CAV:
Industry Perspectives and Impacts

Martha Morecock Eddy

Connected/Automated Vehicles

- Communications
- Data
- Prerequisites
- CAV for biggest benefits

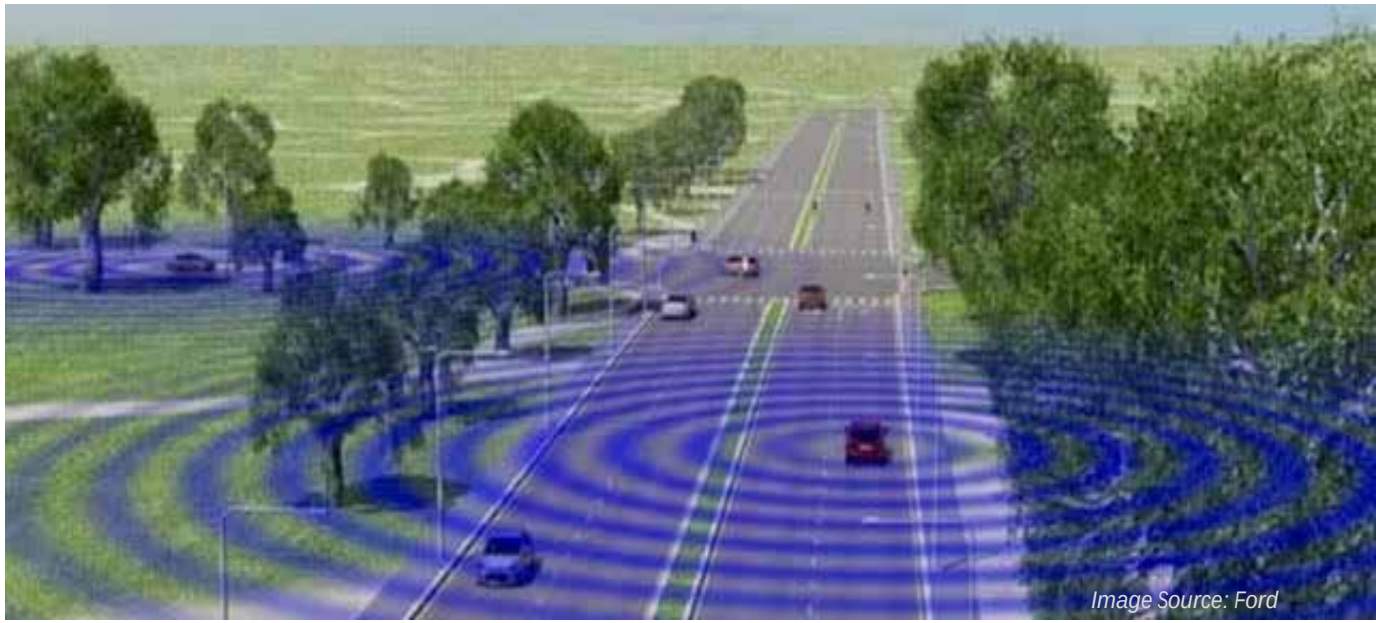
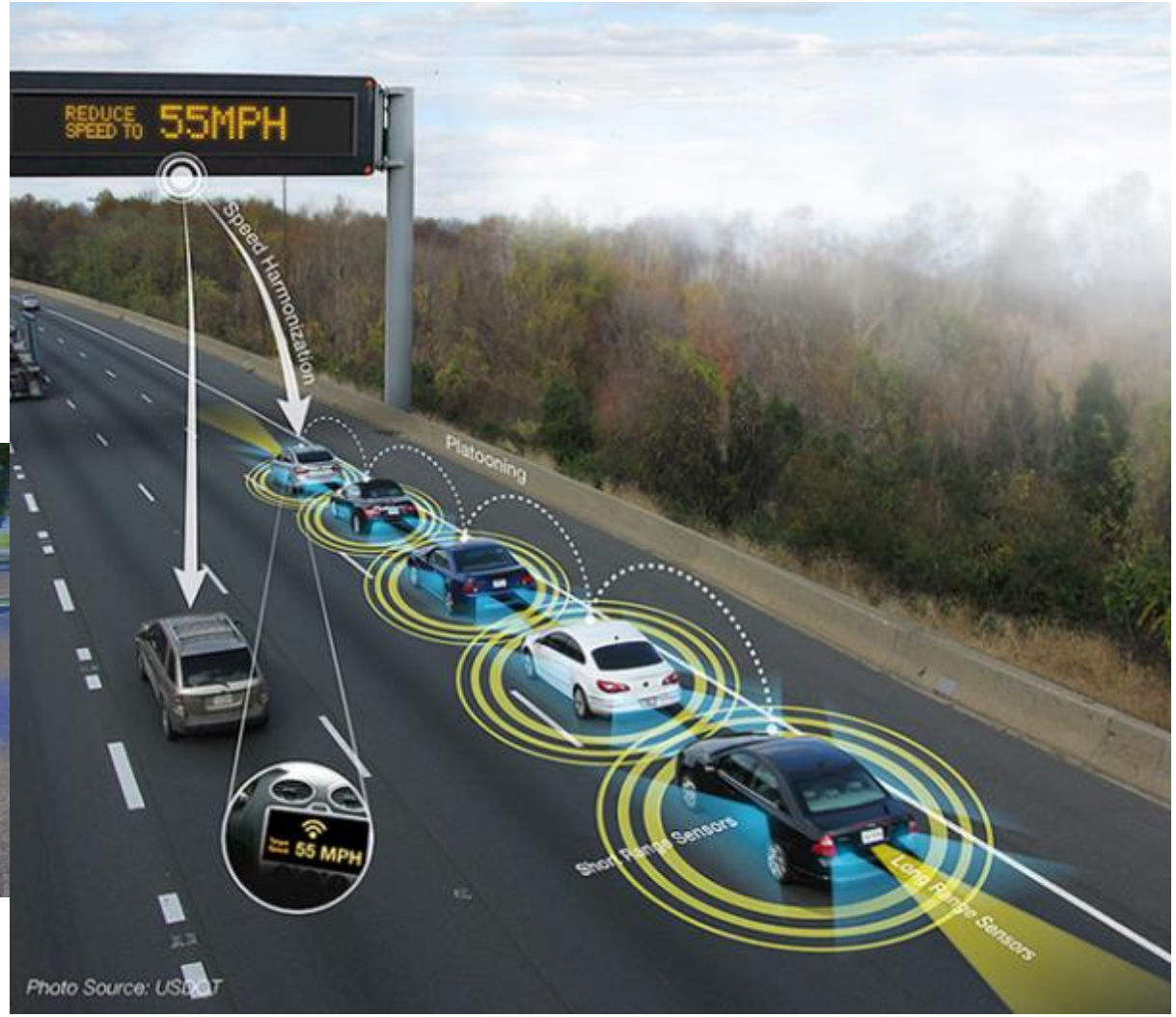


