ESCAP
Economic and Social Commission for Asia and the Pacific

From Policy to Deployment

United States Lessons from Regulating AV Technologies

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Agenda

I. United States Regulatory Structure
II. Brief History of AVs and Regulations
III. Challenges
IV. What is Next
V. Key Takeaways

US Regulatory Structure



Federal

- Vehicle safety standards
- Recalls
- Investigations
- Commercial drivers licenses; CMV operations
- Policy



State

Traditional Roles:

- Drivers Licenses
- Vehicle Registration

AV Roles:

- Testing Permits
- Deployment Permits
- Enforcement
- Policy



City

- Traffic
- Transit
- Public safety
- Law enforcement
- Land use
- Policy

US: Brief History of AVs and Regulations

AV Technology Development – Then

- DARPA Challenges starting 2004
- DARPA "Urban Challenge" 2007
- Chauffeur project: 2009
- Waymo: 2016





Stanford's Stanley 2005
Carnegie Mellon's H1ghlander 2005
From IEEE Spectrum, https://spectrum.ie… grand-challenge

Testing and Deployment – Now

- Competing robotaxi companies
  15 cities (CA, TX, NV, FL, GA, TN, CO, AZ)
- AV transit, rail, and other
- 8-10 AV trucking companies





US: Brief History of AVs and Regulations



State Regulations – Then

- First state regs in 2011, 2012
- First CA testing permits in 2014 (driver) and 2018 (w/o driver)
  - light passenger only

State Regulations – Now

- Over 40 states have laws, Orders, or regs; Sharing resources
- TX laws
- CA new rules; path for heavy AVs



Federal Regulations – Then

- Attempted regs since 2016, 2017
- NHTSA preliminary statement 2013
- USDOT, NHTSA policies (2016)

Federal Regulations – Now

- Congressional hearings
- BUILD America 250
  - Commercial AVs
- NHTSA rules, policies
  - *open docket on AV topics

Challenges Regulating AV Technologies

- Body → Brain (Myra Blanco, Virginia Tech)
- Vehicle / Driver → Fleet / Operations
- Safe enough for initial rollout → Ongoing oversight
- Map / Tech readiness → Integration / Situational awareness

Challenges Example: Power outage, San Francisco, CA



Watch: San Francisco blackout halts Waymo's self-driving fleet

From BBC News
https://www.bbc.com/news/articles/c36zdxl41jro

What is Next

More Complexity

- New players
- Diverse technology approaches
- Different business models
- More partnerships
- New use cases
- Pivots

More Regulation

- Federal regulations coming
- Continued state activity
- TX, CA moving to enforcement
- *Regulations from other sources (Federal Trade Commission, AI regs, state Attorneys General)
- Also, litigation

Key Takeaways

Importance of Local Knowhow

- What's true?
- Who is responsible?
- How will you build local knowledge in?

Leadership & Collaboration

- What is agency good at?
- How to share knowledge
- Prioritizing

Third Parties / Many Views

- Third-party validation
- Need for dissent and neutral views

Changing Benefits

- Refined safety measures
- Other benefits
- Granular and specific

Translating for Regs

- Translate from industry to agencies
- Translate from agencies to industry

Thank you