

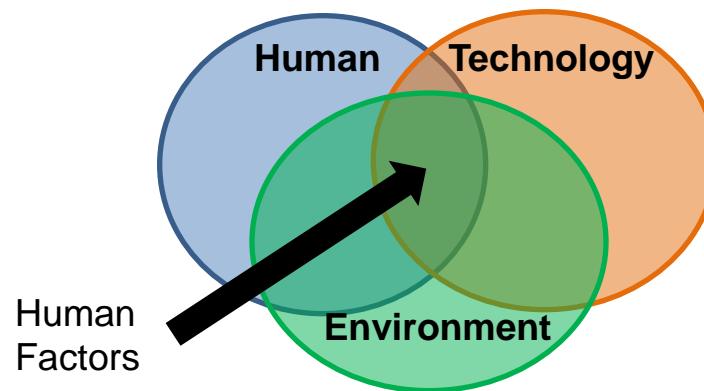
Human Factors of Distracted Driving

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Robson Forensic
Engineers, Architects, Scientists & Fire Investigators

Human Factors

- **"Human Factors" is the scientific study of human physical and mental capabilities and limitations and the application of that knowledge to:**
 - the investigation of human interaction with technology and their environment
 - the design of human-centered systems and technology



Distracted Driving Statistics

- In 2013, there were 3,154 people killed and 424,000 injured in motor vehicle crashes involving distracted drivers. (NHTSA, 2015).
- Ten percent of fatal crashes, 18 percent of injury crashes, and 16 percent of all police-reported motor vehicle traffic crashes in 2013 were reported as distraction-affected crashes (NHTSA, 2015).
- At any given daylight moment across America, approximately 660,000 drivers are using cell phones or manipulating electronic devices while driving (Distraction.gov)
- New voice-activated technologies intended to reduce crashes due to distraction are even more distracting than previous in-vehicle technology

Texting while driving raises a driver's crash risk by 23 times (VTTI)

What is Distracted Driving?

- **"A diversion of attention away from activities critical for safe driving toward a competing activity"**
- **Types of distractions**
 - Visual (eyes off the road)
 - Manual (hands off the wheel)
 - Cognitive (mind off the road)
 - Visual / Manual / Cognitive

Are all distractions equal?

- All distractions increase crash risk
- Distractions that require a combination of visual, manual, and cognitive resources are the most risky



(aaa.org)

How does distraction cause crashes?

- **Visual Distractions**
- **Manual Distractions**
- **Cognitive Distractions**
 - Perception
 - Inattention



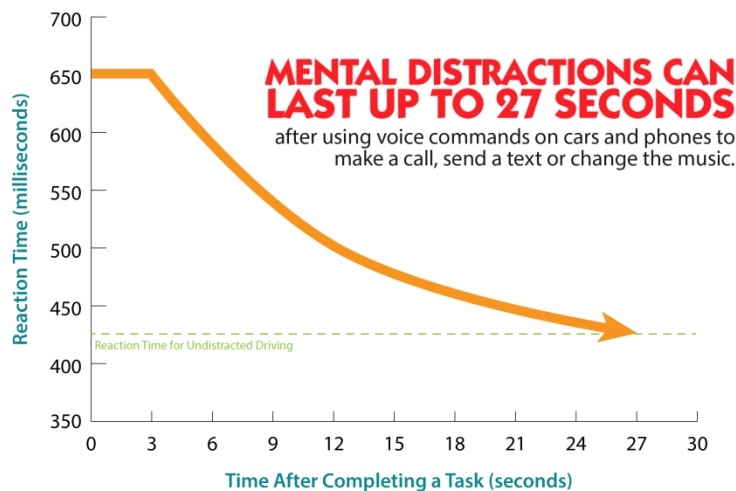
(Strayer, Watson & Drews, 2011)



(National Safety Council)

