



Innovation Impacts on TDM

ACT TDM Forum

October 18, 2017



@smartertranspo



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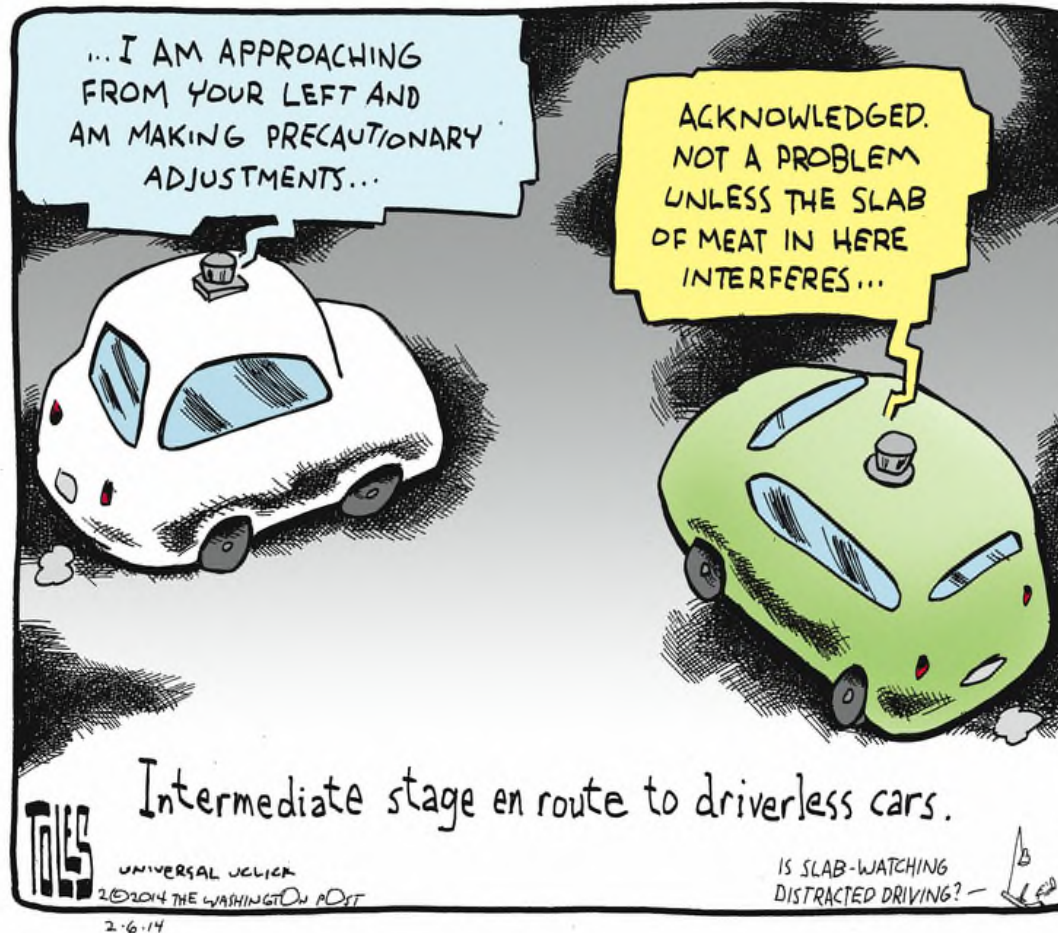
DISRUPTION



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Are WE the problem?



AV REGULATORY UPDATE

- H.R. 3388 – “SELF DRIVE Act”
 - Passed House by voice vote on 9/6/17
- S.1885 – “AV START Act”
 - Passed out of Senate Commerce, Science, and Transportation Committee on 10/4/17
- NHTSA Automated Driving Systems 2.0: A Vision for Safety – ONLY Guidelines
 - Public comments until 11/14/17
- 4th Version of CA DMV AV Regulations Released
 - Public comments until 10/25/17



BACK TO THE BASICS



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WHAT IS OUR VISION?



