The Impact of Cyber Security, Autonomous Vehicles & Smart Tech on Local Government and Risk Pools

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- She sits on the AGRiP Board of Directors and participates in the Society of Actuaries Autonomous Vehicle Project Oversight Group.

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Who are we?

Mr. Jerry Spears

• Jerry Spears is the Trust Operations Director at the Montana Association of Counties (MACo). MACo has three insurance trusts including a health insurance trust, a property & liability trust, and a workers’ compensation trust. Jerry oversees the trusts which have a combined revenue of $45 million per year. Jerry is on the AGRIP Board and is a member of the Transportation Research Board Technology Transfer Committee.

• Prior to MACo, Jerry Spears was the Deputy Director of the Washington State Transit Insurance Pool (WSTIP). WSTIP is a 25 member self-insurance program for most public transit systems within Washington State. Jerry was responsible for the claims, the underwriting, the finances, and the information technology infrastructure at WSTIP.

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Cyborgs and Crazy Computers are they the Future?

I'M SORRY, DAVE.

I'm afraid I can't do that.
Tech can be Good
Outline of the Presentation

• Cyber Impacts for Public Entity

• Smart Tech – How do we define it, and what is included?

• Autonomous Vehicles

• Risk Management for Public Entities
**Physical Presence:** “As we become so visible in the digital world and leave an endless trail of data behind us, exactly who has our data and what they do with it becomes increasingly important.”  
*Singer Peter Gabriel*

**Infrastructure:** “The key with autonomous is the whole ecosystem. One of the keys to having a truly fully autonomous is vehicles talking to each other.”  
*Mary Barra, GM CEO.*
Why Are We Talking About This? (Quotes From Famous People)

• **Risk:** “A major attack on our cyber systems could shut down our critical infrastructure financial systems, communications systems, electric grids, power plants, water treatment centers, transportation systems and refineries - that allows us to run our economy and protect the safety of Americans.”  
  *Dan Coats – Director of National Intelligence*

• **Integration:** Information technology and business are becoming inextricably interwoven. I don't think anybody can talk meaningfully about one without the talking about the other.  
  *Bill Gates, Microsoft*
But Why Are We Talking About This?

- Public Entity Risk Pools are often the key “Risk Manager” for the entity.

- Risk Pools have the ability and resources to innovate or react in a more nimble way than the actual public entity.

- Risk Pools have nationwide shared resources to work with.

- Cyber Risk and Technology impacts are REAL!
CYBER IMPACTS:
Cyber Impacts: Security (A Seriously Complex Challenge)

• **Ransomware attack in Atlanta**

“Six days after a ransomware cyberattack, Atlanta officials are filling out forms by hand…

(Residents can't pay their water bill or their parking tickets. Police and other employees are having to write out their reports by hand. And court proceedings for people who are not in police custody are canceled until computer systems are functioning properly again.)”
Cyber Impacts: Security (A Seriously Complex Challenge)

• Baltimore 911 dispatch system hacked, investigation underway, officials confirm

“Baltimore’s 911 dispatch system was hacked by an unknown actor or actors over the weekend, prompting a temporary shutdown of automated dispatching and an investigation into the breach, Mayor Catherine Pugh’s office confirmed Tuesday.”
• **Centennial School District Hacked, Officials Say**

“The Centennial School District in Oregon on Friday announced a security breach within its student information systems. District officials do not currently believe any important student information was taken, however the investigation is ongoing.”
Cyber Impacts: Local Governments' Cybersecurity Crisis

• Local governments are big targets for cyber attacks
• Funding is lacking
• Attacks have been successful (Ransomware)
• Attacks against local governments are public-facing
• Often are motivated by political interests not just financial
Cyber Impacts: What kind of damage and disruption can malware bring to local governments?

- **Loss of vital services:** Ransomware that locks down networks can deny employees and residents access to critical services.

- **Loss of records:** In addition to losing access to critical records while an attack is ongoing, there have been many instances where some records are lost forever.
Cyber Impacts: What kind of damage and disruption can malware bring to local governments?

• **Loss of productivity:** The most expensive cost of nearly every attack — both in the private and public sectors — is the loss of productivity.

• **Cost of recovery comes at taxpayers’ expense:** Most local government budgets are extremely lean to begin with.

