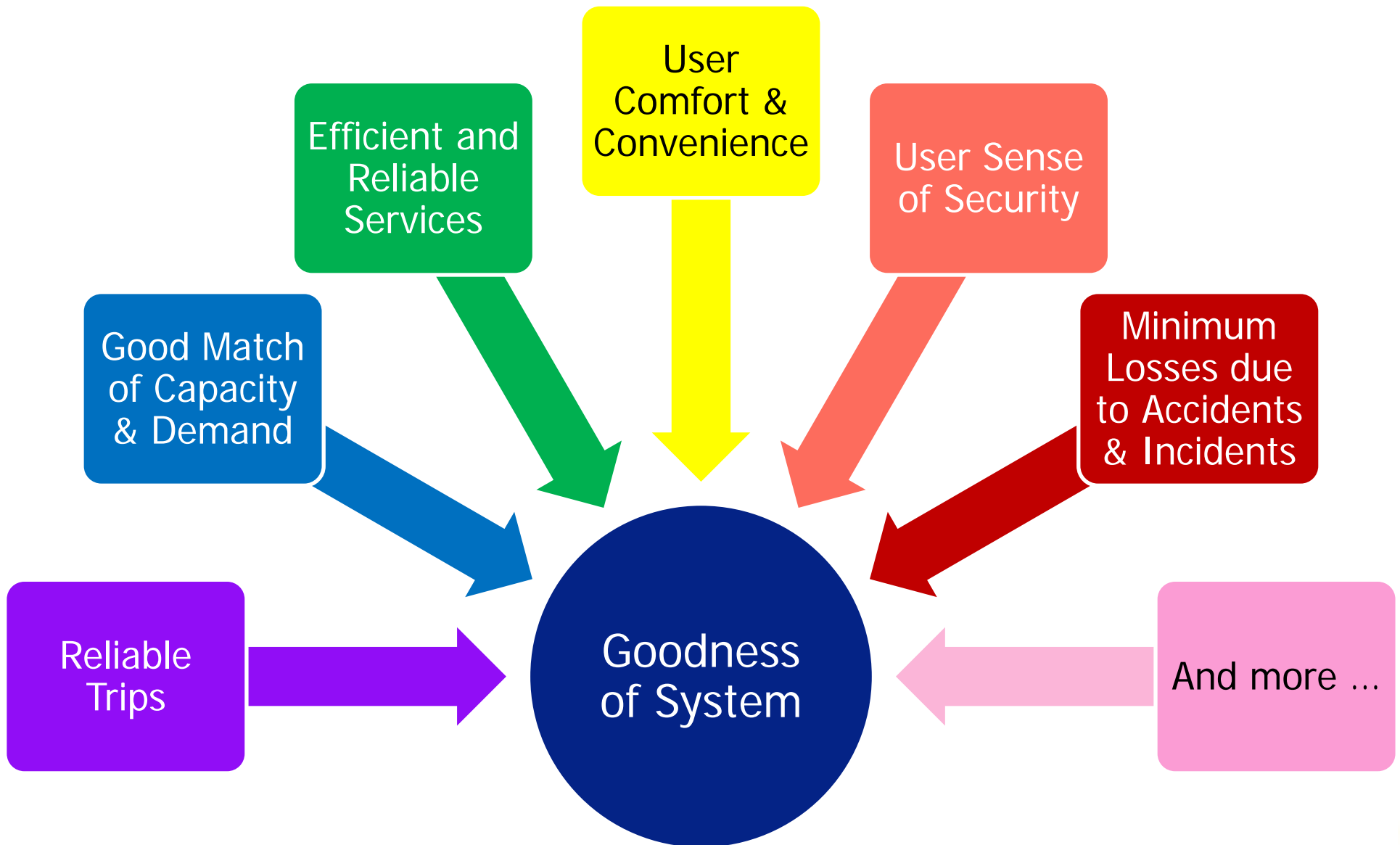


**But, may I ask, where is the Beef?**

**Ching-Yao Chan**  
**California PATH, UC Berkeley**  
*November 15, 2012*

# Transport System Performance

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# ICT Technologies and ITS

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- Information, Computing, and Telecommunication (ICT) technologies are powerful.
- Many aspects of transportation systems can be improved.
- ITS is born!