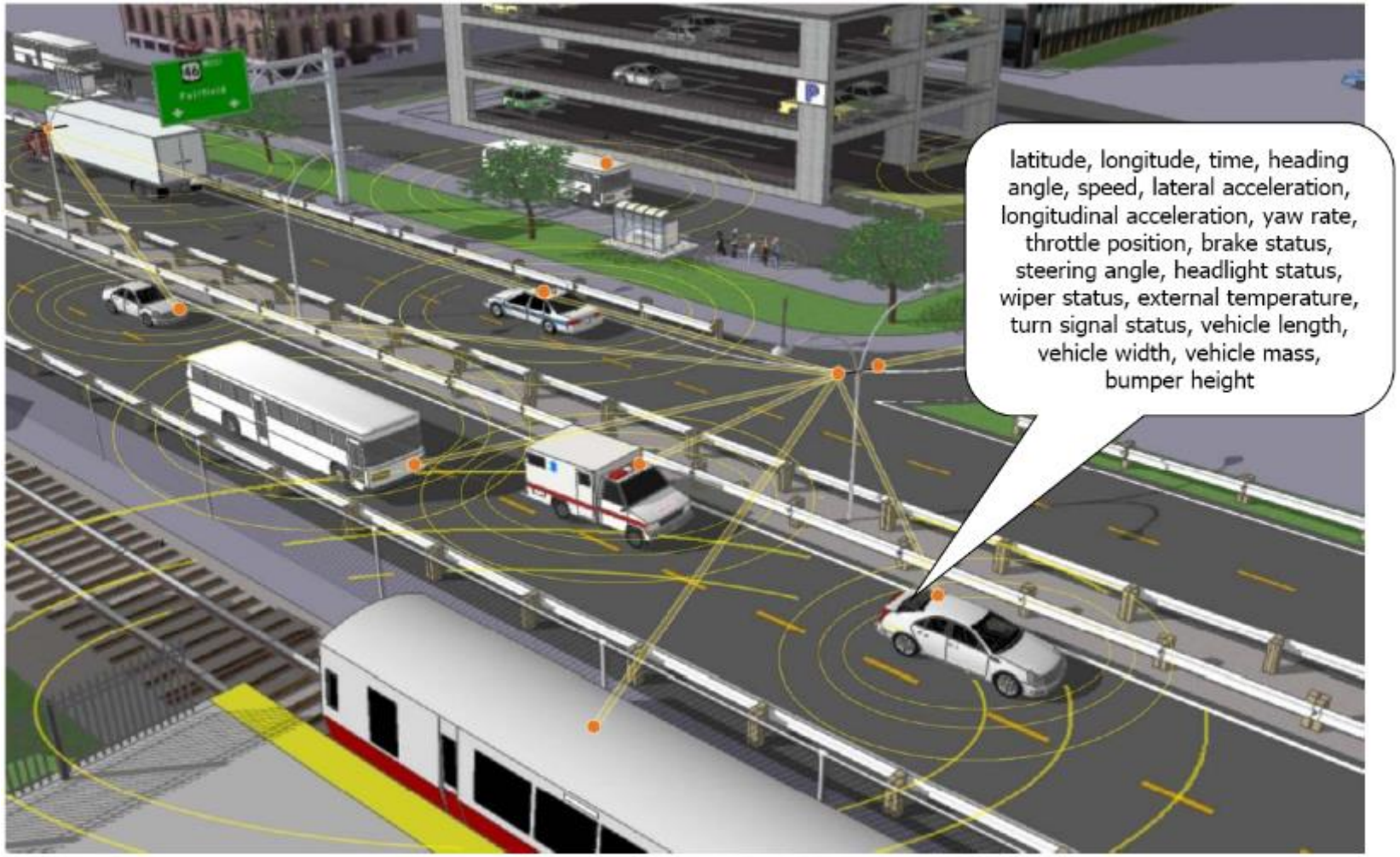
Image Source: Ford

Connected Vehicles Communications

Vehicle to Vehicle (V2V)
– AND –
Vehicle to Infrastructure (V2I)