• **Inability to collect revenue:** While recovery costs add up, many organizations are simultaneously unable to process payments and collect revenue to fund operations, adding insult to injury.
Cyber Impacts: What kind of damage and disruption can malware bring to local governments?

• Taxpayer frustration: During attacks, government workers aren't the only ones unable to conduct business. Taxpayers are often disrupted, too.

• Erosion of trust and voter support: Just as private sector businesses must worry about their brand image, local governments also have a reputation to uphold for providing responsible, transparent, and efficient services.
Smart Cities Tech: How to define!
Smart Cities Tech: How to define!

In the IT World SMART technology actually stands for:

“Self-Monitoring Analysis and Reporting Technology”
As the world’s population grows we have no choice but to live together in a world of shared public services and experiences.

Public Entities need to find ways to maximize accessibility and provision of services – and not by choice…
Smart Cities Tech: What is included?

• Transportation Information & Distribution
• Education (connectivity to the Smart City Grid)
• Healthcare (access to and information about)
• Utilities (Grid, electric, water, sewer, gas)
• Key Municipal Services (ability to receive information and move)
• Automated Vehicles (able to move freely, park easily)
Smart Tech/Internet of Things in Local Government

- Smart web-based tools for government increase efficiency and transparency.
- Advanced data analysis platforms allow benchmarking against peers.
- Usage of meaningful data enables the deployment of evidence-based interventions.
- Adoption of innovative digital channels reduces procurement costs.
- Boosting investments in expertise and skill building produces mission-driven employees.
The following five sectors were identified as the top priority areas for the use of smart local government technologies:

- Public safety: nearly half of respondents (49%) identified these initiatives as a top priority
- Customer service/public engagement: (33%)
- Water and wastewater (30%)
- Telecommunications (27%)
- Transportation (26%)

A Blessing and a Potential Risk

• The Internet of Things, or IoT, refers to the billions of physical devices around the world that are now connected to the internet, collecting and sharing data.

• “More than one billion Internet of Things (IoT) devices and sensors will be installed in commercial buildings by the end of 2018. These so-called ‘smart buildings’ are more efficient and convenient than ever before, but they’re also much riskier.”

• “As buildings are transformed into enormous computer systems, it’s no longer inconceivable that cyber criminals could gain access to and control HVAC, sprinkler, and refrigeration systems, or other mechanical processes. If not properly protected, unauthorized access of these systems could expose building owners and their occupants to risks of data breach, bodily harm, property damage, and even pollution.”
Autonomous Vehicles (Impact on Local Government and Risk Pools)

- Definitions
- Legislative
- Regulatory
- Potential Legal Impacts
- Impact to Pools
The SOA is defining the vehicles in three ways.....

• Safe
• Self
• Driverless

Adding a fourth category for today - Operational
Autonomous Vehicles: Definitions

The SOA considerations for the industry to define:

- Vin number to track type
- ISO forms to match VIN
Current State of Legislation Surrounding Self Driving Vehicles

• 22 States and the District of Columbia have passed legislation related to self driving vehicles.

• 10 State Governors have issued Executive Orders relative to self driving vehicles.

• 10 additional States are considering legislation relative to self driving vehicles.

• AV Start ACT in the Senate (It is stuck in the Senate)
Federal and State Regulations

• **US DOT Automated Vehicles 3.0** (2013, 2016 and 2018)

• Attempts to unify all federal agencies on autonomous-vehicle policy.

• Major rules that currently block manufacturers like Cruise Automation from certifying autonomous cars for sale will be changed. That means steering wheels, pedals, mirrors, and other required equipment will be either loosely defined or entirely optional.

• The DOT clarified that in future rulings it will define driver and operator as either a human driver or an automated driving system. It will also eliminate the public comment period on requests from manufacturers to waive certain requirements of the Federal Motor Vehicle Safety Standards.
Secretary Chao

“The government is not the best place to choose which technology to succeed and which technology to fail. Consumers will ultimately decide which technology or package of technologies suits them best.”
Under the new guidance commercial trucks, ports, transit buses, and railways must begin developing plans for self-driving technology.

