

# Connected Cars

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This work was created in an open classroom environment as part of a program within the Sutardja Center for Entrepreneurship & Technology and led by Prof. Ikhlaz Sidhu at UC Berkeley. There should be no proprietary information contained in this work. No information contained in this work is intended to affect or influence public relations with any firm affiliated with any of the authors. The views represented are those of the authors alone.

Mainstream **globally** in just 10 years!



# What Makes a Car Connected?



# The Future is Here



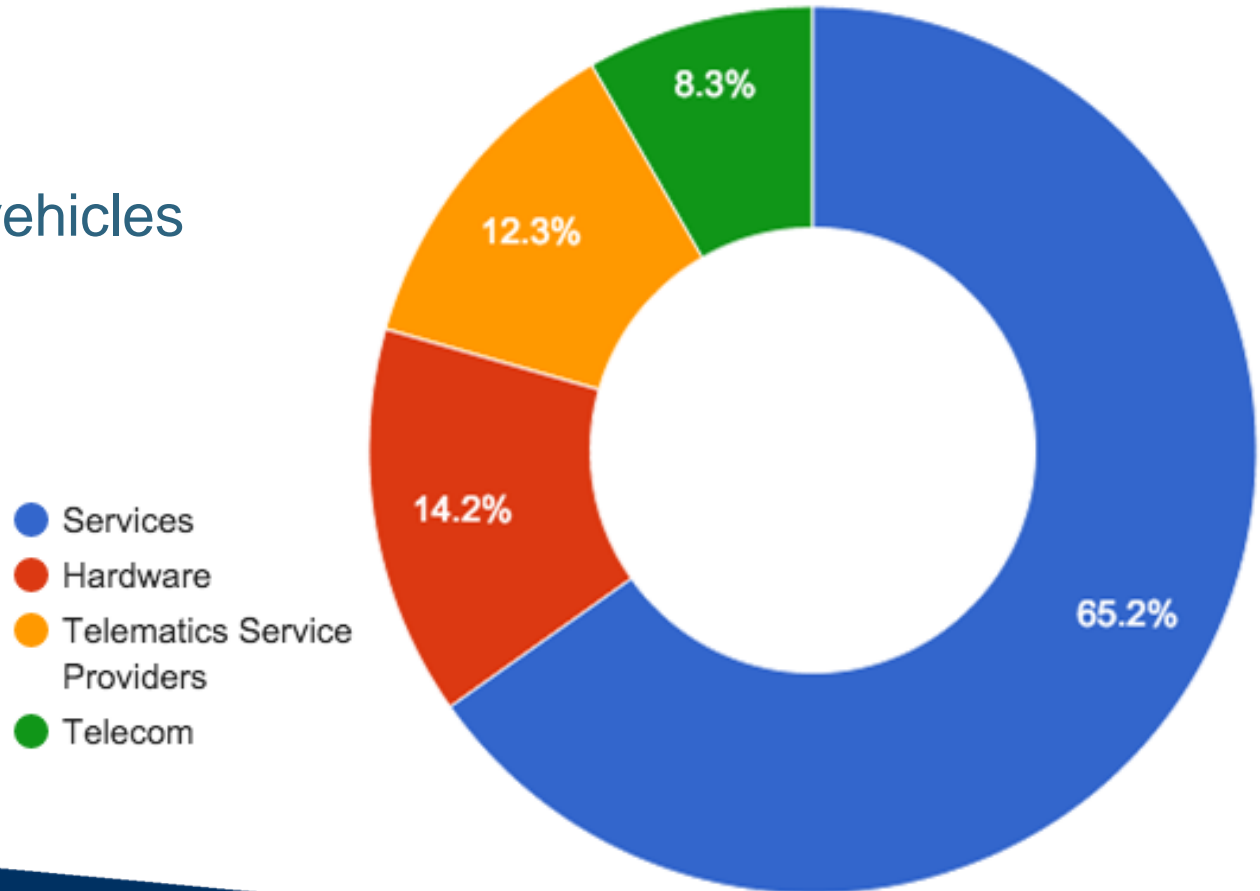
# Forms of Connected-ness

- Embedded
- Tethered
- Smartphone



# Landscape Today

- 50+% of new vehicles
- \$27.8B market





# Technology Evolution

Mid 90s

Mid 2000s

2015

2020

Future

- SoS services
- Last mile guidance
- Breakdown support

- Infotainment
- Traffic information
- Smartphone integration
- Off-the-shelf OBD devices
- SoS services
  - Breakdown support
- Tracking

- **Infotainment** :
  - access to cloud and home media, music and video streaming, live TV
- **Remote services**
  - steer car, restrict car usage
  - Vehicle health monitoring/management
  - Insurance monitoring
- **Navigation**
  - Intelligent traffic re-routing
  - Smart parking
- **Call for help**
  - automatic or manual e-call, crisis call

- Augmented reality navigation
- Self driving cars
- Maintenance
  - over-the-air tuning

