

Smarter States, Smarter Communities Learning Lab

October 17 - 19, 2018

National Governors Association Center for Best Practices







Welcoming Remarks

Kirk Lonbom, Chief Information Officer, State of Illinois

Sue Gander, Director, Environment, Energy & Transportation Division, NGA Center for Best Practices

Jeff McLeod, Director, Homeland Security & Public Safety Division, NGA Center for Best Practices

About NGA

Office of Government Relations

Center for Best Practices

Collective voice of governors in Washington D.C.

- Builds consensus on Federal issues
- National policy focus

- Comparative policy shop for state level efforts
- Provides governors and staff technical assistance and policy guidance

Office of Management Consulting & Training

- Internal management consultants
- Training and advice for governors, chiefs of staff, legal counsels, policy directors schedulers, spouses



2018 - 2019 Technical Assistance

Power Sector Modernization

Energy Policy Institute Grid Modernization & Energy Planning Retreats

Global Energy Summit

Support for New Governors

Boot Camp for New Governors' Energy Policy Advisors' Retreat Webinars for New Governors' Policy Advisors' Governors Guide to Energy Policy

Energy Efficiency

Lead By Example Workshop

Energy Efficiency Experts Roundtable

Energy Efficiency Roadmap for Governors

Resiliency

State Resiliency Assessment & Planning Tool and State Resilience Retreats Grid Emergency Exercises Resiliency Workshop Housing Resiliency Experts Roundtable

Technical Assistance on Demand Research

Policy Memos

Consultations

Nuclear Weapons Waste

Federal Facilities Task Force Meeting

Intergovernmental Meeting

Governors Guide to Nuclear Weapons Waste Clean up

Smarter States, Smarter Communities

Learning Lab

Roadmap

State Specific Support

Transportation Modernization

Traffic Safety Learning Labs Transportation Policy Institute INNOVATION

Electric Vehicle (EV) Regional Workshops

Water Policy Learning Network

Water Policy Institute

Webinar Series

Delaware River Basin Retreats

ENVIRONMENT, ENERGY & TRANSPORTATION DIVISION



2018 - 2019 Technical Assistance



HOMELAND SECURITY & PUBLIC SAFETY DIVISION



Smarter States, Smarter Communities Advisory Group

Carnegie Mellon University

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- Verizon
 - *Walter White*, Vice President, State & Local Government, walter.w.white@verizon.com

NGA Smarter States Learning Lab





Overview of State Goals

Colorado:

Adam Zarrin, Policy Advisor, Office of Colorado Governor John Hickenlooper

Nevada:

Tracy Larkin-Thomason, Deputy Director, Nevada Department of Transportation

New Jersey:

Vinn White, Senior Policy Advisor, Office of Governor Phil Murphy, New Jersey

North Dakota:

Duane Schell, Chief Technology Officer, North Dakota Information Technology Department

Virginia:

Robby Demeria, Deputy Secretary of Commerce and Trade for Technology, Commonwealth of Virginia





Welcome from Governor Bruce Rauner





NATIONAL GOVERNORS ASSOCIATION

#SmarterStatesNGA





Overview of the Smarter Illinois Initiative

Kirk Lonbom, Chief Information Officer, State of Illinois

Nicholas Cosentino, Special Projects Manager, Illinois Department of Innovation & Technology

Smarter Illinois Initiative Projects & Deliverables

LED Streetlighting Smart Public Safety Smart Roads

Speakers

Nicholas Cosentino, Special Projects Manager, Illinois Department of Innovation & Technology

Essam El-Beik, Telecommunications Consultant, Department of Innovation & Technology

Matt McAnarney, Project Manager for Connected & Autonomous Vehicles, Illinois Department of Transportation





Laying the Foundation: Broadband, 5G Deployment, and Ensuring Rural Equity

Moderator: Lori Sorenson, Chief Networking Officer, Illinois Department of Innovation and Technology

Jennifer Duane, Broadband Program Specialist, BroadbandUSA, NTIA

Walter White, Vice President, State and Local Government, Verizon Wireless

Paul Breakman, Senior Director, Cooperative Systems, Business and Technology Strategies, National Rural Electric Cooperative Association

