Making of Driving Cultures

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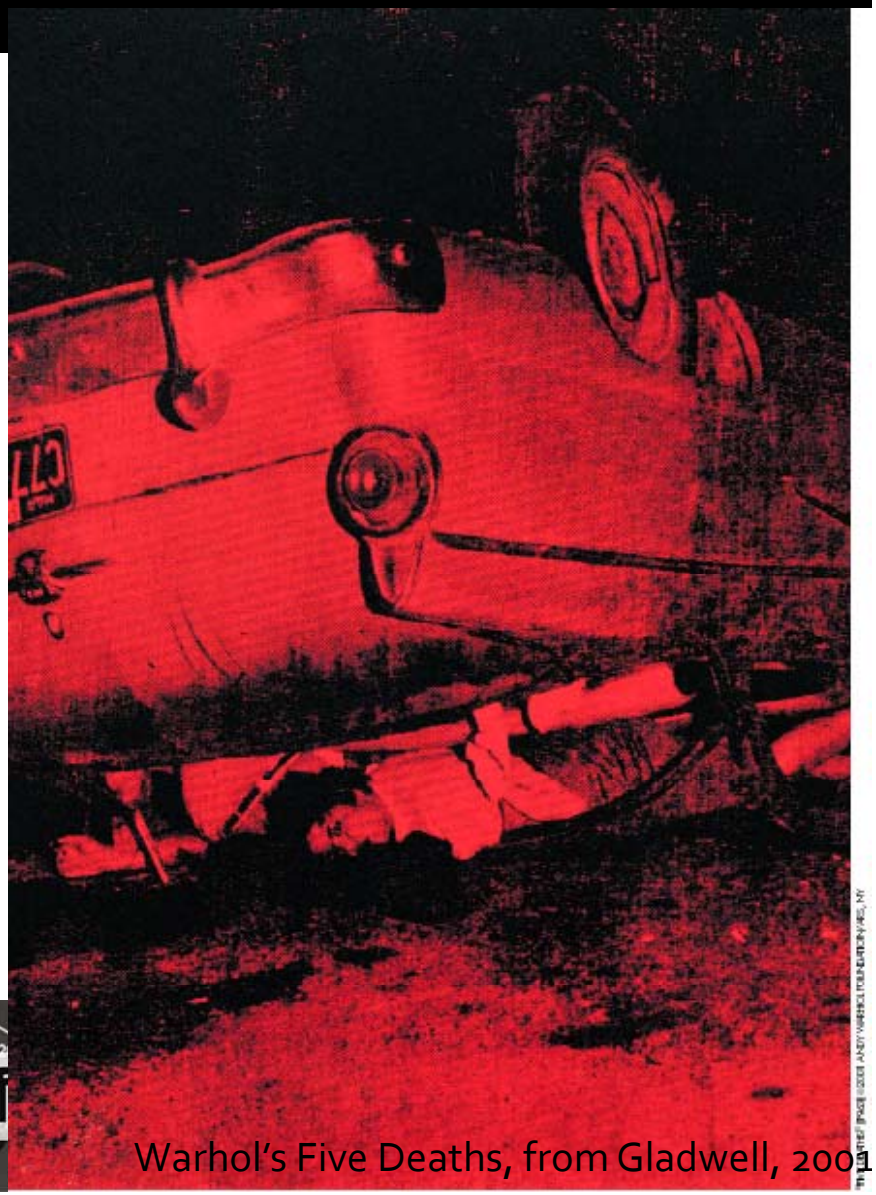
Moeckli, J., & Lee, J. D. (2007). The making of driving cultures. *AAA Compendium on Driving Culture*

The Persistent Epidemic

- Haddon declared traffic deaths an epidemic (1958)
- Energized a response for increased crashworthiness and creation of NHTSA
- Response to the polio epidemic began at the same time and is almost eradicated
- Why does the traffic epidemic persist?—Obesity as a better epidemic analogy



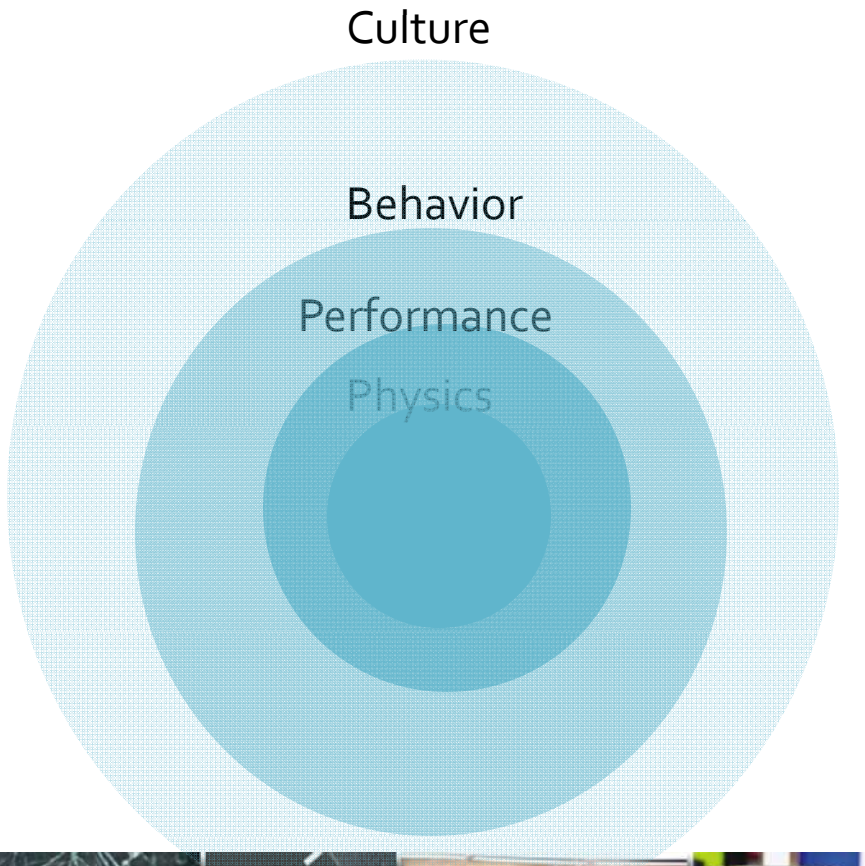
Warhol's Five Deaths, from Gladwell, 2001