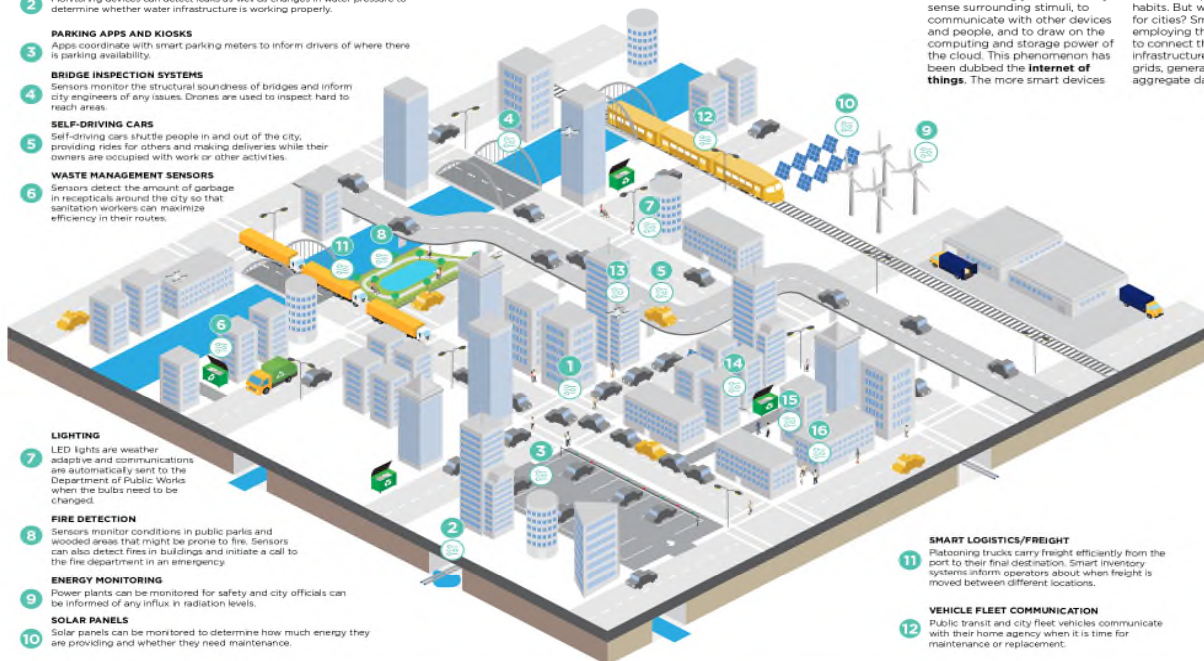
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LEGAL AND POLICY FOUNDATION

INTERNET OF THINGS IN CONNECTED CITIES

- 1 TRANSPORTATION CONGESTION SENSORS**
Smart transportation systems use sensors to detect congestion and bottlenecks in traffic patterns. They also rely on cameras to enforce speed and traffic infractions. In doing so, these tools gather real time information that can be used by city DOTs to make mobility networks safer and more efficient.
- 2 WATER AND WASTEWATER MONITORING**
Monitoring devices can detect leaks as well as changes in water pressure to determine whether water infrastructure is working properly.
- 3 PARKING APPS AND KIOSKS**
Apps coordinate with smart parking meters to inform drivers of where there is parking availability.
- 4 BRIDGE INSPECTION SYSTEMS**
Sensors monitor the structural soundness of bridges and inform city engineers of any issues. Drones are used to inspect hard to reach areas.
- 5 SELF-DRIVING CARS**
Self-driving cars shuttle people in and out of the city, providing rides for others and making deliveries while their owners are occupied with work or other activities.
- 6 WASTE MANAGEMENT SENSORS**
Sensors detect the amount of garbage in receptacles around the city so that sanitation workers can maximize efficiency in their routes.
- 7 LIGHTING**
LED lights are weather adaptive and communications are automatically sent to the Department of Public Works when the bulbs need to be changed.
- 8 FIRE DETECTION**
Sensors monitor conditions in public parks and wooded areas that might be prone to fire. Sensors can also detect fires in buildings and initiate a call to the fire department in an emergency.
- 9 ENERGY MONITORING**
Power plants can be monitored for safety and city officials can be informed of any influx in radiation levels.
- 10 SOLAR PANELS**
Solar panels can be monitored to determine how much energy they are providing and whether they need maintenance.