# Here Comes the White Knight - ITS

- Road users are receiving more useful and timely traveler information.
- Safety Statistics are much improved in recent years.
- More energy-efficient options are being promoted.



# But, Have We Been Saved?

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- How much improvement is truly due to ITS?
- Same ITS concepts from 20 years ago are still being discussed.
- Many cities and regions are still witnessing the same traffic problems as before.



# Technology will carry the load!?

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**Mobility, Safety,  
Efficiency**



**Technology**

**Everyone thinks I am  
the superman!!**



**I can't do it alone!**

# When you have a powerful hammer, everything looks like a nail.

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# Society cannot keep up with it!!

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**Technology**



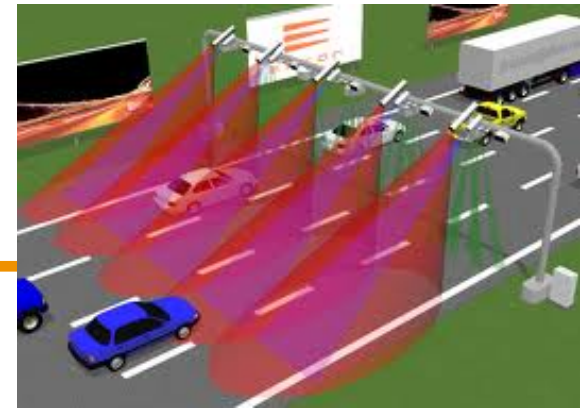
**Institutional, Legal,  
Societal, Political  
Issues, etc.**





# Case Study – ETC

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- **Usage Based Concept**
  - Smooth transactions and operations.
  - More and more toll roads in US (e.g. High-Occupancy Toll) Lanes Pay by distance traveled and by vehicle types
  - Congestion pricing (e.g. higher fees at peak hours)
- **Harder and harder to get free lunch**
  - Equitable system to sustain highway maintenance and operation
  - Where do we get money to pay for all of these?
    - More VMT Based Tolls? Higher Gasoline and Electricity Tax?

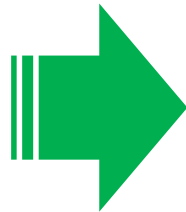
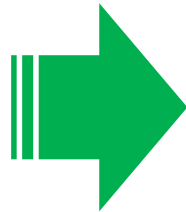
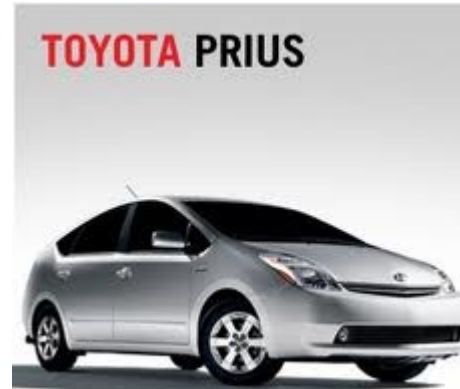
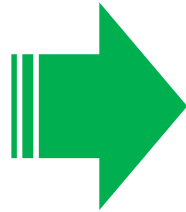
# Case Study – Ride Sharing

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- **A New Class of Ride Sharing**
  - *Uber, SideCar, Lyft, ZimRide*
  - People connect via mobile phones
  - Riders pay “suggested donation”
  - Are they commercial ride providers, like taxi?
- **California Public Utility Commission (PUC) issues cease-and-desist notices**
  - Companies do not have legal standings to operate transportation services
  - Stop or face fines and jail time

# A Revolutionary Transformation in Automobiles



# The Next Frontier - Cars

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- **“Our vision is to create a continuum of personal computing experiences that provides consistency and interoperability across all Internet-connected devices in the home, car, office or in your pocket.”**
  - **(Intel CEO Paul Otellini, Intel Developer Forum, 09/2010)**
- **Intel Capital creates a \$100 million Intel Capital Connected Car Fund to accelerate technology innovation in the automotive industry.**
  - **(Intel Newsroom, 02/2012)**