# Societal Benefits

Reduced CO<sub>2</sub> emission



Fewer accidents

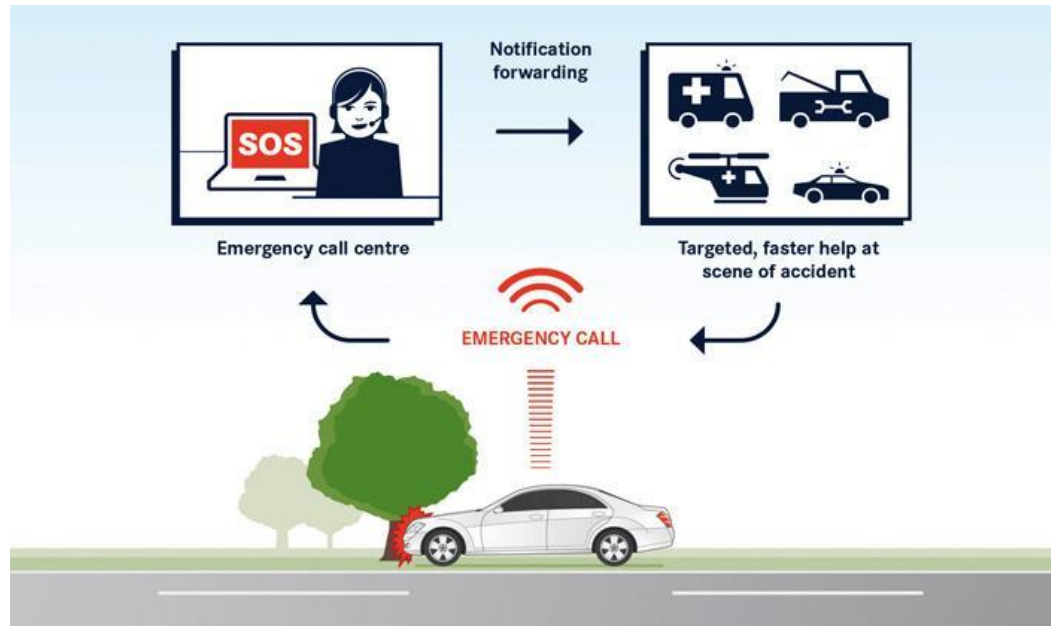


Fewer traffic jams



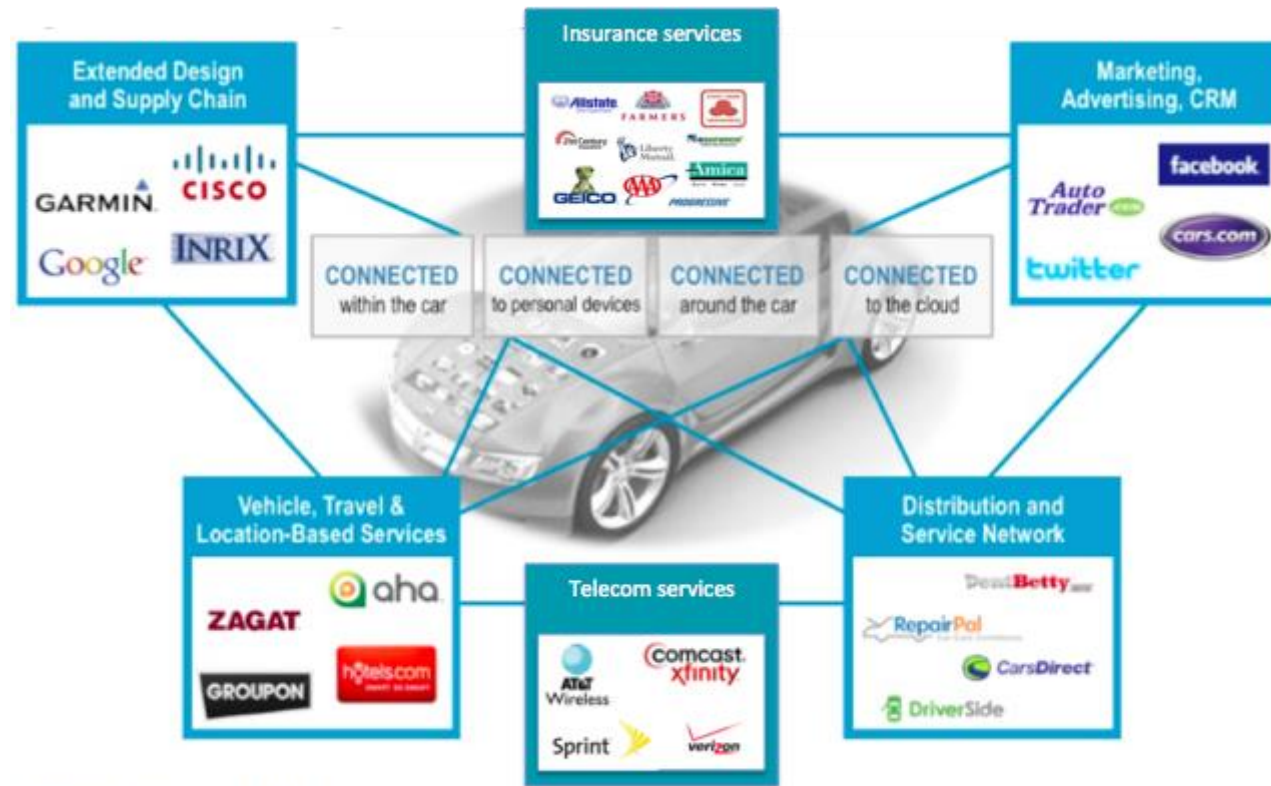


# Regulatory Can Accelerate



EU mandates eCall