Overview

• Uber ATG organizational structure
• Precrash safety culture
  - Organizational framework for risk mitigation
  - Policies / procedures
  - Oversight of vehicle operators
• Postcrash actions
  - Organizational changes
  - Safety management system implementation
Company Operations

- Uber – est. 2009, ride-sharing company, 6 divisions
- Uber ATG – est. 2015, HQ Pittsburgh, develop automated vehicle, > 1,000 employees, 5 test locations
- Tempe, AZ – 40 ATG test vehicles, 254 vehicle operators, 16 supervisors
Precrash Safety Culture and Policies

- No corporate safety plan – roles and responsibilities to assess risk
- ATG lacked safety division or dedicated safety manager who could evaluate risk mitigation
- Safety policies – cell phone, drug testing, seat belt use, and maximum driving policy
- Tiered disciplinary program
Weaknesses

- Policies not standalone
- No dedicated fatigue management policy
- Drug testing sporadic and inconsistent
  - Accident driver never drug tested
- Cell phone policy relied on other drivers to turn in violators
Oversight of Vehicle Operators

- Reduced vehicle operators from 2 to 1
- Driver violated cell phone policy and was not detected
- Driver-facing video not reviewed by management
- Extended driver distraction
Uber ATG Postcrash Actions

• Conducted internal and external reviews
• Resumed ADS operations 12/20/18: limited to 1-mile loop in Pittsburgh, near HQ, 25 mph max speed
• Reinstated second operator in test vehicle, enhanced driver training
• Inward-facing camera monitors driver attentiveness
Postcrash Internal /External Reviews

- Develop safety management system (SMS)
- Appoint senior managers for operational safety and operator training
- Designate head of safety to lead SMS
- Improvements to ADS testing
Uber ATG Safety Culture Changes

• Created independent safety department
• Hired senior safety professionals with 20+ years’ experience and SMS expertise
• New policies and procedures: hiring, driver and staff training; policies now standalone
• Fatigue management program - NAFMP
Safety Culture

1. Safety policy
2. Safety risk management
3. Safety assurance
4. Safety promotion

Source: ICAO
Summary

• Precrash
  - Inadequate safety culture
  - Driver violated cell phone policy

• Postcrash
  - Identified safety deficiencies
  - Overhauled organization and operations, initiated SMS