Every consumer product and piece of infrastructure increasingly has the ability to sense surrounding stimuli, to communicate with other devices and people, and to draw on the computing and storage power of the cloud. This phenomenon has been dubbed the **Internet of things**. The more smart devices

and sharing platforms there are, the more data is generated about consumer's preferences and habits. But what does this mean for cities? Smart cities are employing the same technology to connect their disparate utility, infrastructure, and public service grids, generating real-time aggregate data. This, in turn, can

help cities manage their programs and services more effectively and gauge their impact immediately. The city of the future is an interconnected one, where devices communicate with one another in a constant stream of data that provides real-time information to the public and to the municipality.

DRONES

- 13** Drones can be used for law enforcement and firefighting, as rural ambulances, for infrastructure inspections, and for environmental monitoring. Commercial uses include precision farming, aerial photography, and in the near future, package delivery.

SURVEILLANCE CAMERAS

- 14** Cameras ensure security by monitoring activity in areas that are not frequented by public safety officers. Areas that are not open to public access can be monitored to keep unauthorized personnel out.

BODY CAMERAS

- 15** Public safety officers can wear body cameras that capture footage of interactions between themselves and city residents to ensure safety for both parties.

WEARABLE DETECTION

- 16** Cities can build in smartphone and wearable detection sensors so that people can be an active part of the internet ecosystem, communicating with the city, and with each other.

BROADBAND INFRASTRUCTURE

- 17** A reliable internet ecosystem is the glue that holds the internet of things together.

SMART LOGISTICS/FREIGHT

- 11** Platoon trucks carry freight efficiently from the port to their final destination. Smart inventory systems inform operators about when freight is moved between different locations.

VEHICLE FLEET COMMUNICATION

- 12** Public transit and city fleet vehicles communicate with their home agency when it is time for maintenance or replacement.

NLC CENTER FOR CITY SOLUTIONS AND APPLIED RESEARCH

NLC NATIONAL LEAGUE OF CITIES



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NOT GETTING OUT“SMART”ED

- Data Sharing
- Privacy
- Cybersecurity
- Land Use
- Health and Safety
 - Disposal

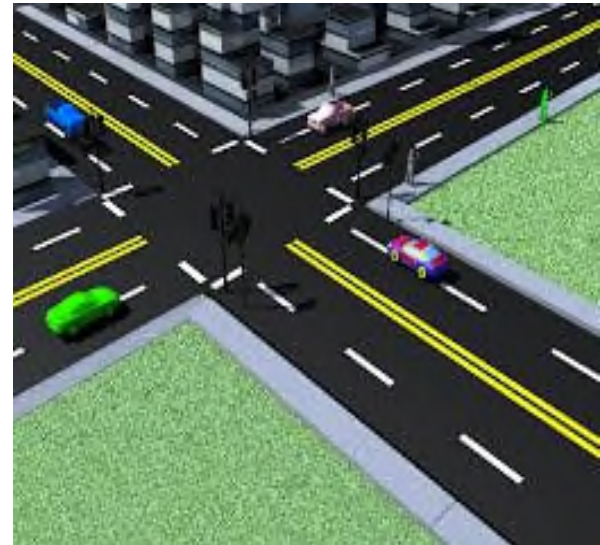


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LAND USE PLANNING

- Changes to traffic patterns?
- Still need traffic signals?
- Dedicated parking areas?
- Eliminate street parking?
- Ensuring safety of pedestrians and bikers
- Autonomous only zones?