Jannine Miller, Senior Advisor for Rural Infrastructure, U.S. Department of Agriculture



Laying the Foundation: Broadband, 5G Deployment, and Ensuring Rural Equity

Lori Sorenson, Chief Networking Officer, Illinois Department of Innovation and Technology



National Governors Association Smarter States, Smarter Communities NGA Learning Lab Jennifer Duane, Senior Advisor, BroadbandUSA

October 17, 2018



The National Telecommunications and Information Administration (NTIA) advises on telecom policy issues

- Serves as principal advisor to the Executive Branch
- Expanding broadband access and adoption
- Expanding the use of spectrum by all users
- Ensuring that the Internet remains an engine for continued innovation and economic growth
- Supporting public safety communications







NTIA's BroadbandUSA program educates stakeholders, facilitates relationships and provides helpful resources







Our resources help stakeholders learn, share and implement the benefits of community connectivity







BroadbandUSA also engages communities through webinars and events across the country



FY18 Events

- Regional convenings and workshops
- Monthly "BroadbandUSA Practical Broadband Conversations" Webinars
- State Broadband Leaders Summit
- TN and VA Broadband Workshops

Sample Events FY16-17

- Big Sky Broadband Summit
- AZ, IA, WV, GA Technical Assistance Workshops
- State Broadband Leaders Network Workshop
- Technical Assistance Webinars
- California Broadband Workshop
- Digital NW Broadband Summit





BroadbandUSA: Technical Assistance

Planning	(e.g., RFP Development/Review, Preliminary Network Design, Asset Inventory)
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(e.g., Partnership Facilitation, Funding Option Assessments)



(e.g., Network Design, Regulatory Approvals, Interconnection, Permitting)

90% of TA requests involve broadband planning and 62% involve questions related to funding





Broadband Network Architecture 101

Backbone	Major high-speed transmission lines that link smaller networks	
	across the country	

Middle Mile	Connection between the backbone network and local networks
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Last Mile	Connection between the local network and end user homes and businesses
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Broadband Technologies: No Silver Bullets

	Application				
Technology	Backbone	Middle Mile	Last Mile		
Fiber	- 	-			
Aerial Fiber	\checkmark	\checkmark	\checkmark		
Buried Fiber	\checkmark	\checkmark	\checkmark		
Copper-Based					
Coaxial Cable		\checkmark	\checkmark		
DSL			\checkmark		
Wireless		· · · · ·			
Fixed		\checkmark	\checkmark		
Mobile (4G/5G)			\checkmark		
Satellite			\checkmark		
Microwave		\checkmark	\checkmark		





Efforts to expand broadband access are helping, but the digital divide still persists



10% of all Americans (34 million people) and 39% of rural Americans (23 million people) lack access to broadband speeds



Approximately **21 million children** do not have the bandwidth needed for digital learning



34% of non-metro healthcare facilities lack sufficient broadband connectivity for electronic medical records and information exchange



42% percent of public libraries have 10 Mbps or slower connections





Broadband access and use is critical to the growth of communities



79% of Unemployed Americans Search for Jobs Online







The Urban-Rural Divide in Broadband

- Recent research by the FCC, which defines home broadband as 25 Mbps down and 3 Mbps up, shows:
 - 39% of rural Americans, 4% of urban Americans lack access
 - 34% of non-metro healthcare facilities lack adequate speeds
 - 42% of public libraries have speeds less than 10Mbps
 - 23% of schools do not meet the FCC's 100 Kbps per student standard, mostly in rural areas







BroadbandUSA – Data Collection and Mapping

- Consolidated Appropriations Act of 2018 Congress authorized \$7.5M to update the National Broadband Availability Map in coordination with the FCC and previous partnerships developed by the States.
 - NTIA can acquire, utilize and display available third-party data sets to the extent such data can be used to augment existing data from the FCC, other Federal government agencies, State government, and the private sector. The updated map will help identify regions with insufficient service.
 - NTIA released a <u>Request for Comment, "Improving the Quality and</u> <u>Accuracy of Broadband Availability Data"</u>. Received 53 comments.
 - NTIA met with many stakeholders about accessing broadband data sets.
 - NTIA is planning a phased approach to compiling data for a broadband availability map.
 - NTIA will be working with states that already have collected broadband availability data or have strong broadband programs.