emergency call system in all new cars by 2018

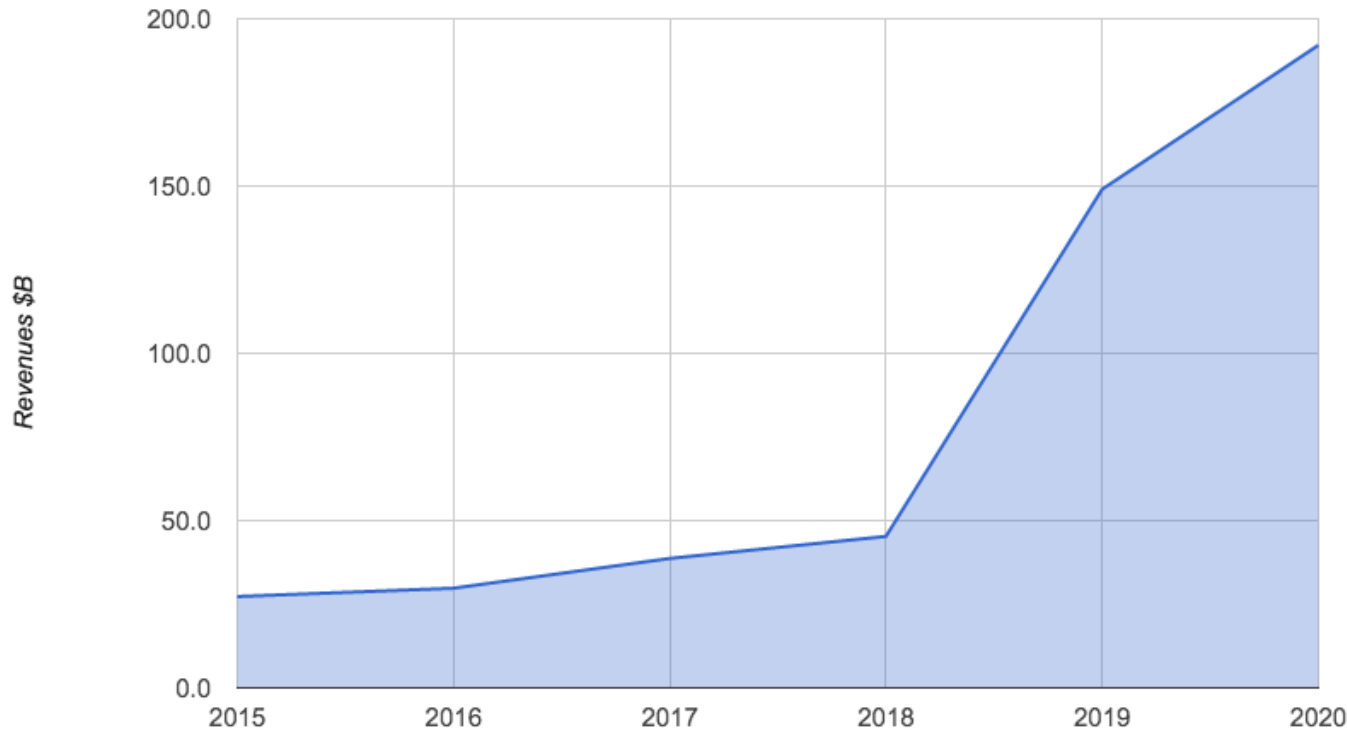
# Future Value Chain



- Mobility Services
- Marketing and promotions
- In-car experience
- Logistics/industry services
- Insurance services
- Telecom services

Source: Cisco IBSG, 2011

# Future Market



By 2020:  
**75%** of new cars  
(100% in US)

By 2025:  
**100%** of new  
cars ...in multiple  
ways!

Sources: [GSMA](#), [PR News](#), [McKinsey & Co.](#)