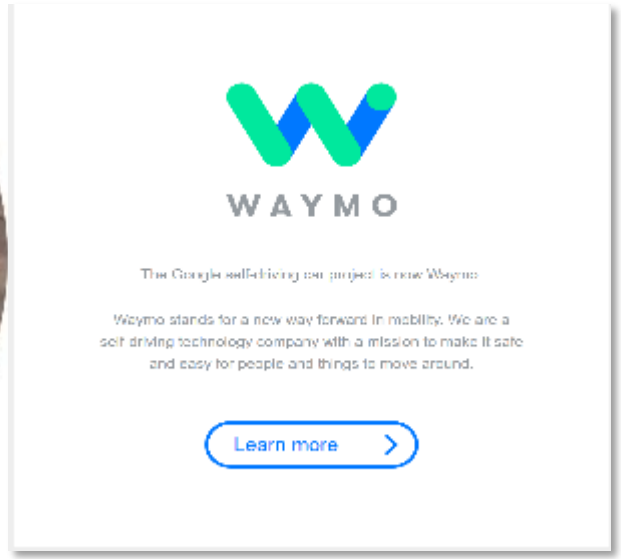
DATA is Key

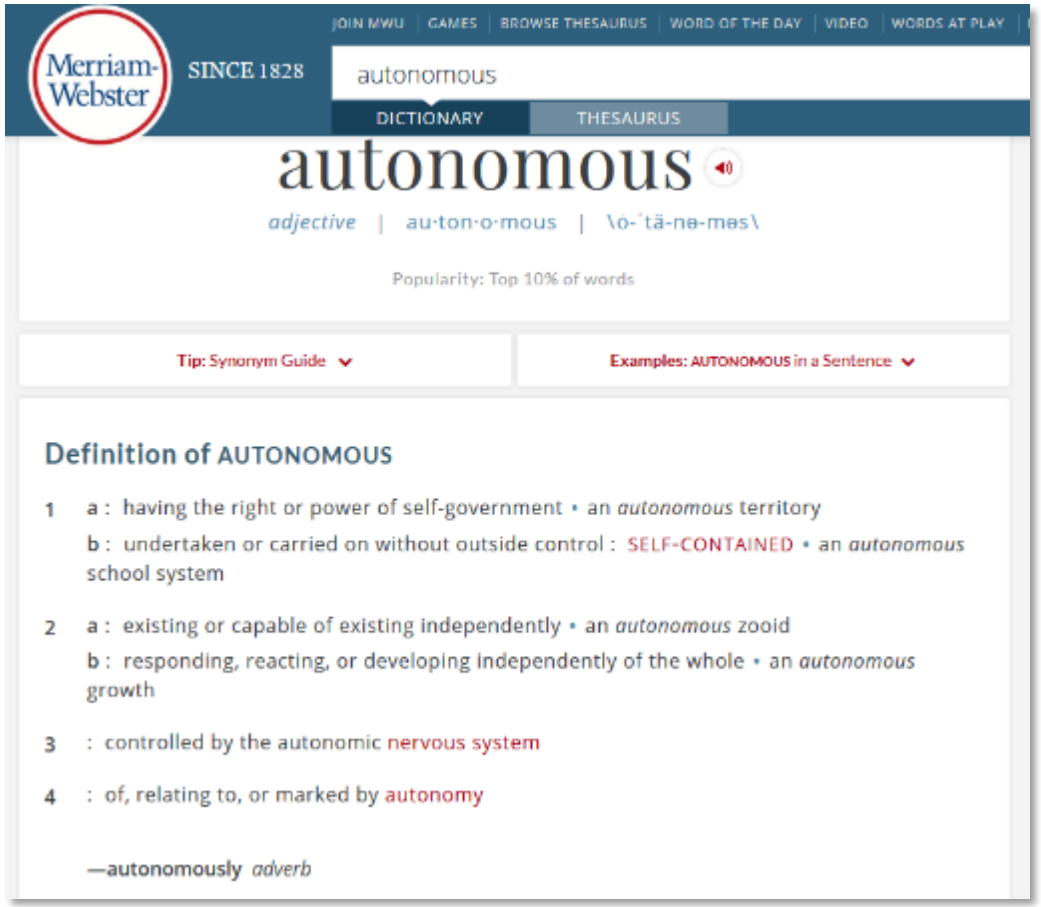


U.S. Department of Transportation

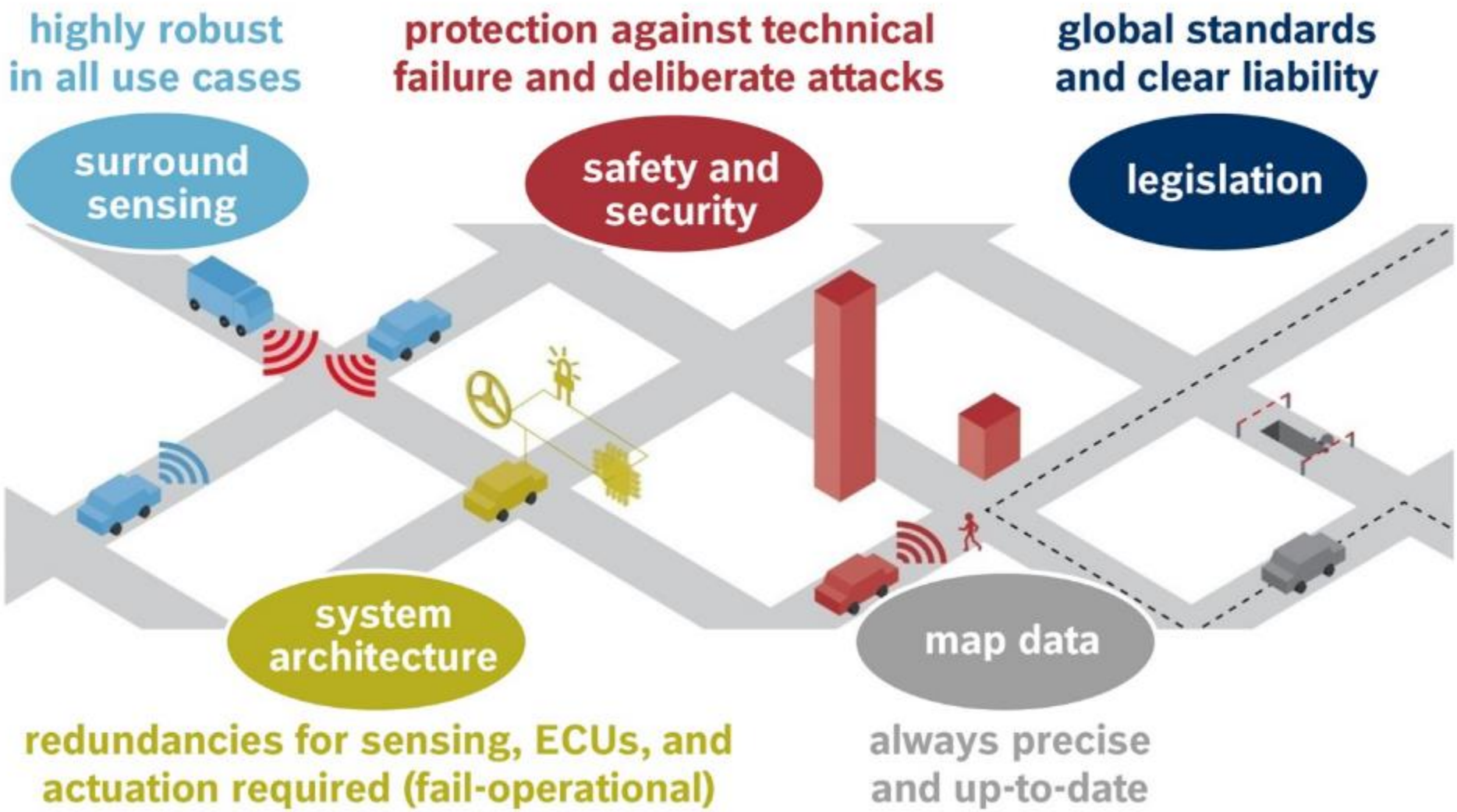
Autonomous Vehicles

- Started off independent of automobile manufacturers and CV technologies



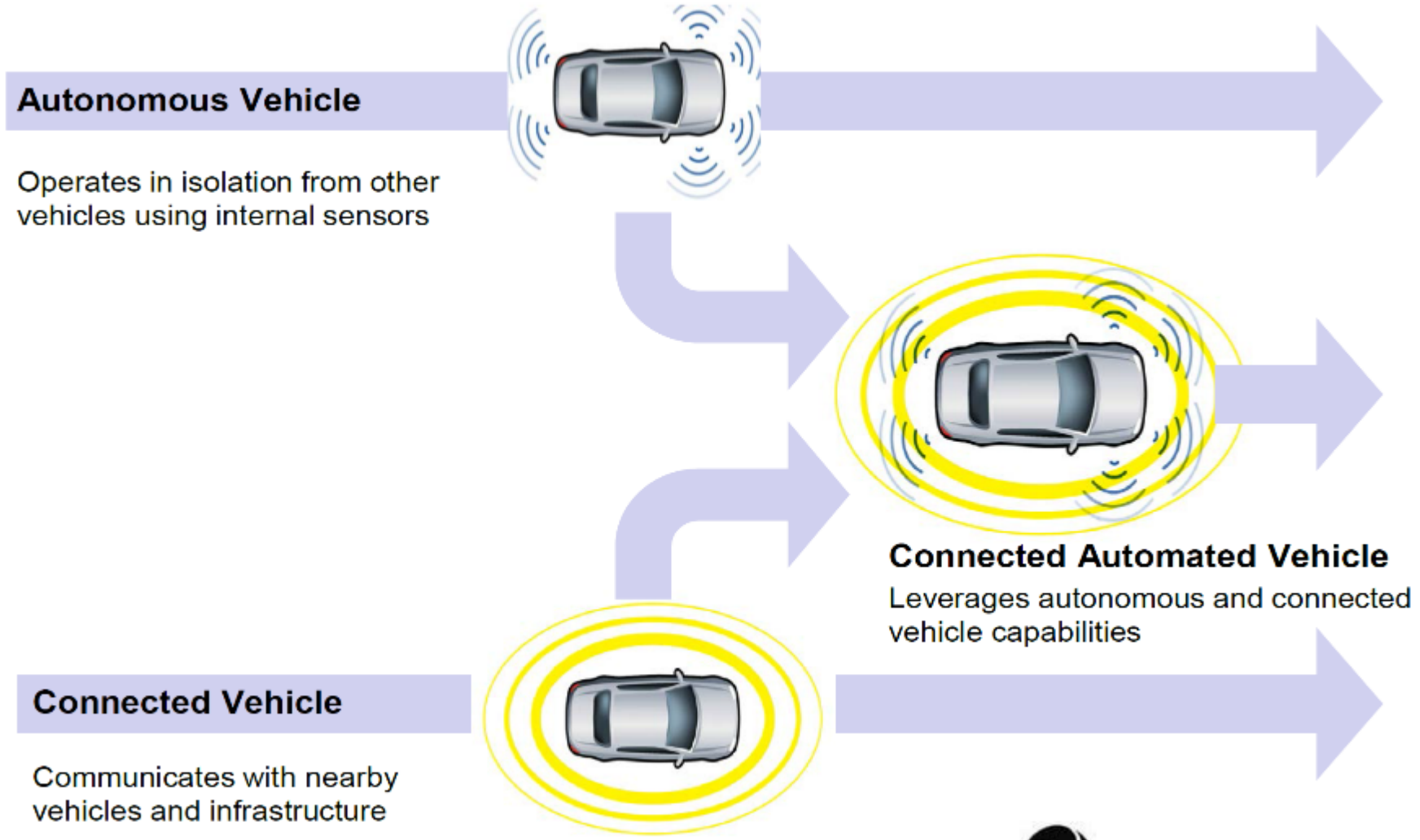


Prerequisites



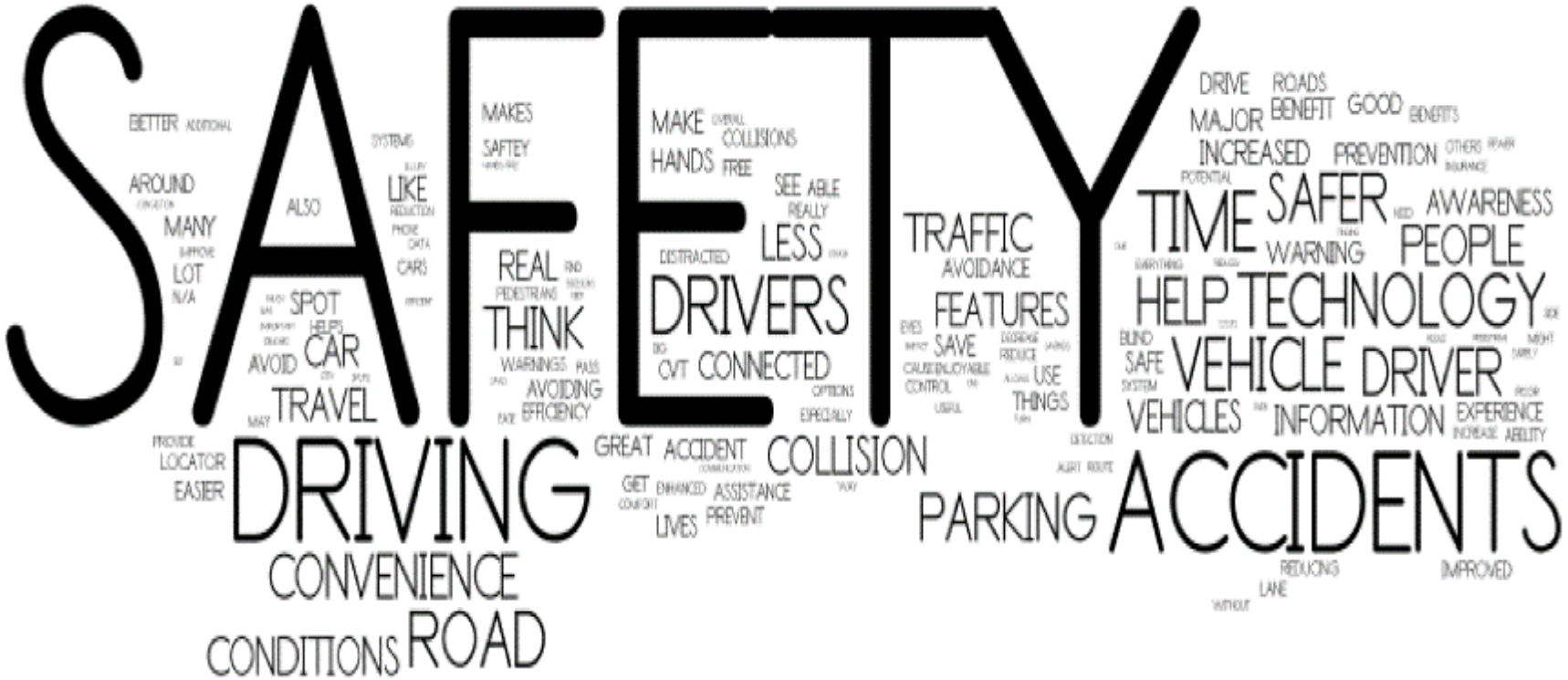
Credit: Andreas van de Sand, Facebook

Connected Automation for Greatest Benefits



U.S. Department of Transportation