Limits of Passive Safety

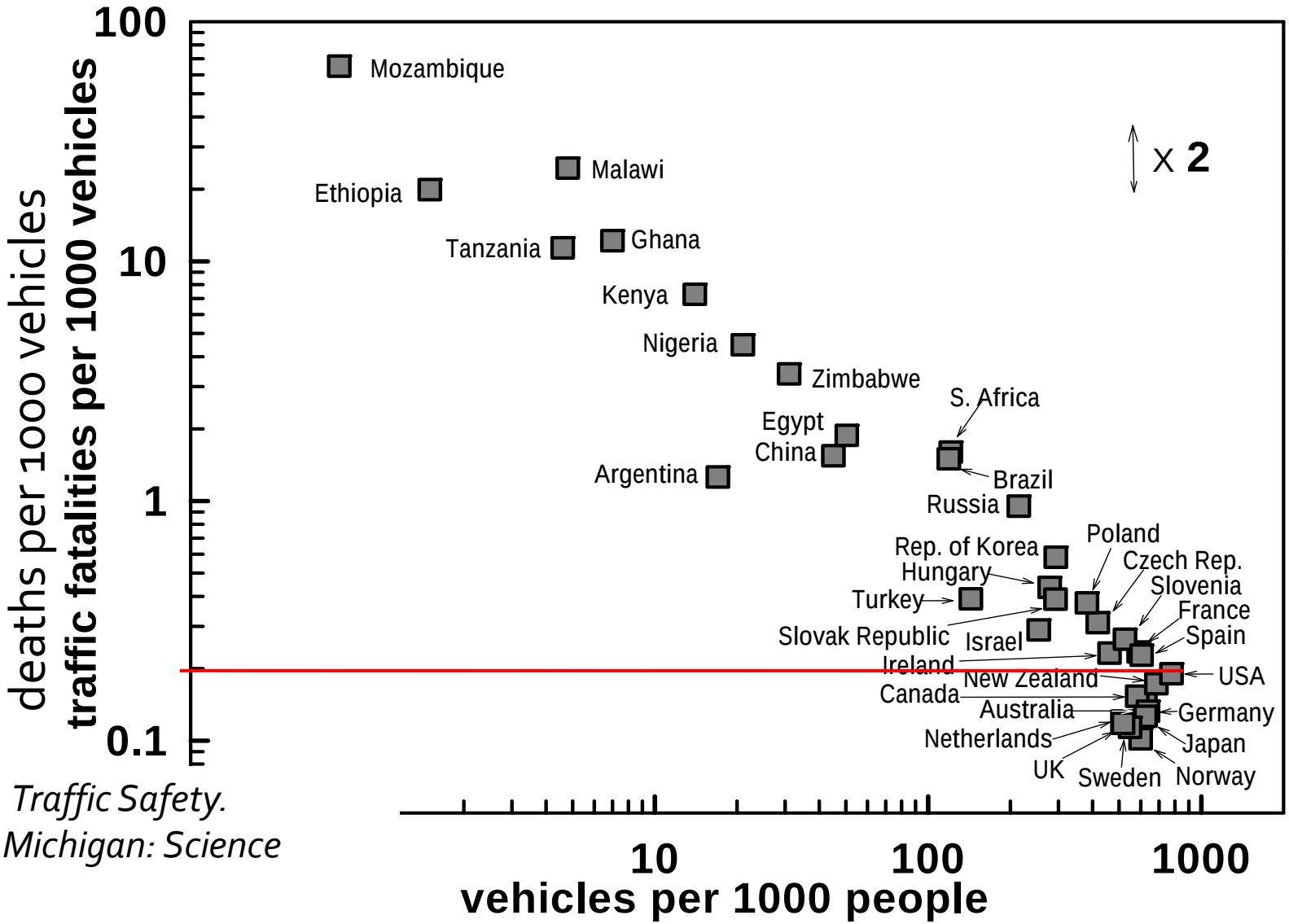
SAE EDR Symposium; Comeau,2007

- Myth of the "crash without injuries"
- Myth of invariant behavior and culture
- Similar challenge for other high-hazard, low-risk domains—diffuse and delayed feedback

Role of Culture



Regional and Cultural Influences



Evans, L. (2004). *Traffic Safety. Bloomfield Hills, Michigan: Science Serving Society.*

Seat Belt Use and a Focus on Safety

- Australia front seat belt assumed
- US:

  53%, 1994

  77%, 2007
- Korea:

  23%, 2000

  98%, 2001

France (2001-2004)

- Increased national visibility—Chirac
- Increase enforcement
  - Speeding (1.3 to 3.1 million tickets)
  - Drunk driving
  - Seat belts
  - Cellphones
- Decreased speeding 11.3% and speed 5km/hr

Decreased death rates 32.2% and injury rates 29.4%

Elements of Driving Culture

Culture consists of the beliefs, values, norms, and things people use that guide social interactions

- **Multiplicity of driving cultures**
- **Culture as dynamic, contextual, and emergent**
- **Best modified by changing social practice rather than by changing beliefs**

Culture as a Termite Mound

Mound/context
Macro

Termite

Pheromone
Micro

http://www.family-hipp.co.nz/site/klausdierks/images/Namibia.Otjozondju Waterberg_Termite_1.jpg

Interventions to shape driving culture

- Place-based intervention
- Cyborg-based intervention
- Network-based intervention
- Multi-level control-based intervention