# Industries are Moving!

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- **GM OnStar** Telematics Has Revenue of \$1 Billion (January 2011)
- **Microsoft and Toyota** Announce Strategic Partnership on Next-Generation Telematics (April 2011)
- **Ford and Toyota** teams up on telematics (August 2011)
- **CES 2012: Mercedes** launches mbrace2 telematics system (January 2012)
- **Verizon** acquires **Hughes Telematics** for > 612 M (June 2012)
- **Nissan** North America teams up with **SiriusXM** for telematics services (September 2012)

# An Entangled Growth Network in A Connected World

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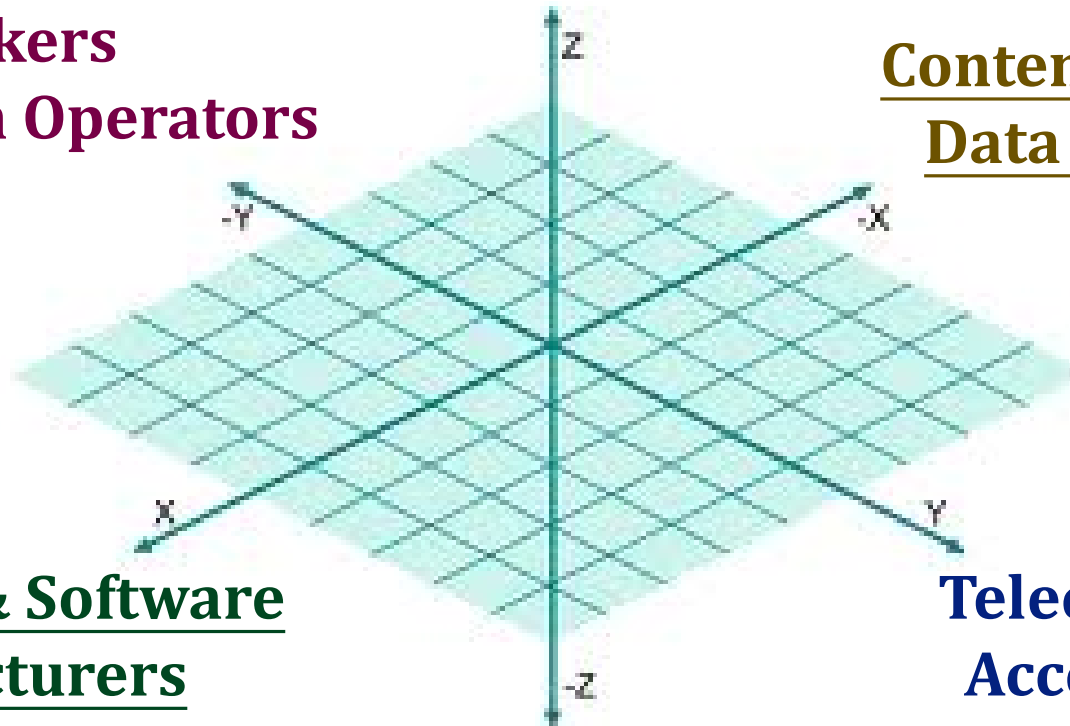
*Telematics Providers*  
*Insurance Providers*  
*Infotainment Providers*

**Automakers**

**Transportation Operators**

**Contents Providers**

**Data Processors**



**Hardware & Software**  
**Manufacturers**

**Telecom Providers**  
**Access Providers**

*Cloud Computing*  
*Transportation System Management*

# Will we ever get there?

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# Relevance to Today's Competition

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- **Positioning Technologies provided by Galileo Satellite Systems**
- **And a powerful combination with wireless Communication**





# There is still hope!

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- Technology is becoming more readily available at lower costs.
- Connectivity is enabling a kaleidoscopic suite of new applications.
- Deployment is more widely spread than before, and lessons are being learned.
- Realization needs time, resources, and champions.



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**Thank You!**

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