Session 13: Autonomous Car & AI

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Speed of Disruption in Automotive Industry

MARY BARRA, CEO OF GM (WORLD ECONOMIC FORUM):

- “I believe that the auto industry will change more in the next five to ten years than in the last 50 years”

MCKINSEY 2016

- “Given the widespread understanding that game-changing disruption is already on the horizon, there is still no integrated perspective on how the industry will look in 10 to 15 years as a result of these trends.”
How many new cars may be fully autonomous by 2030?

Factors in disruption scenarios
- Regulatory challenges
- Safe, reliable technical solutions
- Consumer acceptance, willingness to pay

High disruption
- Fast
- Comprehensive
- Enthusiastic

Low disruption
- Gradual
- Incomplete
- Limited

*Conditionally autonomous car: the driver may take occasional control.
*Fully autonomous car: the vehicle is in full control.
*Original-equipment manufacturers.

McKinsey & Company
Investment into Private Auto Tech Companies on Pace for Record Year

At the current run rate, both deals and dollars into auto tech companies are set to reach record levels in 2016, with deals hitting fresh highs for the second year running.

Source: CB Insights
Startups now Addressing Wide Array of Automotive Applications and Solutions

Unbundling The Automobile

Source: CB Insights
Autonomous Car and AI

Disruptive Change: NY Taxi Medallions

*Individual NYC Taxi Medallion Prices, Jan. 2010 to Aug. 2015*

*Sources: NYC Taxi and Limousine Commission, NY Times, NYCityCab.com*

Carpe Diem
AEI

Stanford | Global Projects Center

mediaX
at Stanford University
Technology Adoption is Quicker
Global Smartphone Operating Systems ‘Made in USA’… 97% Share from 5% Eight Years Ago (Mary Meeker, KPCB)
Disruptive Change: Nokia Perspective

SYMBIAN MARKET SHARE: 60% (2007) TO >10% (2011)

WE TOO, ARE STANDING ON A “BURNING PLATFORM,” AND WE MUST DECIDE HOW WE ARE GOING TO CHANGE OUR BEHAVIOUR.

NOKIA CEO STEPHEN ELOP (2011)
Complexity of Regulation

NHTSA: Sets basic safety standards but scope of preemption of state tort law by those standards is complex

States Rules on Autonomous Cars
- California: Driver required (draft regulations)
- Michigan: Proposed legislation appears to be trying to permit autonomous vehicles without drivers but very confused approach

Federal Communications Commission
- Use of Direct Short Range Communication (DSRC) by automotive manufacturers for V2V and V2I communication
- Challenged in Notice of Rulemaking by Public Knowledge and The New America Open Technology Institute
Vehicle Performance Guidance for Automated Vehicles

Model State Policy

Current Regulatory Tools

Modern Regulatory Tools
State/Federal Role Split in DOT Fact Sheet

Federal Responsibilities Include:
- Setting safety standards for new motor vehicles and motor vehicle equipment;
- Enforcing compliance with the safety standards;
- Investigating and managing the recall and remedy of non-compliances and safety-related motor vehicle defects on a nationwide basis;
- Communicating with and educating the public about motor vehicle safety issues; and
- When necessary, issuing guidance to achieve national safety goals.

State Responsibilities Include:
- Licensing (human) drivers and registering motor vehicles in their jurisdictions;
- Enacting and enforcing traffic laws and regulations;
- Conducting safety inspections, when States choose to do so; and
- Regulating motor vehicle insurance and liability.
15 Point Safety Assessment from DOT Fact Sheet

- **Operational Design Domain**: How and where the HAV is supposed to function and operate;
- **Object and Event Detection and Response**: Perception and response functionality of the HAV system;
- **Fall Back (Minimal Risk Condition)**: Response and robustness of the HAV upon system failure;
- **Validation Methods**: Testing, validation, and verification of an HAV system;
- **Registration and Certification**: Registration and certification to NHTSA of an HAV system;
15 Point Safety Assessment from DOT Fact Sheet

- **DATA RECORDING AND SHARING:** HAV system data recording for information sharing, knowledge building, and for crash reconstruction purposes;
- **POST-CRASH BEHAVIOR:** Process for how an HAV should perform after a crash and how automation functions can be restored;
- **PRIVACY:** Privacy considerations and protections for users;
- **SYSTEM SAFETY:** Engineering safety practices to support reasonable system safety;
- **VEHICLE CYBERSECURITY:** Approaches to guard against vehicle hacking risks;
15 Point Safety Assessment from DOT Fact Sheet