Place-based Intervention

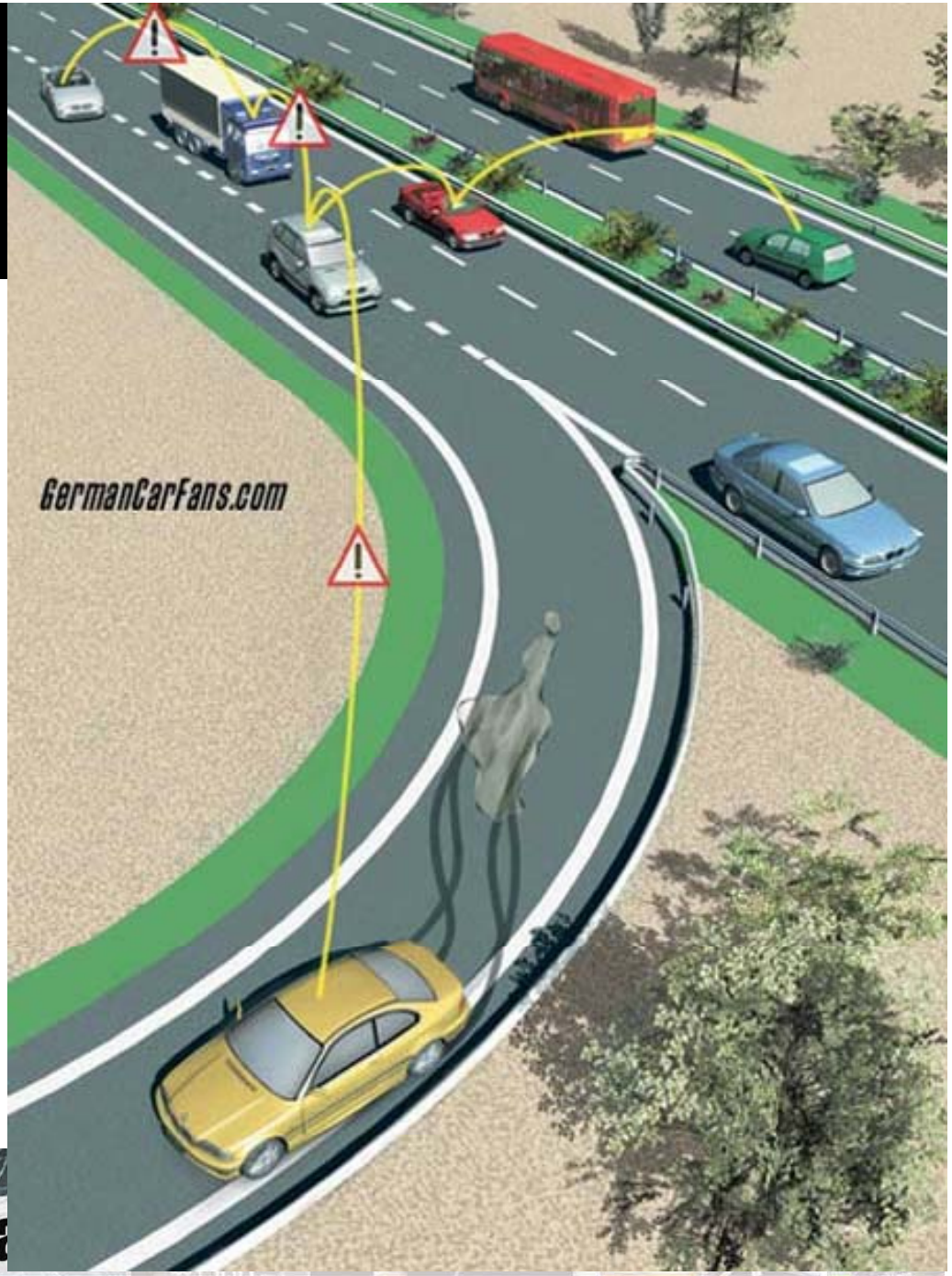
- **Regional considerations—Montana and Wisconsin**
  - **Governor Judy Martz: responding to open container bill, reflecting a place-based identity: "there is a myth in Montana that drinking and driving is part of being a Montanan"**
  - **Wisconsin bar owner: "I've had situations where a parent was going to buy drinks for a kid who looked 8 or 10 years old," he said, "and I had to say, 'That's a no-go.' " NYTimes (2008)**
- **Artifacts affect behavior that affects artifacts**

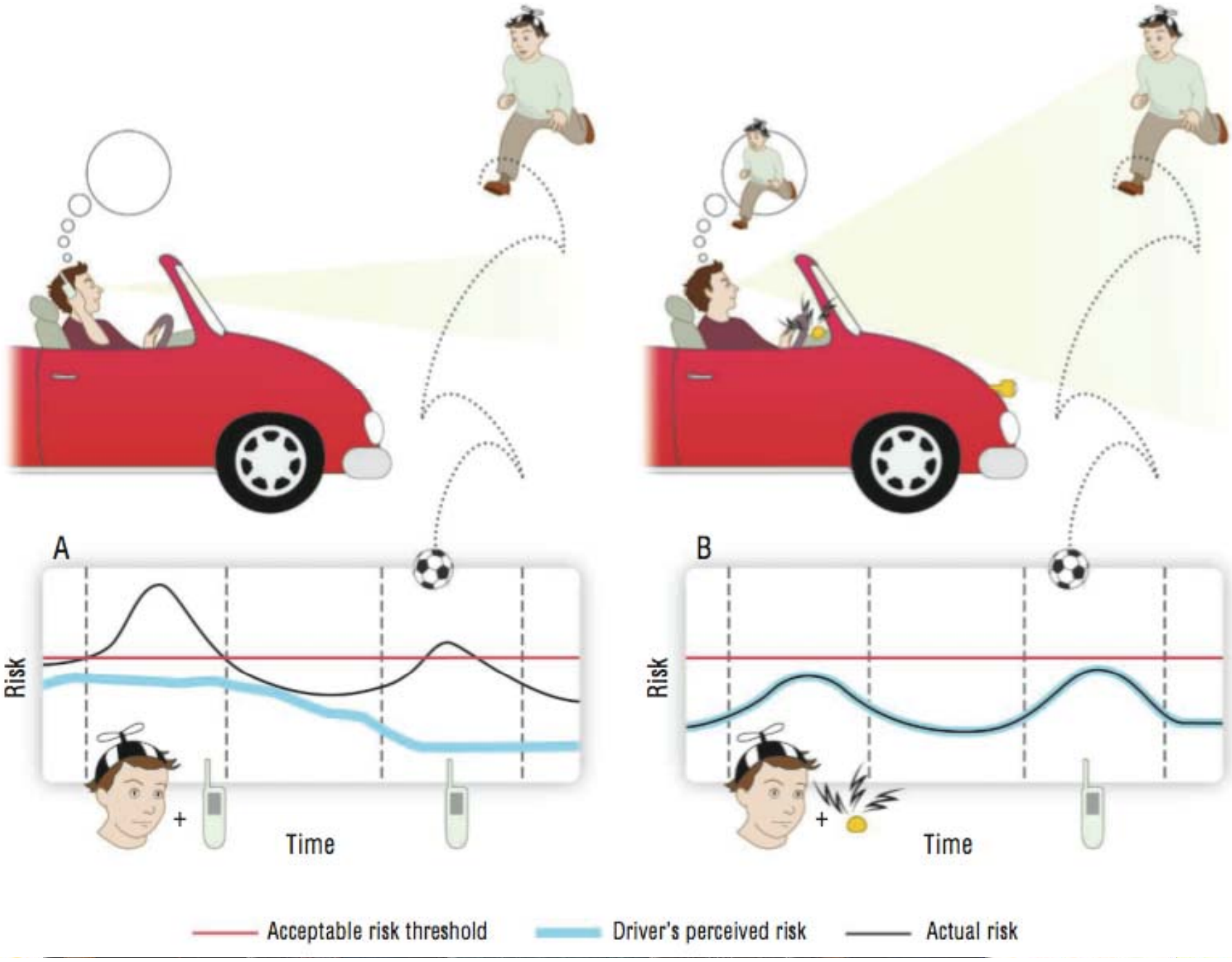
Cyborg Intervention

- The pseudo-private space afforded by the "metal cocoon" has dehumanizing tendencies
- Accepting the agency of the car-driver hybrid, we can influence driving behavior in new ways that can change driving culture and promote greater safety