The Department of Labor will study how automation will affect driving jobs; the Department of Homeland Security needs to provide tips on vehicle cybersecurity; and the Federal Trade Commission has to ensure vehicle owner data isn’t abused.

Transit agencies must submit safety plans and adopt them by July 2020, while automated buses will be studied in pilot programs over the next five years.

Keep in mind that the United States has no formal statutes permitting or prohibiting automated vehicles.

State Regulations (CA, AZ, MI, and PA)

• The Department of Motor Vehicles in California regulates self driving vehicles. (more regulated than most)

• Arizona was already known to favor innovation and technology-friendly regulations where the Governor signed an AV executive order in 2015. Consequently, Tempe, Mesa, Gilbert, and Chandler became hosts to two of the most high-profile AV pilots in the country. And, earlier this year, Tempe was the site of the first AV-related fatality. (Good weather and regulation free)

• In Michigan in late 2016 the Governor signed 4 bills which would establish regulations for the testing, use, and eventual sale of autonomous vehicle technology and are meant to more clearly define how self-driving vehicles can be legally used on public roadways.

• Pennsylvania is doing innovative and methodical actions in its approach.
Events that create challenges and opportunities - Self Driving Car Crashes
Why should we care about self driving vehicles at the local government level?

• Some think there will be 10 million self driving cars on the road by 2020

• “Fifty percent of large American cities are now exploring how to integrate AVs into their long-term transportation plans.”

• “With the limited direction from the federal and state government, cities throughout the country are making their own rules for AV pilots. Autonomous vehicle pilots range from informal agreements to structured contracts between a city and company.”

• Arlington, Texas; Chandler, Arizona; Boston, Massachusetts; Portland, Oregon; Pittsburg Pennsylvania; San Jose, California; Las Vegas, Nevada; Columbus, Ohio; and The Village in Florida are just some examples of pilots around the country.


Potential Legal Impacts of Self Driving Vehicles

- **E-discovery**: More computer operations create more discoverable electronic information, from data about the operations of the vehicle itself to anything the sensors record or upload. (which could include cameras, radar, and ultrasonic detection)

- **Data security**: Newer vehicles may record data on how, when, and where individuals drive, which could raise privacy concerns if the information is stolen or improperly handled.

- **Criminal culpability**: As “driving” becomes a murkier concept requiring less and less from the individual engaged in it, at what point would an intoxicated or unconscious person no longer be guilty of a DUI or falling asleep at the wheel?
Potential Legal Impacts of Self Driving Vehicles

• **Civil liability shifts**: Responsibility by manufacturer? Fleet manager? Software/Hardware? Traffic control systems?

• **Insurance law**: The parameters of traditional auto insurance may be altered, perhaps moving away from the user-liability mode and opening new potential limits and exclusions.

• **Employment**: As the requirements of paying attention at the wheel evolve, will employers expect or require employees to check work email or perform other tasks while driving?

The Impact of Self Driving Vehicles to Pools

• Your member risk profile will change/evolve in the next 10 to 20 years.
• The frequency and severity of your auto claims will alter.
• The abundance/security of data generated by these vehicles will change your operations.
The Impact of Self Driving Vehicles to Pools

- Coverage documents at the pool layer and reinsurance layer will change
- Vehicle technology will apply to ALL public sectors from Smart Firetrucks to self-driving school busses
- Operational Technology will increase and change cyber connections

The Pools that embrace and understand the importance of data and AI will be most successful in this new world
CYBER Issues with Self Driving Vehicles

- Cybersecurity in self-driving cars: U-M releases threat identification tool
- Cyber Security in the Age of Autonomous Vehicles
- The Jeep hack
Big Question now….

Should you cede the risk or self-insure???
Advantages to Ceding the Risk or “group purchasing”

- Lots of markets currently available
- “Expert” Claims Handling if required
- Hands-off approach in terms of pool staff and Risk Managers
Advantages to Self-Insuring the Risk or “pooling”

• Actuarial rate may or may not be included
• You can tailor the coverage to YOUR municipality
• Compelling reason to push Risk Management at the Board level
Bottom line realities:

Risk Management can NOT prevent all Cyber Attacks.

Terrorism is related and there is some discussion surrounding “Act of God” type coverage or “War Risk Insurance” which was originally applied to autopilot aircraft.
Risk Management for Public Entities Pool

The Reputational Risk for Pool is real.....