# Connected Cars Can Be Hacked

Govt bans can slow down the industry

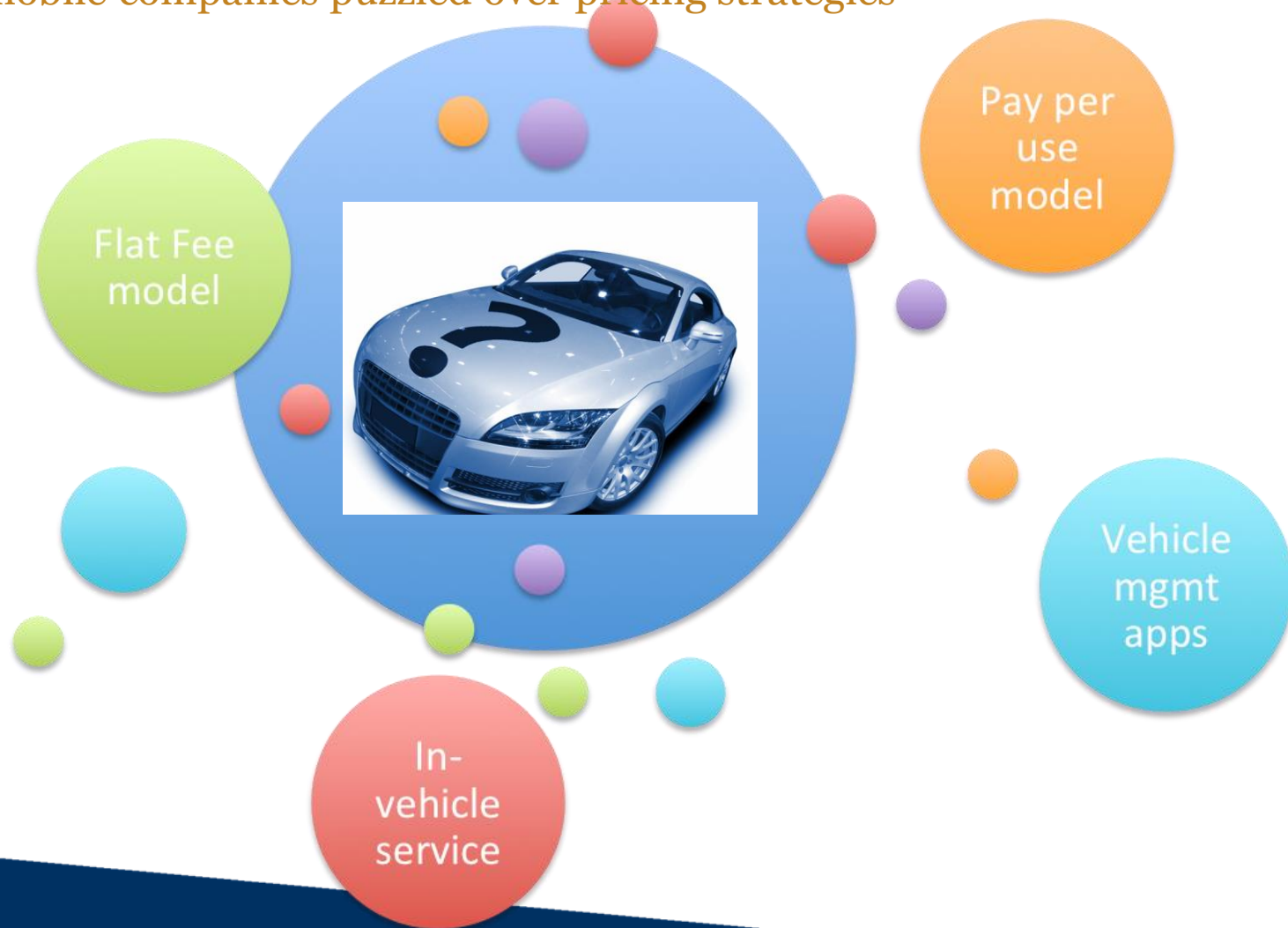


NHTSA and the FTC are about to set security standards for cars



# Disrupting the Automotive Industry

Automobile companies puzzled over pricing strategies



# Automotive vs. Technology Culture



Long development



Rapid development

Transaction based \$  
model



Subscription based \$  
model

Global

Regional



# Potential Strategies



Build/partner to offer brand-differentiating services

Build apps in tech ecosystems (Apple/Google)

Create/maintain own tech ecosystem (apps/cloud)



Car is another accessory; make it an extension of driver's digital lives

Build on-demand after-sale services

# Winners



- All key revenue segments (esp. services)
- Embedded & smartphone solutions
- Drivers & society

# Losers



- Purely tethered solutions
- Car manufacturers (ironic)