Cyborg ntervention

- Vehicles will know the driver
- Provide structure for behavior—Nudges or more
- Enhanced feedback
- Link to social networks beyond the car



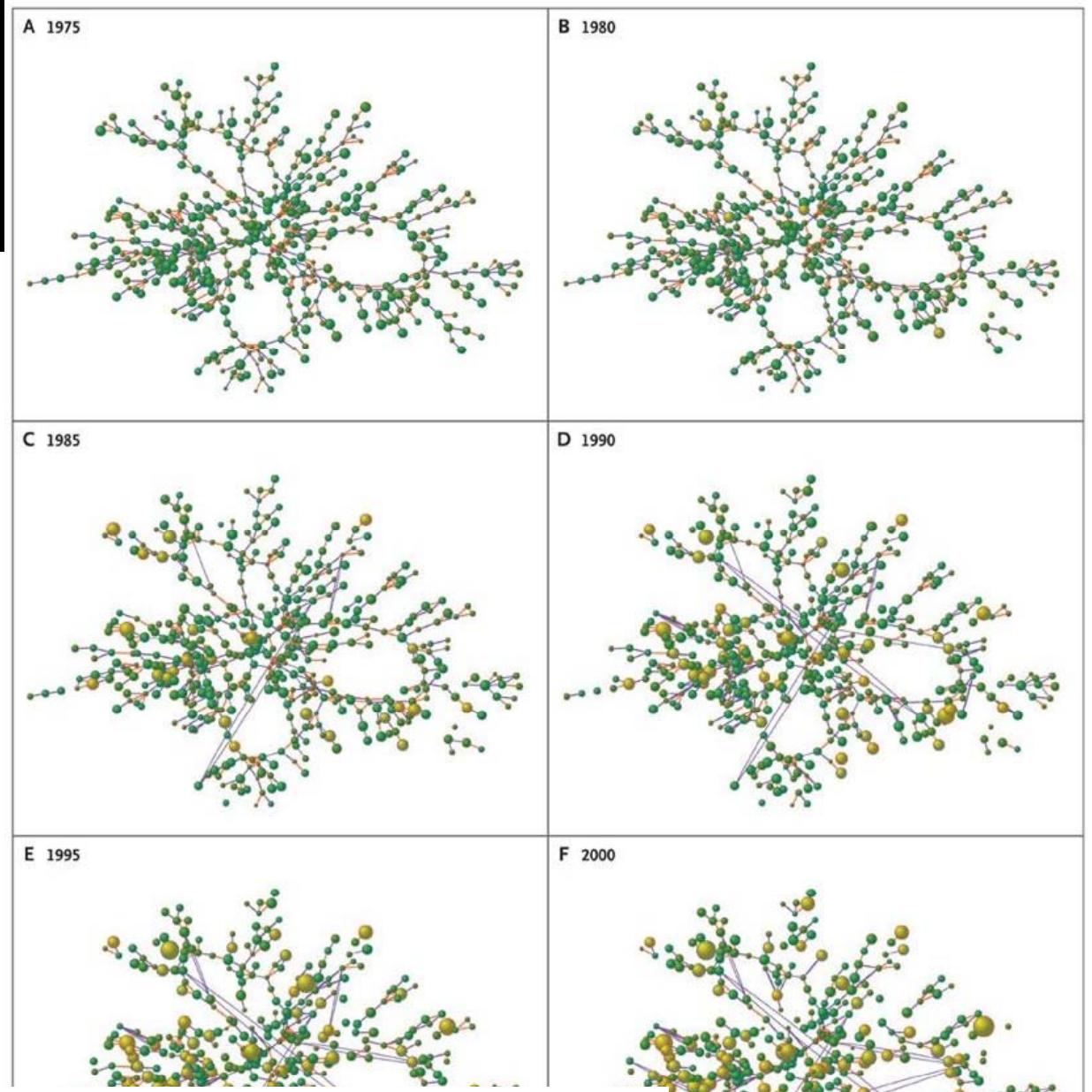

A
Risk
Time
B
Risk
Time
Acceptable risk threshold
Driver's perceived risk
Actual risk

Network-based Intervention

- Actor-network theory (ANT) (Latour, 1987; J. Law, 1994) provides a theory and method for understanding how complex networks of people, vehicles, organizations, and infrastructure influence driving culture

- Revealing the network that influences a driving culture reverses the tendency to ascribe behavior to simple linear causation

- Network analysis reveals influencers and "disease" pathways



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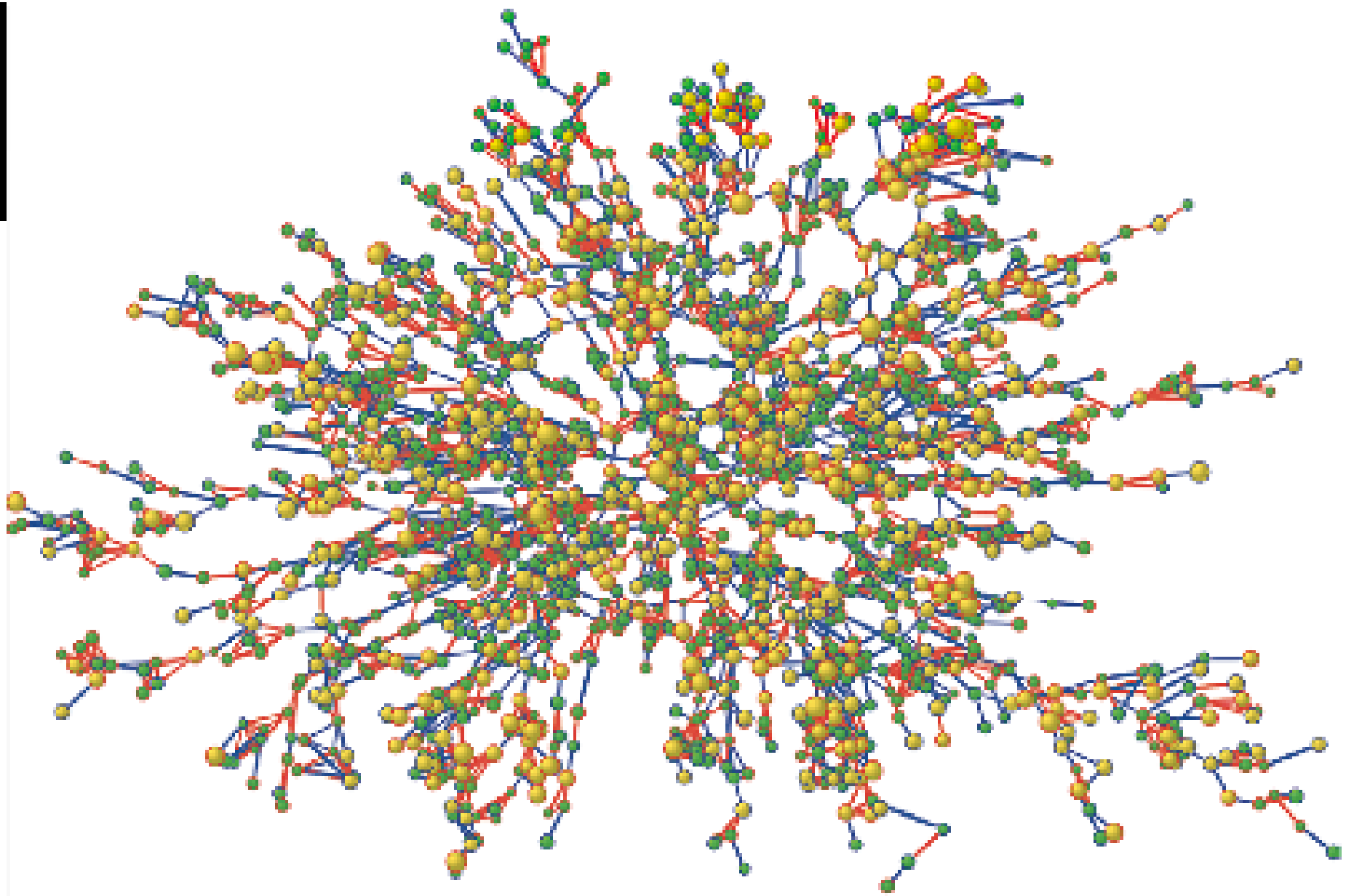