ITS Joint Program Office

Benefits


SAFETY
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GOOD
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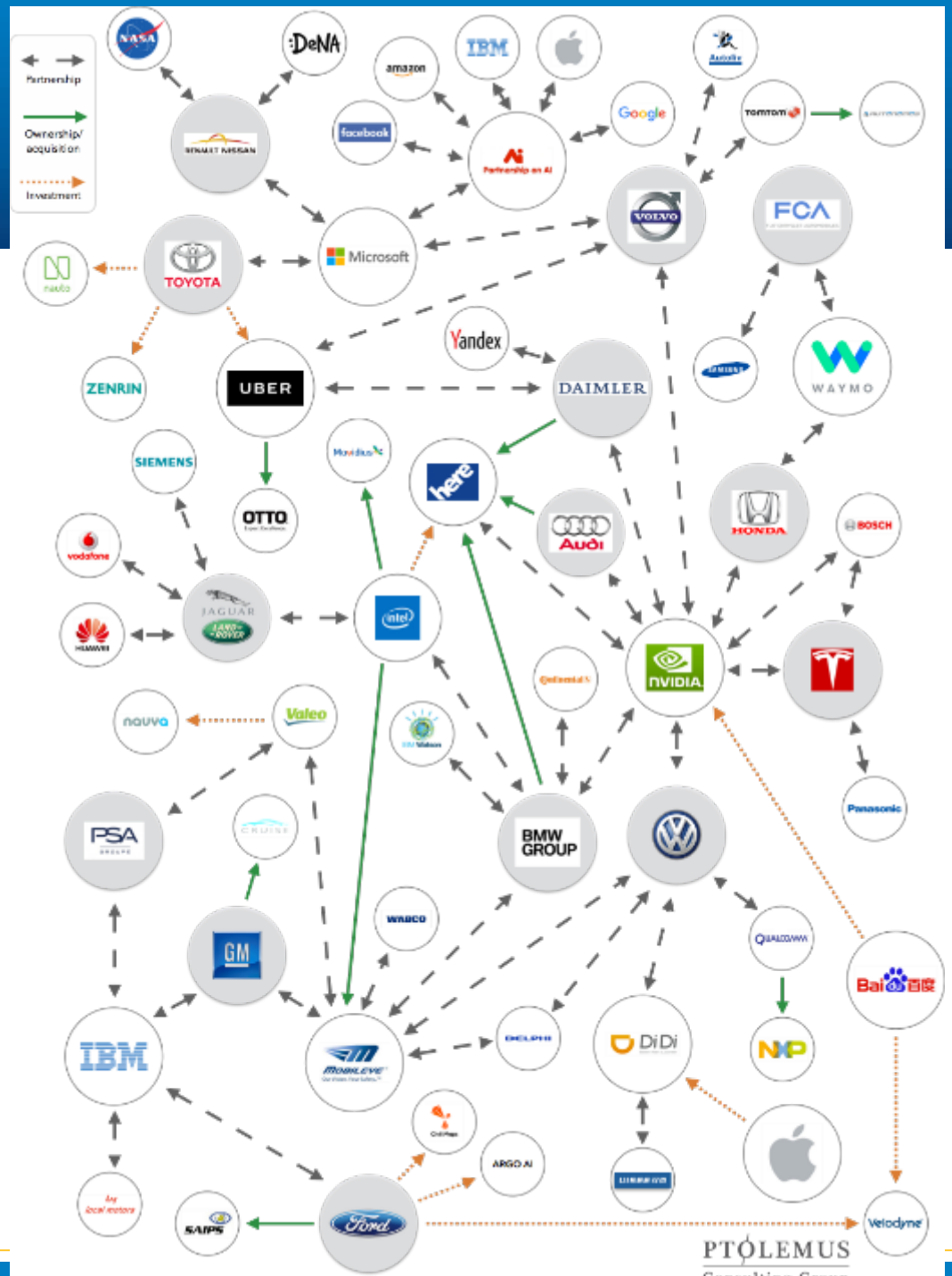
PREVENTION
TIME
SAFER
AWARENESS
WARNING
PEOPLE
HELP
TECHNOLOGY
VEHICLE
DRIVER
VEHICLES
INFORMATION
EXPERIENCE
LOCATOR
EASIER
DRIVING
GREAT
ACCIDENT
COLLISION
GET
ENHANCED
ASSISTANCE
LIVES
PREVENT
PARKING
ACCIDENTS
REDUCING
IMPROVED
LANE
CONVENIENCE
CONDITIONS
ROAD

Who's involved with CAV?
(as of June 2017)

Industries:

- Communications
- Financial
- Transportation
  - DOT lineage
  - Automobile Mfr. lineage
  - AV/SDV Lineage
  - Ride sharing



Communications Perspective

- **BUILDING CAPACITY**:
  Today's focus is on implementing the 5G platform

- Wireless Carriers are (in essence) deploying a public network with private funding

- Wireless network is similar in scale to telephone and power networks deployed in the 1930s

