Smart Cities, Mobility, and Human Behavior
Seamless Integration?

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Society of Automotive Analysts – Are Consumers Ready for the Future of Mobility?
18 February 2020
Smart City Technology

- Sensors
- Data
- Automation
Smart Mobility Technologies and Applications

**Smart City Intelligent Transportation Systems**

- Automated Transit
- Infrastructure-enabled Self-driving Cars
- Remote Traffic Monitoring
- Roadside Weather Stations
- Adaptive Signal Control
- Incident Detection and Response
- Dynamic Message Signs
- Reconfigurable Lanes
- Demand-responsive Tolling

**Connected Vehicle Systems**

- GPS Navigation
- Cellular Connectivity
- Smartphone Linking (Bluetooth, Wi-Fi, etc.)
- Infotainment
- Telematics
- Active Safety Systems (ABS, ESC, AEB)
- Automated Parking
- Adaptive Cruise Control
- Traffic Jam Assist
- Lane-keeping

**Automated Vehicle Systems**

- Cooperative Automation (Platooning) without Public Infrastructure
- Automated Driving Systems (ADS) (Autonomous Vehicles)
- Personal Rapid Transit
- Automation-enabling Infrastructure (Standardized Signage, Lane Markings, Digital Maps, etc.)

**Connected and Automated ITS**

- Automated Tolling
- Probe Vehicle Data for System Administration
- Emergency Vehicle Signal Preemption
- Transit Vehicle Signal Priority
- Automated Incident Reporting (Auto 911, eCall)
- V2V/V2X-enabled Warnings and Messages (DSRC)
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**Connected ITS (C-ITS)**

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- Cellular Connectivity
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- Telematics
- Active Safety Systems (ABS, ESC, AEB)
- Automated Parking
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- Lane-keeping

**Automation Only**

- Automated Parking
- Adaptive Cruise Control
- Traffic Jam Assist
- Lane-keeping

**ITS Only**

- Remote Traffic Monitoring
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**Automation + ITS**

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Private Vehicles Can Only Scale So Much
How “smart” is a city built for private cars?

• Parking is among the lowest values of land-use in urban areas
• Traffic and congestion impose risks to safety, health, and wellbeing
• What else might be done with urban space now reserved for cars?
Smart cities are reducing reliance on personal vehicles

- Quality public transit
- Multimodal integration
- Infrastructure for TNCs (Lyft/Uber) and other mobility services
- Public/private partnerships
- Micromobility and pedestrian infrastructure
- Regulations, policy, incentives
As urban mobility evolves, new business models and opportunities will emerge.

Smart mobility envisions integrated modes, each applied to its most efficient purpose.
One vision of smart mobility in a smart city

“Smart cities
will pullulate with sensors
all joined together
by the internet of things
Bollards communing invisibly
with lampposts
so there is always a parking space
for your electric car
so that no bin goes unemptied
no street unswept
and the urban environment
is as antiseptic
as a Zurich pharmacy”

Boris Johnson, Prime Minister of the UK and former Mayor of London. Speech to UN General Assembly, 24 September 2019
“TECHLASH”
A City is Not a Factory (or a Zurich Pharmacy)

- “Smart” technology is meant to rationalize and optimize systems
- Cities are complex adaptive systems driven by citizens
- Citizens (people) are often irrational by nature
- Thus, cities are often suboptimal by nature
- This is a feature, not a bug

- Approaches that work in corporate and industrial solutions may not work in city solutions
Why might smart citizens be concerned about “smart city” technology?
Fear of Surveillance

Many citizens are averse to government surveillance, even while accepting expansive corporate surveillance.
Fear of Exclusion

Many marginalized groups already face difficulty obtaining public services

Source: Seattle DOT Blog https://sdotblog.seattle.gov/2019/06/19/video-construction-site-access-helps-everyone-get-around/
Fear of Obsolescence

Loss of livelihood to new technologies has been a concern of workers for decades
Fear of Negative Health Effects

Some technologies may impose risk to human health—real and imagined
Plain-old Fear of Change

Human tendency to resist disruption and idealize past “simpler times”

“I used to be with it. Then they changed what it was. Now what’s it seems weird and scary to me ... and it’ll happen to YOU!”
These concerns, and others, cannot be dismissed.

The community is the customer.

You work for *them*. 
A Smart *and Good* City ...

... uses data and technology to improve key metrics *that reflect the community’s evolving values*. 
Applying new technology to old values does not guarantee improvement
Solutions Will Vary with Local Context

- Urban, Rural, Suburban
- Demographics
- Climate
- Culture
Smart and Good Mobility:

Safe

Efficient

Equitable

Boundless opportunities, but beware of “techlash”
Thank you for your attention.

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