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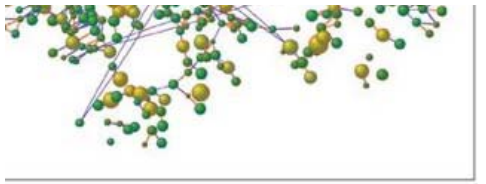
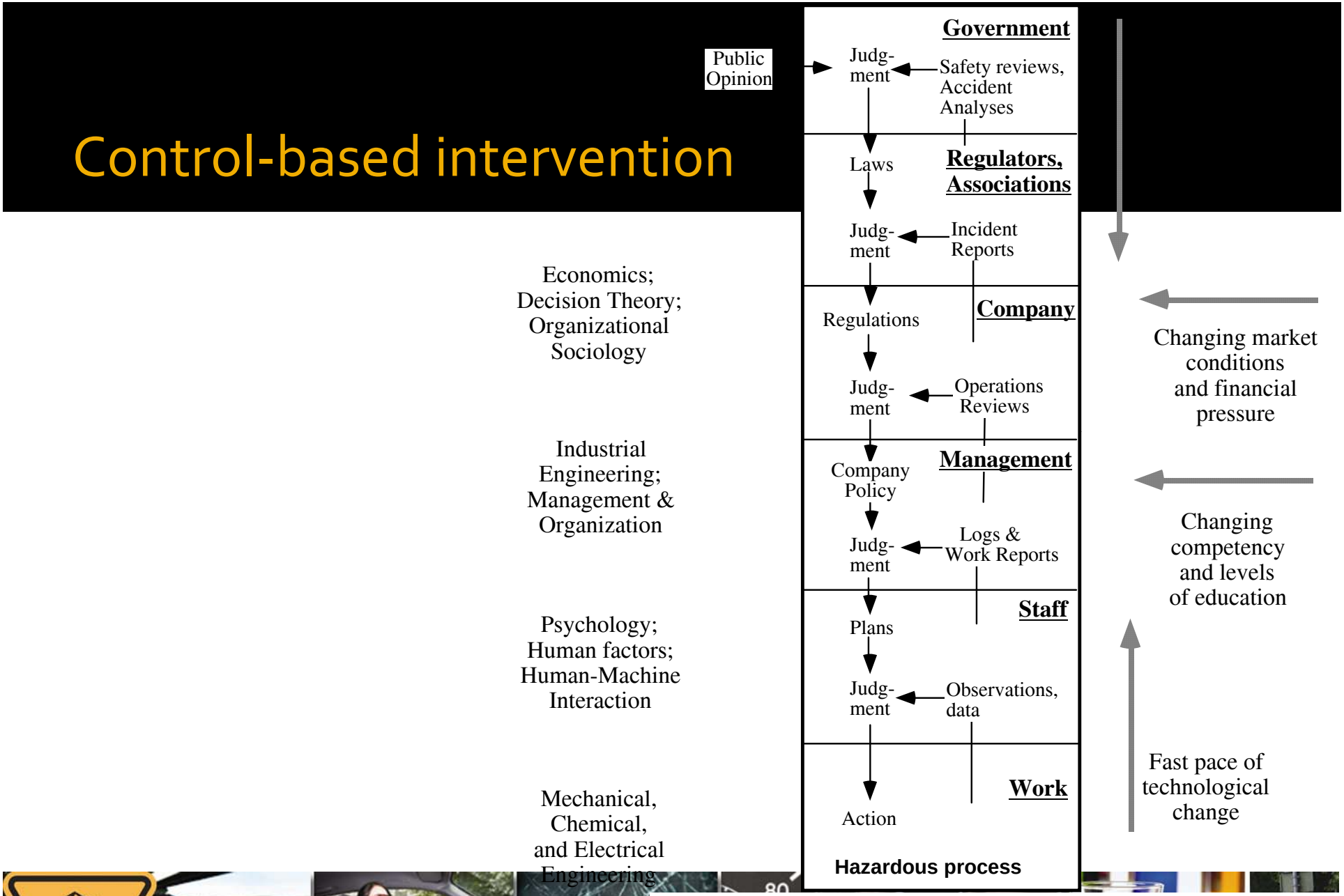
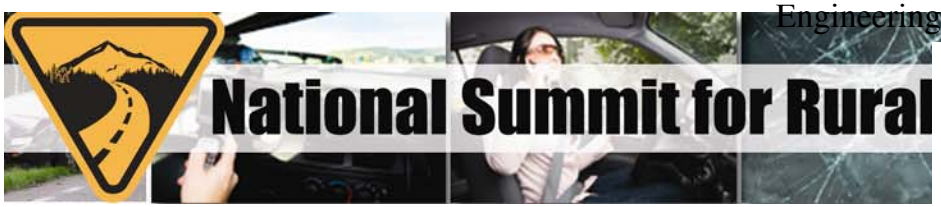