Communications Impacts

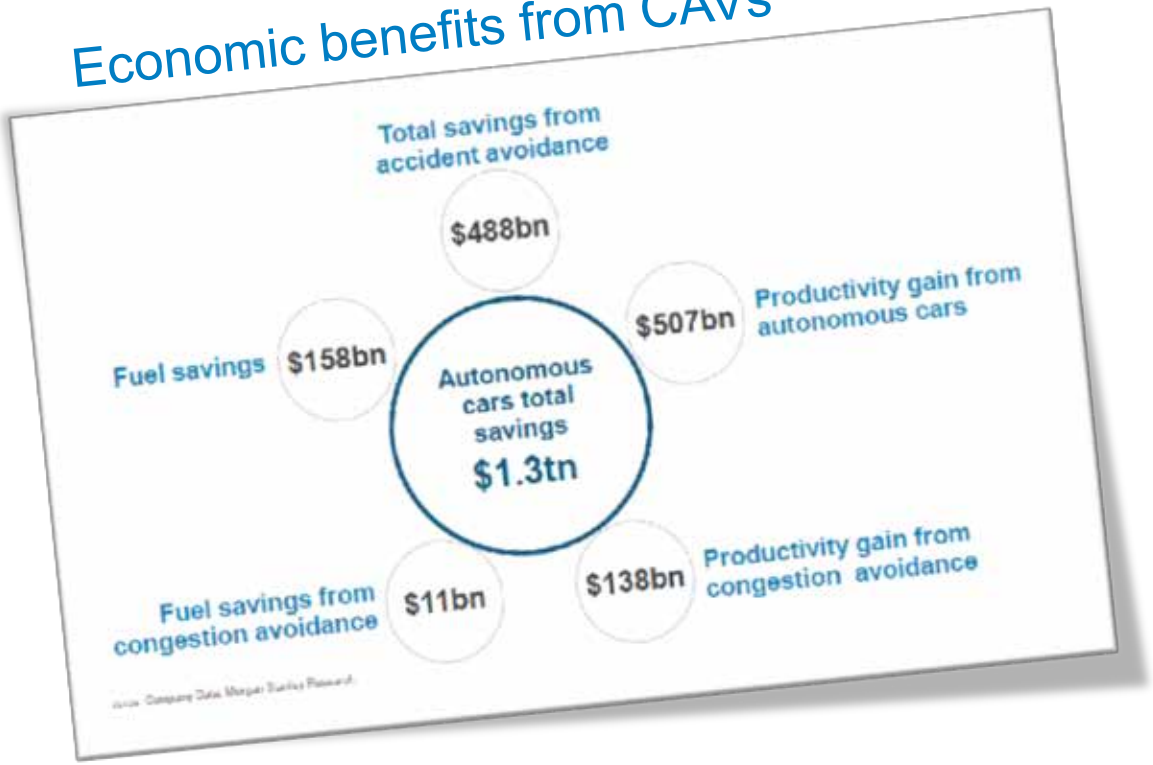
- Comms traffic will change
- Volumes will increase
- Criticality of network reliance requires investment
- Wireless capabilities and importance escalates

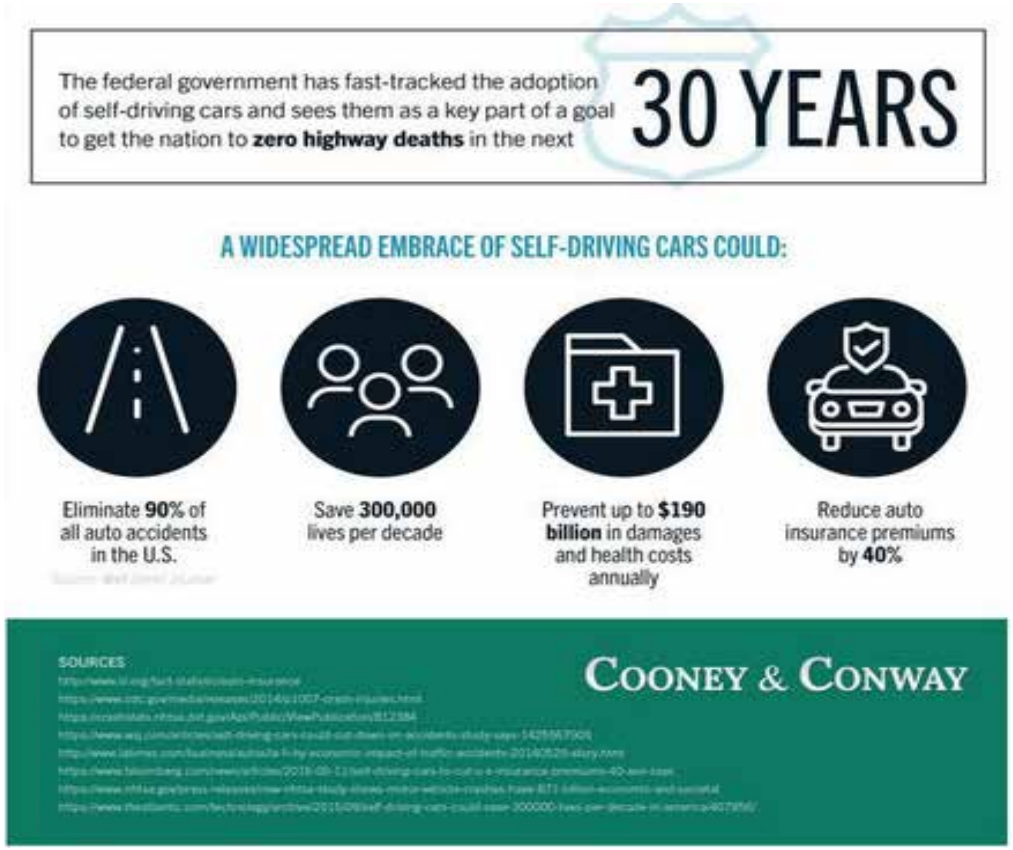
Financial Industry Perspective

- *When & Where to invest money?*
- Minimal difference noted between “connected” and “automated”
- Minimal recognition of DSRC
- Interested in “when”… but when car parc will be realized