Effects of Distracted Driving on Driver Performance

LASTING EFFECTS OF MENTAL DISTRACTION



 Source: AAA Foundation for Traffic Safety

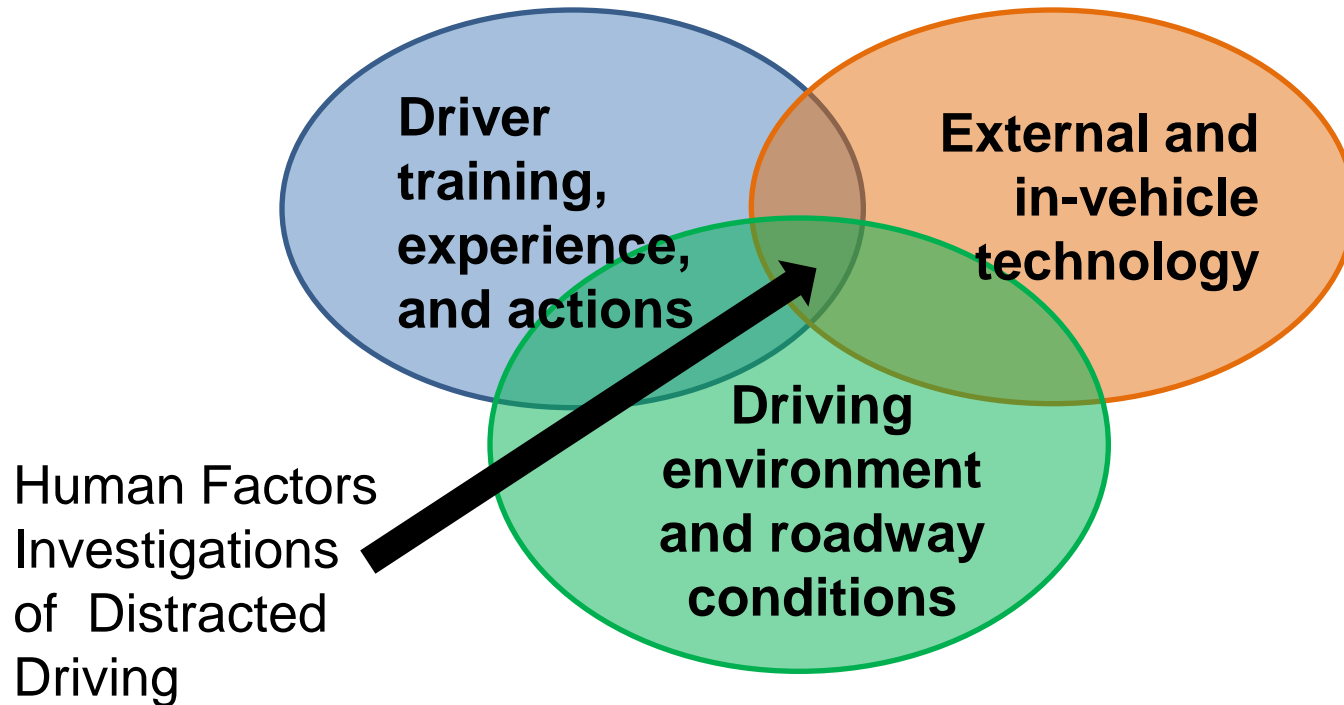
- Increased time that eyes are off road
- Increased reaction time to hazards
- Increased braking reaction time
- Greater speed variability and slower mean speed
- Increased lane deviations and lane departures
- Closer car following

Distracted Driving Laws and Campaigns

- **Laws for the Driving Public**
 - 46 states and the District of Columbia ban text messaging for all drivers.
 - Some states have additional handheld cell phone bans
- **Laws or Regulations for Employees**
 - Federal Employee ban on texting
 - Commercial Driver ban on texting and hand-held cell phone use while driving
 - Rail Employees ban on cell phone and electronic device use while on the job
- **Public Awareness Campaigns**



Human Factors Investigations of Distracted Driving



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