Control-based intervention





Rasmussen, J. (1997)
Risk management in a dynamic society

Control-based intervention

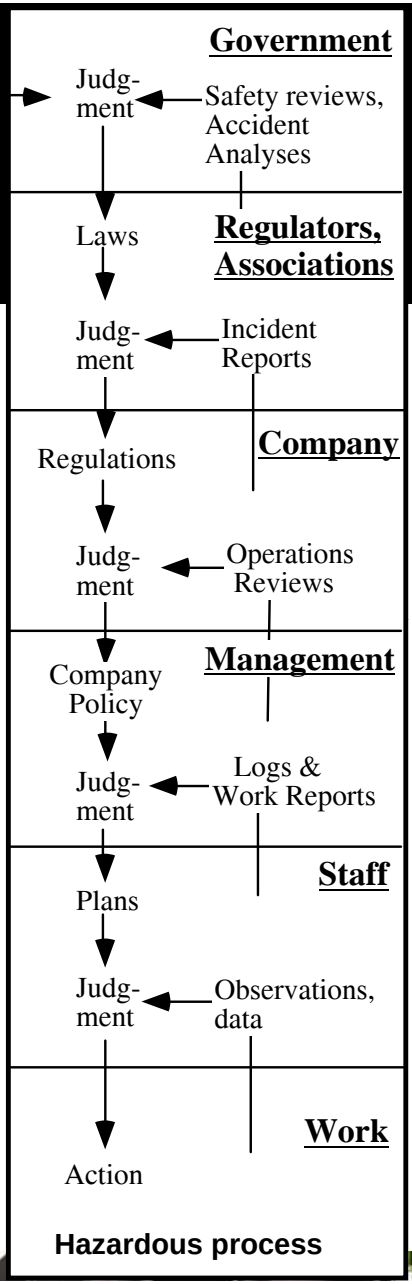
Enhance feedback to designer

Economics; Decision Theory; Organizational Sociology

Industrial Engineering; Management & Organization

Psychology; Human factors; Human-Machine Interaction

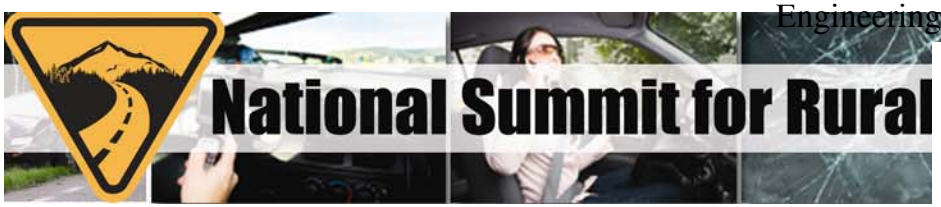
Mechanical, Chemical, and Electrical Engineering



Changing market conditions and financial pressure

Changing competency and levels of education

Fast pace of technological change



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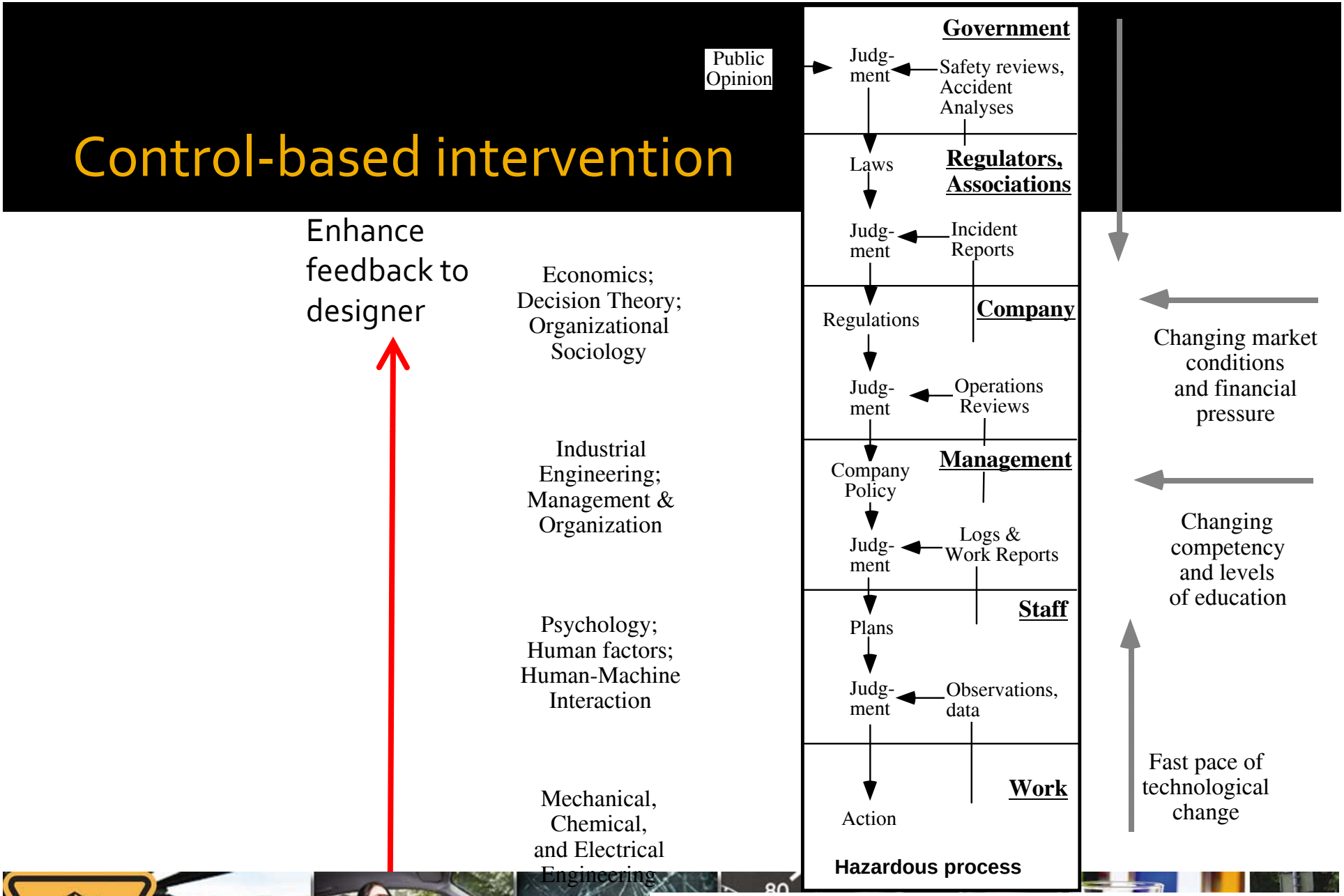