# Exciting Times Ahead



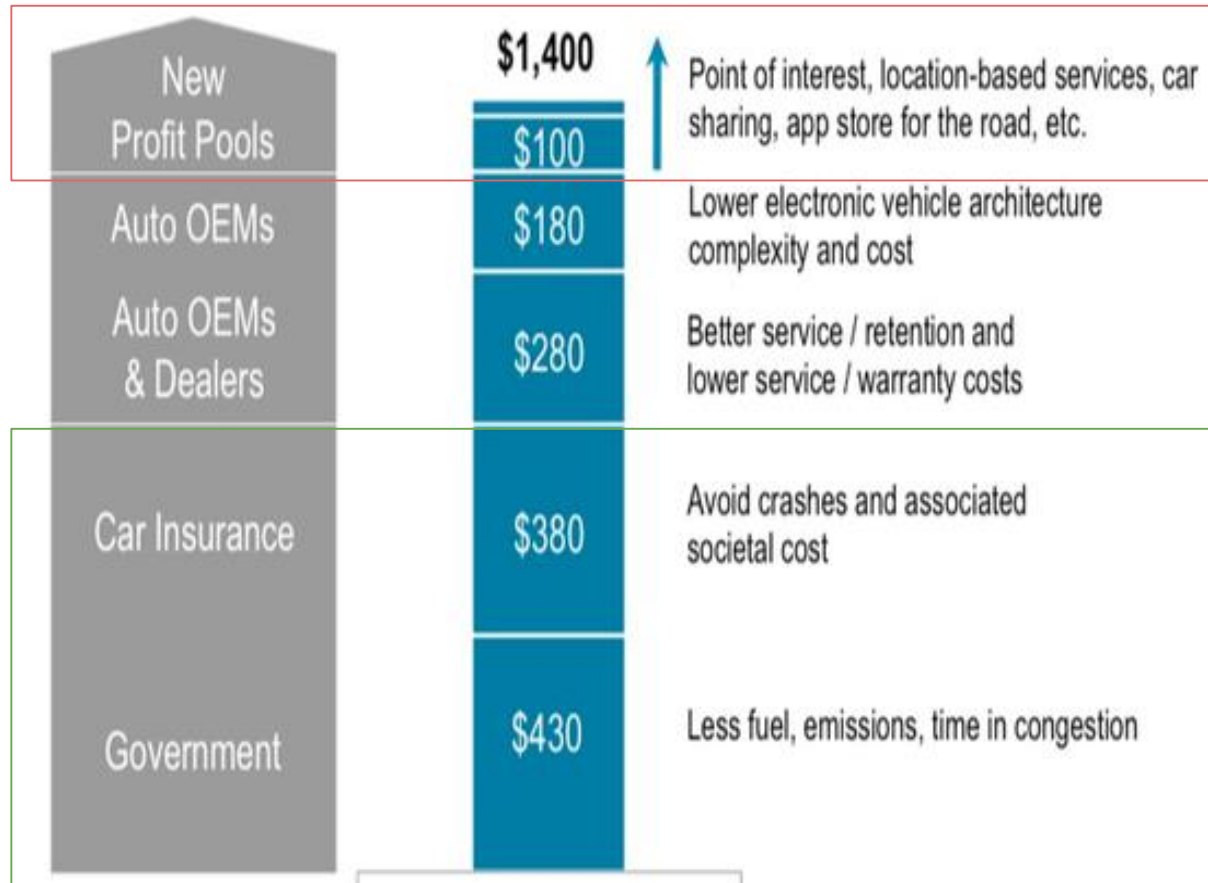
# Questions?

# Appendix



# Business Segments

Unlocking the Benefits of Connecting Vehicles: Annual Benefits per Connected Passenger Vehicle.

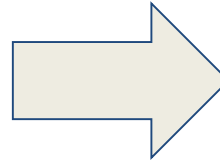


# Major Players



# More Catalysts

Consumers expect their car to be another smart device



Improved networks  
Increased use of  
smartphones

Demand for Infotainment

# Hurdles

## Regulatory

- Restrict or ban the use of certain technologies
- Mandate deployment of technologies
- Technology standards



open standards

# Factors

- TBD - Sridevi
- Safety to be a major driver
  - Not without risks