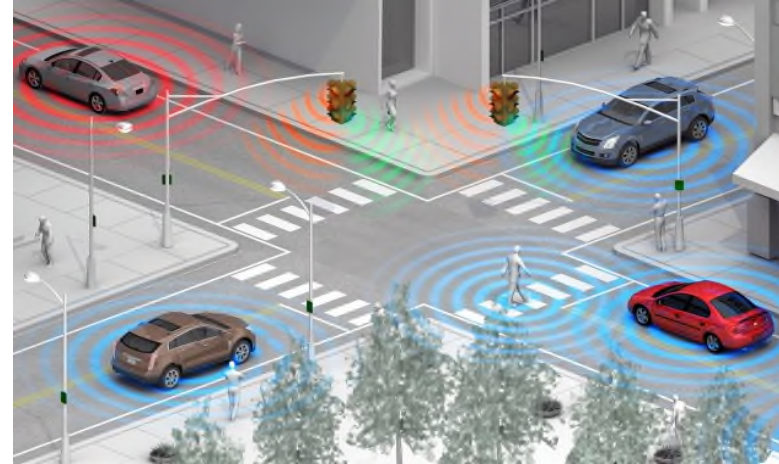
DATA RETENTION

- Retention Policies
- Trust
 - Predictability
 - Manageability
 - Disassociability
- Risk Factors
 - Costs
 - Reputation
 - Programs Goals
 - Future Funding



“SMART” INFRASTRUCTURE

- What is going to be needed?
 - Sensors?
 - Antennas?
 - V2X?
- Local control of ROW
- What is technology of the future?



PARTNERSHIP OPPORTUNITIES

- Emerging Technology Pilot Projects
 - Do not forget **public contracting requirements**
 - Transparency
 - **More data, more problems**
- **Be aware of where any grant funding is coming from** and requirements
- **Coordination with regional and local agencies**



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RFP CONSIDERATIONS

- Make clear this is a partnership
 - What do you want to get out of the project?
 - Public agencies should benefit as well
 - Clear expectations
- Consider issues around data sharing and analysis
- Potential program expansion



THE VALUE OF DATA

- Informed consent?
- Data sharing agreements
 - Escrow?
 - Third party solutions?
- Shared analysis?
- Work with state legislatures / Congress?



FTA FUNDING FOR PILOT PROJECTS

Can it be used?

- “It depends”
- 49 U.S.C. Section 5302 – What is eligible?
 - shared-ride surface transportation
 - providing technology to support use of shared mobility
- “Exclusive” vs. “Shared-Ride”
 - General nature of the service must include shared rides
 - More flexibility if job access or reverse commute
 - Ride-splitting likely okay
- Don’t forget about non-transit uses!



FIRST/LAST MILE PILOT PROJECTS



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SUGGESTIONS FOR MOVING FORWARD



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GETTING RIGHT PEOPLE IN THE ROOM

- Planners
- Public Works
- IT
- Procurement
- Policy
- Risk Manager
- Law Enforcement
- Attorneys
 - We like talking EARLY!
- Private and Public
- Elected Officials



STAY INFORMED AND BE PROACTIVE, NOT REACTIVE



FEDERAL REGISTER
The Daily Journal of the United States Government



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PROPOSED RECIPE – TWO WAY STREETS



True **Partnership**

+

Balanced Agreements

+

Information Sharing /
Shared Analysis

=

SUCCESS! (Or, steps
to make **SUCCESS**)



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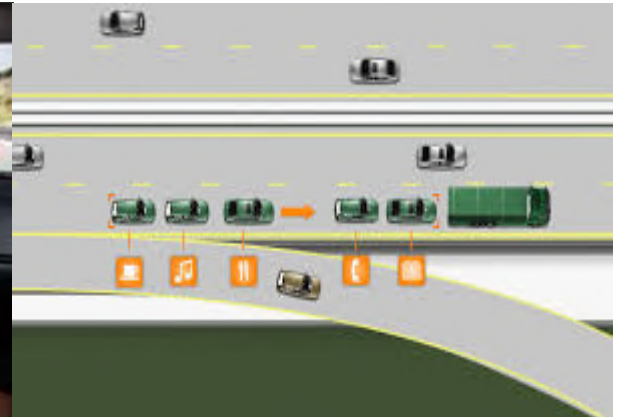
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STAFFING FOR THE FUTURE

- Monitor code for cyber threats?
 - Partnership opportunity?
- App development
- Communications / Public Outreach
- Programmers
 - Another partnership opportunity
- AV Fleet Managers



IMAGINE THIS...



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NOT THIS!!!



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GREG RODRIGUEZ @smartertranspo

Best Best & Krieger LLP

Office: Washington, D.C.

Phone: (202) 370-5308

Email: greg.rodriguez@bbklaw.com

www.bbklaw.com



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