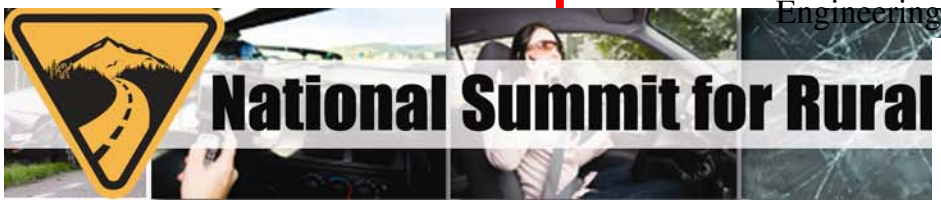

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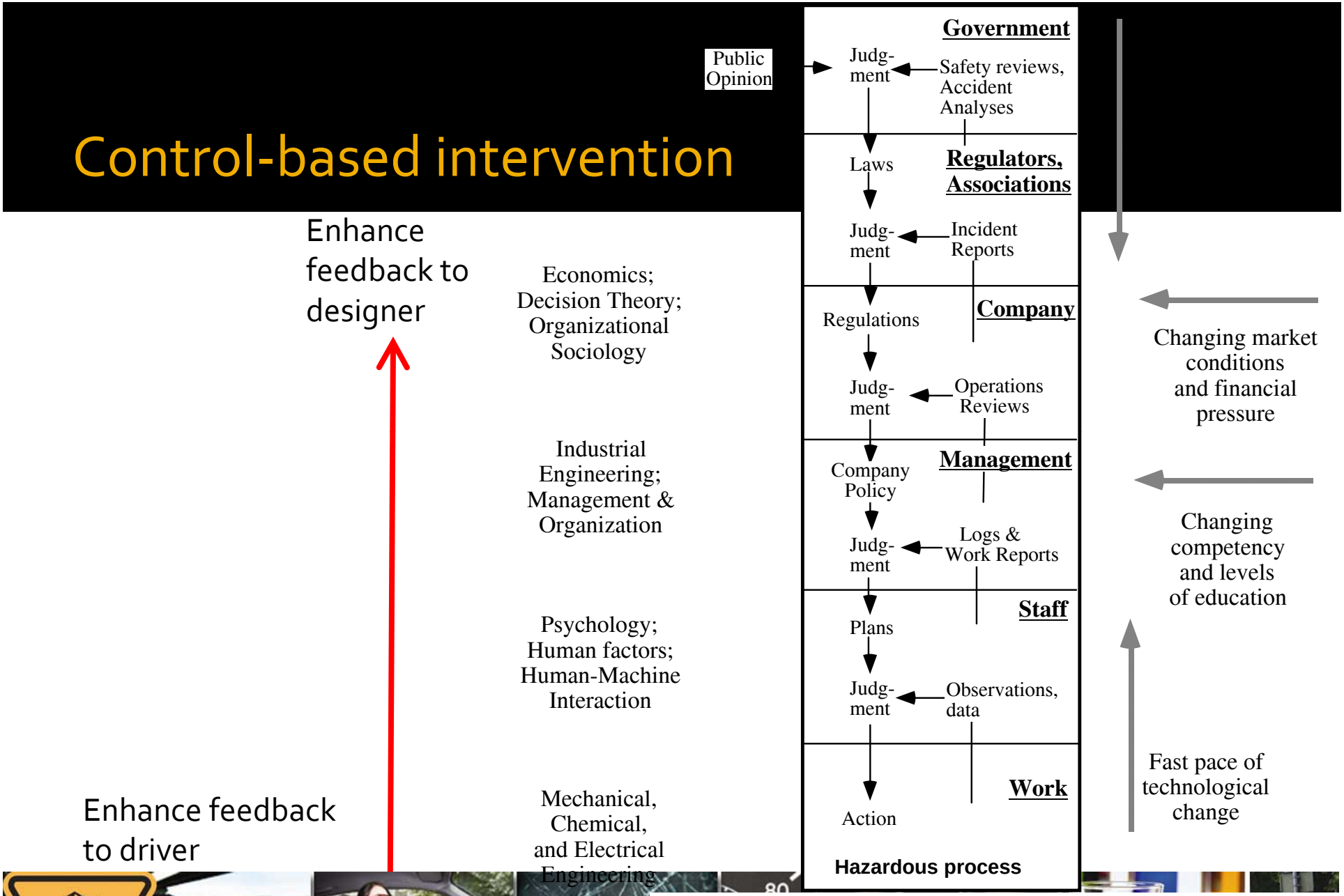

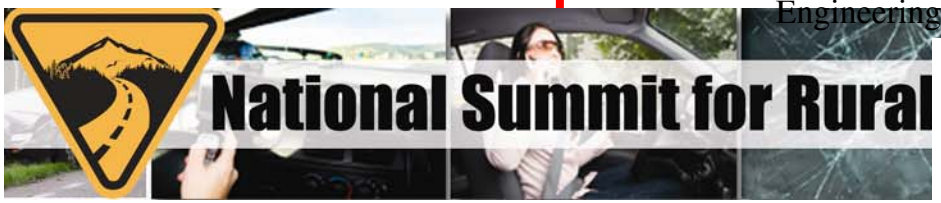

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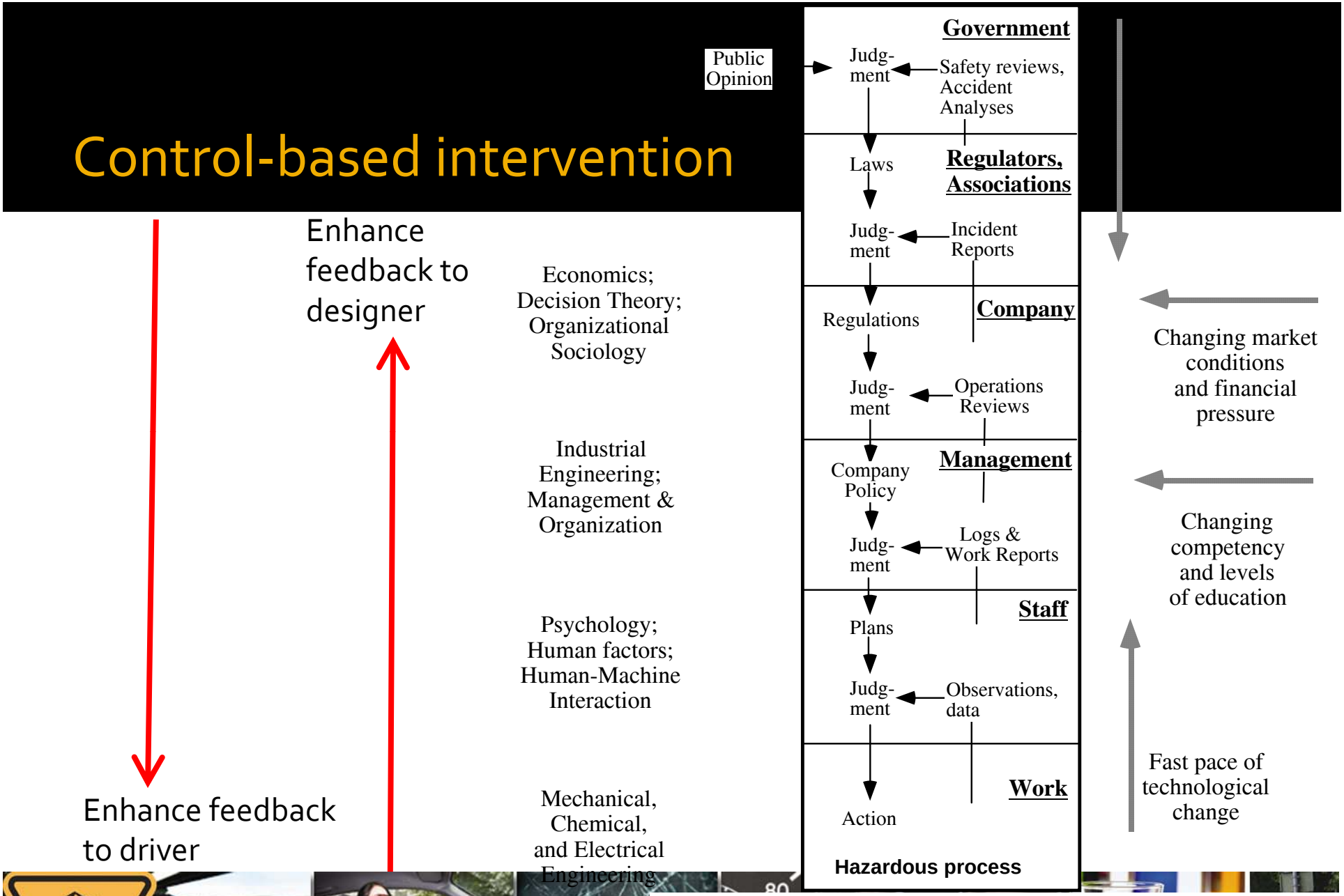