You may want to cover something that the market hasn’t even though of as of yet – having a sub-limit in place in advance of a claim may be the best risk management position.
Smart Cities Cyber: The real problem is connections
Risk Management Cyber Defenses

• **Explore a new solution that improves on cyber.** In the majority of successful attacks, cyber and other protections were in place, yet they failed to stop malware.

• **Train employees to be vigilant.** With the majority of malware delivered via malicious email campaigns, users are one of the first lines of defense.

• **Devise security and recovery plans.** Increasingly, it’s not a matter of *if* an organization will be attacked, but when.

• **Conduct port scans to see your network through the eyes of attackers.**

• **Schedule regular assessments/audits of security posture.** With the threat landscape evolving so rapidly, a set-it-and-forget-it approach to security is doomed.
How are Pools managing the cyber exposures of its Members?

- Texas Municipal League Risk Pool contracts with Net Diligence
- WSTIP offers $2,000 grants for network security/cyber security
- MMIA promotes its Brokers solution with Beasley
- Gallagher has a robust web page dedicated to solutions for cyber liability
- The Virginia Municipal League (VML) has some excellent materials on it’s web site under brochures regarding cyber.
Risk Management for Public Entities Pool
OTRP’s Enterprise RM Program

www.atrisktech.com

• Identification of Assets
• Monitoring of traffic North/South and East/West
• Identification of Software used by members
• Ability to monitor at the “pool level”
• Ability to focus resources where they are required

The program provides a threat assessment level for each member in real time using AI
Daily Probability of Breach Scores are tabulated for Monthly Scorecards that measure the ability to Identify, Protect, Detect, Respond and Recover.

Actionable Analysis bundled with Automated Response is delivered in a Case Management Dashboard or integrated with an ITSM.

Conduct A.I powered DFI using existing cyber tools.

Orchestrate Raw PCAP with Forecast and Prioritize at the Perimeter using UEBA.

Establish Probability and Risk Tolerance by Asset.

Forecast Most Probable Source of Attack By IP Address and Port Using IBM Watson.

Crowd Source a “Paul Revere” for Cyber One if By Land Tow if by Sea early warning system using Cognitive Library and Edge Analytics of NTBA.
Other Key Components:

- Thoughtful analysis of education to give employees (Videos/E-mails/Posters)
- Amended Risk Management Policy at Board Level to include Cyber Monitoring and Auditing
- Made an affirmative decision on how to cover at the Board level.
Risk Pool Cyber Suggestions

Board Level

• Develop and embrace cyber security best practices/model policies as Board level policies
• Ask for Board Support for Hardware and Audits
• Work with your Broker and Reinsurers on cyber risk management
• Install a more robust system like @Risk
Member Level

- Develop and embrace cyber security best practices/model policies for your members.
- Have your member employees take a cyber risk/training programs. Provide Videos, E-mails Posters, Classes. (insurelearn.com)
- Do an asset audit and try to determine risk factors.
Risk Pool Cyber Suggestions

Claims/RM

• Have a dedicated loss control person that is an expert in this arena
• Prepare Claims People to respond in the event of a claim. (Even if you purchase cyber)
• Partner with a good law firm that has expertise in this area
• Know what your coverage form will cover (and not!) and do education in advance of a claim
• Make it a priority for Risk Management staff as part of yearly workflows
Concluding Thoughts

• Cyber exposures for you and your members are going to evolve, grow and be a constant challenge and opportunity
• Always look for opportunities to innovate and train
• Self driving vehicles will happen but will take longer than the self driving industry suggests

Change your password on any of your internet devices at home
don’t use the default password
Thoughts from Bill Gates & Steven Spielberg

• “Governments will always play a huge part in solving big problems. They set public policy and are uniquely able to provide the resources to make sure solutions reach everyone who needs them. They also fund basic research, which is a crucial component of the innovation that improves life for everyone.” (Bill Gates)

• “Technology can be our best friend, and technology can also be the biggest party pooper of our lives. It interrupts our own story, interrupts our ability to have a thought or a daydream, to imagine something wonderful, because we're too busy bridging the walk from the cafeteria back to the office on the cell phone.” (Steven Spielberg)