- **Human Machine Interface**: Approaches for communicating information to the driver, occupant and other road users;
- **Crashworthiness**: Protection of occupants in crash situations;
- **Consumer Education and Training**: Education and training requirements for users of HAVs;
- **Ethical Considerations**: How vehicles are programmed to address conflict dilemmas on the road; and
- **Federal, State and Local Laws**: How vehicles are programmed to comply with all applicable traffic laws.
Decisions on Action Shift from Driver to Designer

CHRISTOPHER HART (CHAIRMAN OF NHTSA): FEDERAL GOVERNMENT WILL ASSIST MANUFACTURERS IN MAKING ETHICAL CHOICES IN MIT TECHNOLOGY REVIEW INTERVIEW

TROLLEY PROBLEM
Tort Liability for Software

“BROADLY SPEAKING, A TORT IS A CIVIL WRONG, OTHER THAN A BREACH OF CONTRACT, FOR WHICH THE COURT WILL PROVIDE A REMEDY IN THE FORM OF AN ACTION FOR DAMAGES.”

THEORIES

- Negligence
- Strict liability

LIMITS: ECONOMIC LOSS DOCTRINE, LIMITED TO PERSONAL DAMAGES AND PROPERTY DAMAGES (NO LOST PROFITS)
Negligence Theory

§ 282. NEGLIGENCE DEFINED

- In the Restatement of this Subject, negligence is conduct which falls below the standard established by law for the protection of others against unreasonable risk of harm. It does not include conduct recklessly disregardful of an interest of others.

§ 285. HOW STANDARD OF CONDUCT IS DETERMINED.

- The standard of conduct of a reasonable man may be established by a legislative enactment or administrative regulation which so provides, or adopted by the court from a legislative enactment or an administrative regulation which does not so provide, or established by judicial decision, or applied to the facts of the case by the trial judge or the jury, if there is no such enactment, regulation, or decision.
Strict Liability in Tort

§ 402A. Special Liability of a Seller of Product for Physical Harm to User or Consumer.

- A product is defective when, at the time of sale or distribution, it contains a manufacturing defect, is defective in design, or is defective because of inadequate instructions or warnings. A Product:
  - contains a manufacturing defect when the product departs from its intended design even though all possible care was exercised in the preparation and marketing of the product;
  - is defective in design when the foreseeable risks of harm posed by the product could have been reduced or avoided by the adoption of a reasonable alternative design by the seller or other distributor, or a predecessor in the commercial chain of distribution, and the omission of the alternative design renders the product not reasonably safe;
  - is defective because of inadequate instructions or warnings when the foreseeable risks of harm posed by the product could have been reduced or avoided by the provision of reasonable instructions or warnings by the seller or other distributor, or a predecessor in the commercial chain of distribution, and the omission of the instructions or warnings renders the product not reasonably safe.
Challenges to Application of Tort to Software

**NEGLIGENCE**
- Lack of reasonable man
- Proof of causation
- Substantial factor

**STRICT LIABILITY**
- Limited to certain types of products
- Policy decision by courts
Decisions

LITTLE COHERENCE

WINTER v. PUTNAM (1991)

- Dicta, not decision: Computer software should be subject to strict liability in tort

TOYOTA MDL LITIGATION FOR UNINTENDED ACCELERATION

- Complex causation issues
- Software development procedures

HOU-TEX v. LANDMARK GRAPHICS

- Defective software due to failure to update but no liability because mistaken location for well was “economic loss”
More complexity: Software is mix of Open Source and Other Code

Autonomous Car and AI
Data Rights

**Mainly Contractual Copyright**

- US: Limited
  - Database (structure, sequence and organization)
  - Individual data points for certain types of data
- EU: Copyright Directives
- PRC: As compiled work

**Sui Generis (EU Database Directive)**
Summary

Technology is very dynamic and raising new legal issues

- Ownership/use of data
- Cybersecurity
- Liability for software design

Regulatory regimes are overlapping and potentially inconsistent

Current liability rules need to change as “control” of decisions shifts from drivers to designers in cars

Potential for multiple parties being involved in design of systems which control the car
Global and National Rankings

- Named Law Firm of the Year in Corporate Venture (Global Corporate Venturing 2015)
- #1 in global M&A deal volume for sixth consecutive year (mergermarket 2016)
- Involved in more M&A deals globally than any other law firm during the past decade
- #1 Global IP Firm of the Year (Managing Intellectual Property Global Awards 2014)
- Represent more than half of the companies named to the San Jose Mercury News’ "SV150"
- #4 Most active private equity law firm in the US and globally by deal volume (PitchBook 2015)
- #4 Most Active Venture Capital Law Firm globally by deal volume (PitchBook 2015)
- Ranked globally as having the “most favorable” legal brand within the Technology/Telecoms Sector (Acritas 2015)

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Global Footprint