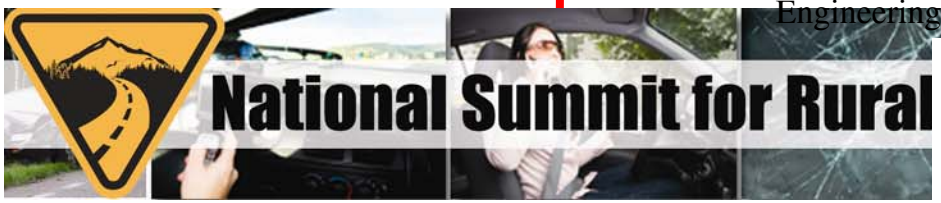

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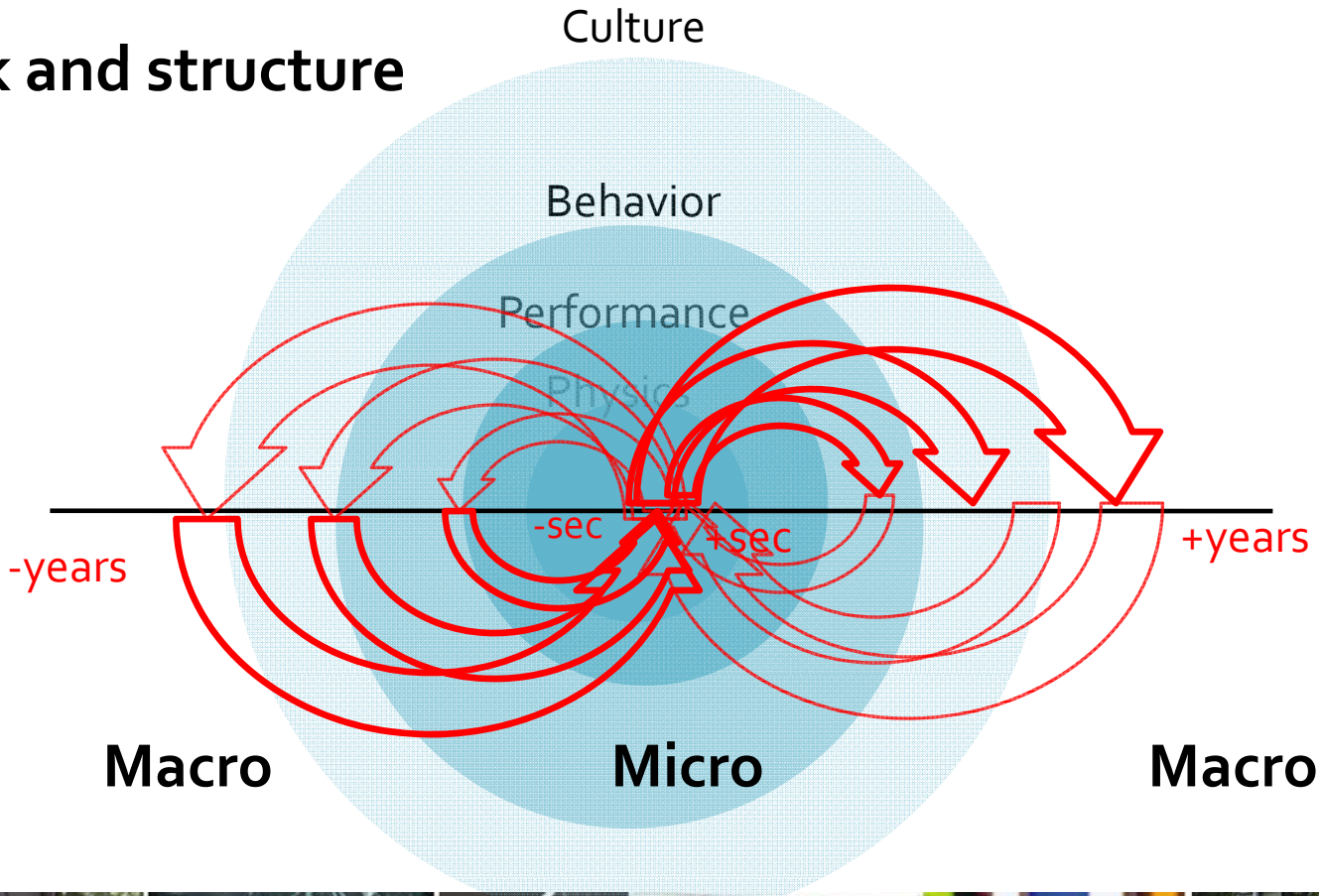
Multi-level Control-based Intervention

Enhancing feedback and structure



Culture Changes

General Considerations

- Culture is a process, not a static structure

Culture matters and can change

- Materialist and structural approach to culture's evolution

Visibility of structures, actions, and effects matter

- Technology offers many points of influence

Proactive multidisciplinary approach

National Summit for Rural Traffic Safety Culture 2010