Economic Benefits

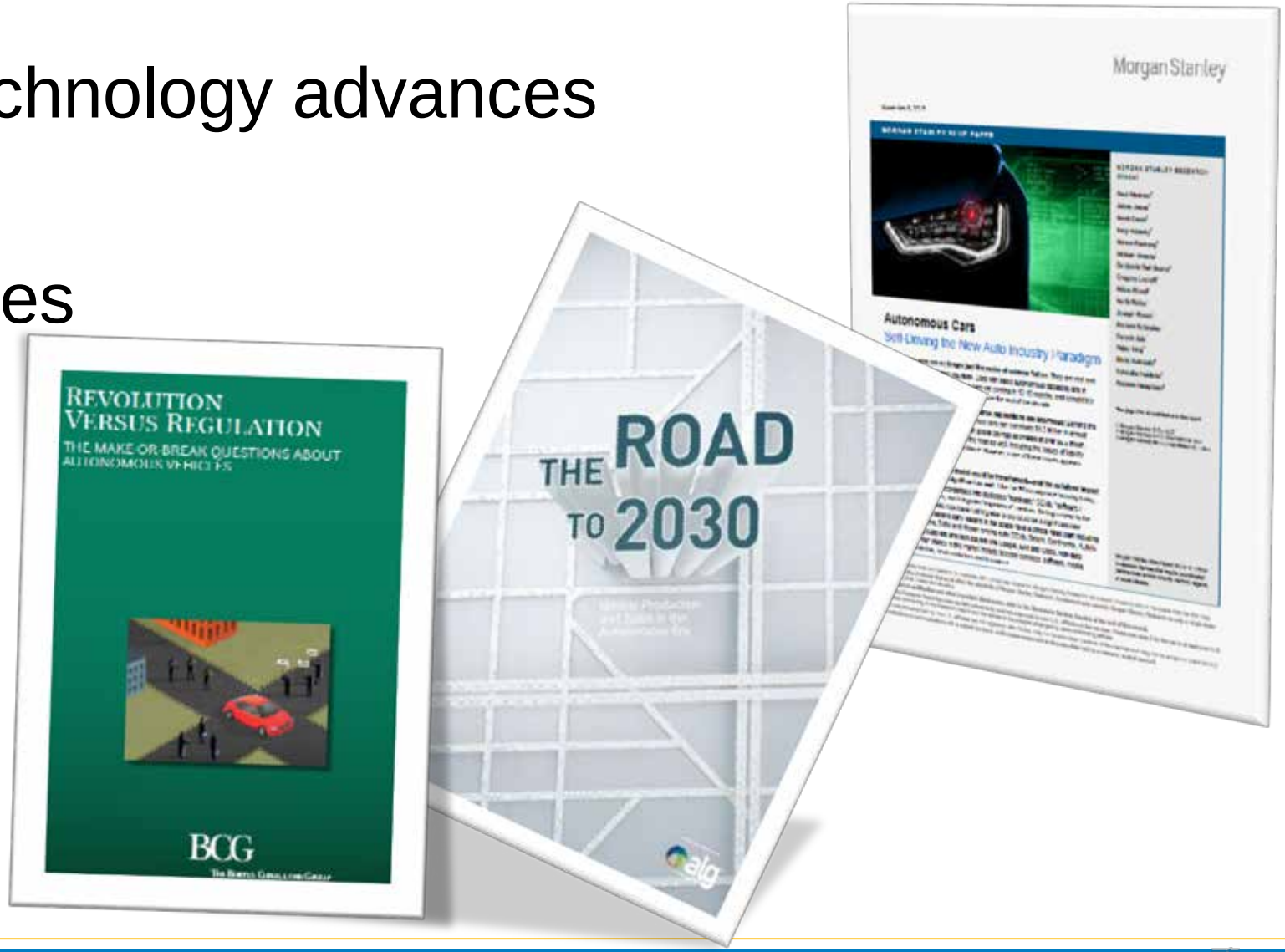
Economic benefits from CAVs





Financial Impacts

- Investments fuel technology advances
- Technology advances impact policy

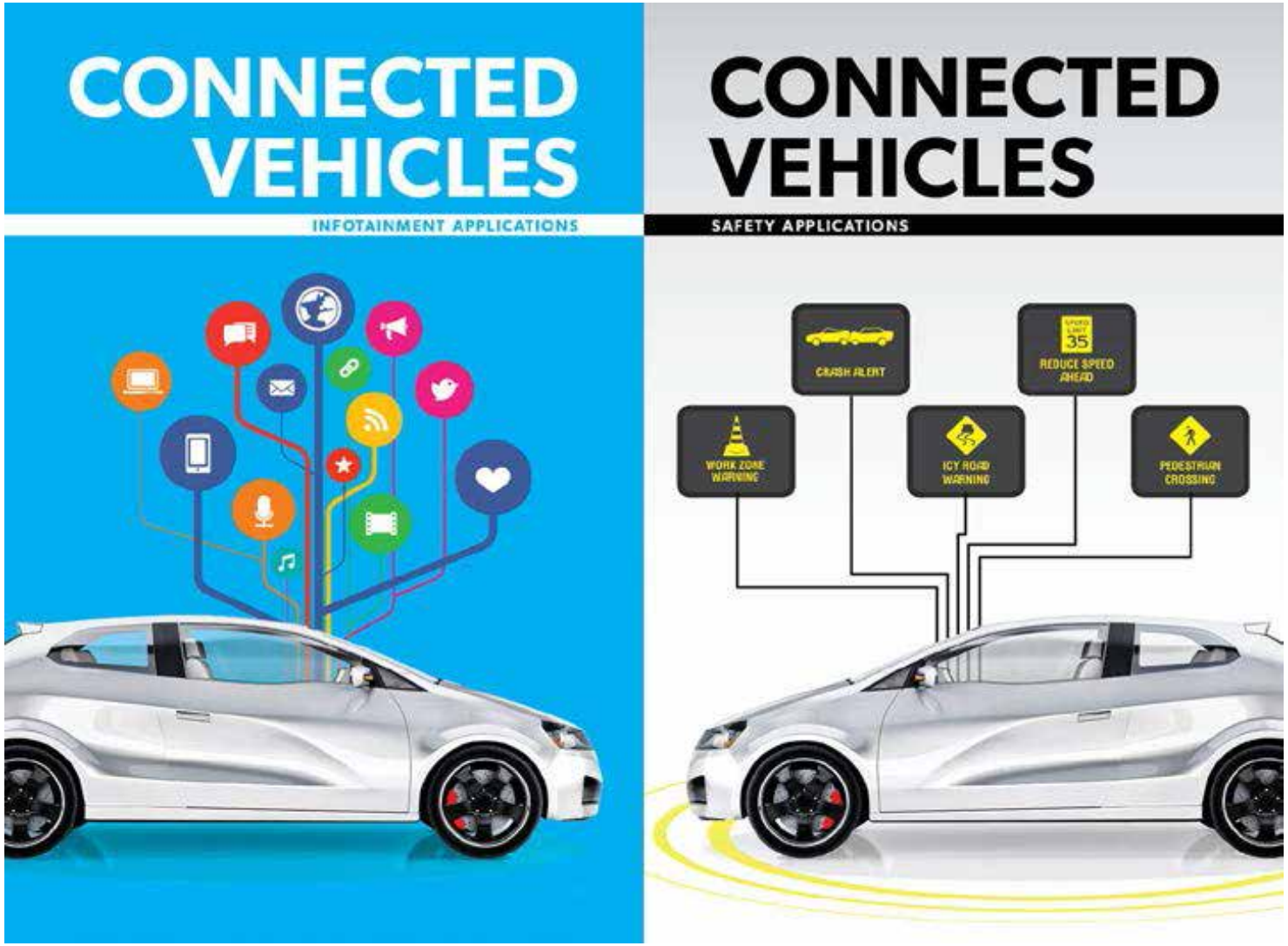


Transportation Industry Perspective

VARIES GREATLY – Each perspective is unique

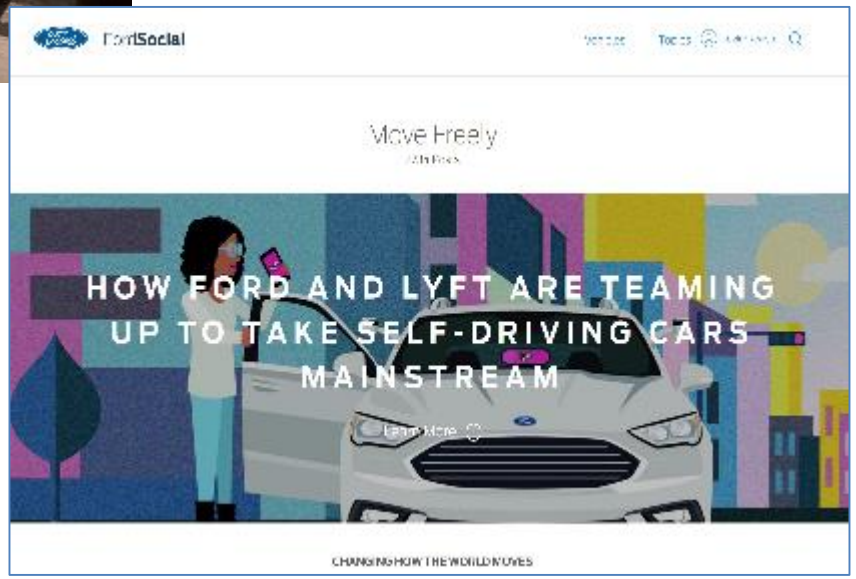
- DOT-based perspective: “connected” = DSRC & GNSS
- Auto industry: tackling a wide berth of future outcomes
- AV / SDV Mfr:

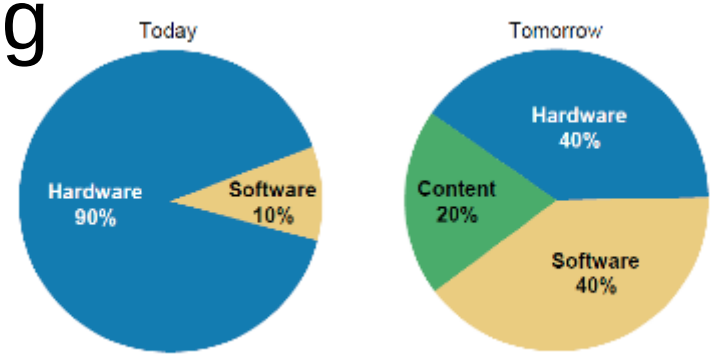
“Connected Vehicles” ?



Automobile Industry

- Safety
- Vehicle re-design
- WiFi / Infotainment
- Communications
- AV
- Ride sharing
- EV

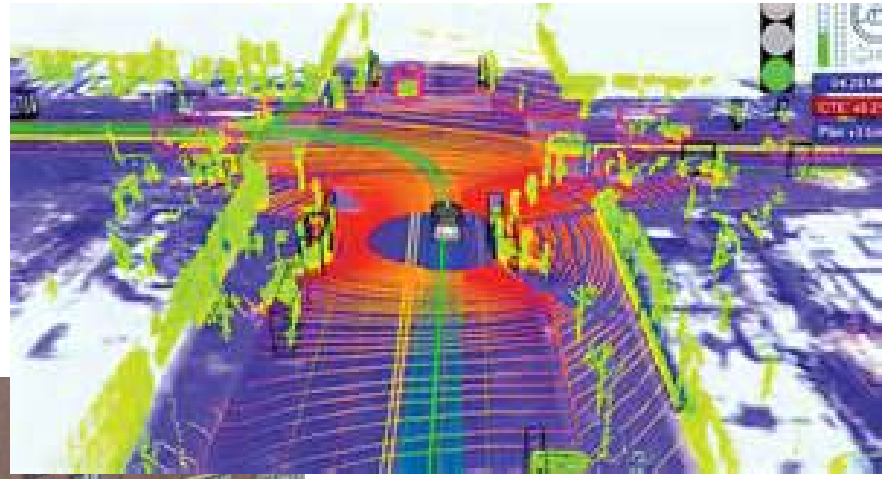




Source: Morgan Stanley Research

AV / SDV

- NEW
- V2V / V2I communications – warming up
- Sensors
- Map / geospatial
- OTA
- Media darlings



Impacts to the Way We Do Business Today

§ Physical Infrastructure

- Unclear infrastructure requirements (signs, signals, markings)
- Possible greater consistency of design standards across the US
- History has shown that significant infrastructure investment is required before disruption from valued-added services change user behavior

§ Roadway Operations

- Mixed-traffic environment presents challenges (harmonizing traffic flow)
- Potential travel demand changes & benefits

Impacts to the Way We Do Business Today

§ Communications

- Increases the importance of wireless capabilities
- Criticality of network reliance – likely will require investment to enhance
- Telecoms traffic will change – to address “peak usage hours” and “peak driving/travel times”
- Telecoms geographic range will change – from urban focus to include more suburban & rural
- Wireless speeds, reliability, and security are crucial
- Growth market is currently in building capacity

Impacts to the Way We Do Business Today

§ Digital Infrastructure

- Database management is key – Data is the new oil for vehicles
- Potential sources of roadway data from CAVs & SCs
- Application development will increase
- Consistency across all mapping/positioning systems is imperative

Myths (or are they “Truths”?)

- Roads design will need to change – narrower lanes – due to accuracy of CAVs
- CEAV Ride Sharing services will result in fewer cars on the roads
- Parking facilities will become obsolete
- MUST have DSRC for safety-critical applications
- DSRC will fade away

Thank you!

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