Funding Options

- State Funding
- Public Private Partnerships
- Federal Communications Commission (FCC)
- National Science Foundation (NSF)
- Department of Transportation (DOT)
- Department of Homeland Security (DHS)
- Housing & Urban Development (HUD)
- U.S. Department of Agriculture (USDA)
- U.S. Department of Energy (DOE)
- Economic Development Administration (EDA)







Five categories of federal broadband-related funding opportunities

Infrastructure Deployment	Planning	Research	Digital Skills	Public Computer Access
Facilitates the	Provides	Strives to	Offers training to	Targets funding
buildout of	communities	improve	maximize patron	efforts that
community	and	research and	knowledge,	provide public
connections and	municipalities	data collection to	adoption, and	computer
technology. This	assistance in	provide new	usage of	access to
can include	creating regional	knowledge	broadband	broadband hubs
network cables,	improvement	surrounding	capabilities.	in locations such
facilities and	plans directly	broadband and	Focuses on both	as community
structural	incorporating	evidence based	usage and	centers, schools
upgrades.	broadband.	solutions.	understanding.	and libraries.





Federal Funding Options

- Federal Communications Commission (FCC) Universal Service Fund
 - Connect America Fund (High-Cost Program) reduces the cost of operating and extending infrastructure (both fixed and mobile) to serve consumers and small businesses in rural, high-cost areas.
 - Funding recipient must be designated an eligible telecommunications carrier by the relevant state or the FCC.
 - E-rate (Schools and Libraries) Program provides discounts of up to 90 percent for broadband connectivity to and within elementary and secondary schools and public libraries.
 - Rural Health Care Program subsidizes broadband connectivity for public and non-profit health care providers through the Healthcare Connect Fund Program. Funding capped at \$400 million per year.





Federal Funding Options – Executive Branch

- USDA Rural Development manages the primary loan and grant programs that support rural broadband deployment.
- Other Federal Agencies have made broadband an allowable expense within their current funding streams.
- Funding for broadband infrastructure may be supported by block and formula grants provided through programs managed by HUD and the Department of Education.
- The Economic Development Administration, Appalachian Regional Commission, and the Delta Regional Authority have identified broadband as an eligible expense and a priority for economic development.





BroadbandUSA: Federal Funding Guide

- Provides communities with information about federal funding for broadband, including:
 - Information regarding the purpose of each program
 - Potential restrictions on funding
 - Rules for eligibility
 - Updated periodically







State Broadband Leaders Network (SBLN)

- SBLN: community of practitioners who work on state broadband initiatives.
- Outgrowth of State Broadband Initiative Program under BTOP.
- NTIA's BroadbandUSA program coordinates the group and convenes participants to:
 - Share priorities and best practices;
 - Discuss emerging telecommunications policy issues;
 - Link states and local jurisdictions to federal agencies and funding sources; and
 - Address barriers to collaboration across state agencies.





SBLN: Who Participates – 38 States to Date

- SBLN participants represent a variety of state level offices:
 - Senior managers or directors from State Broadband Offices
 - Geographic Information Services (GIS) offices
 - Offices of Information Technology (IT)
 - Public Utility Commissions (PUCs)
 - Commerce Departments/Economic Development Agencies
 - Universities and State Extension Services
 - Public Safety offices and
 - State-designated third party entities





State Actions to Spur Broadband Deployment

- More States are getting involved in supporting broadband deployment and access. More than two thirds of states have dedicated offices, programs, or employees focused on broadband.
 - Twenty-two states now have state-level grant programs (some of these are E-rate matching programs).
 - Illinois first state to become a "smart state" with its Smarter Illinois Initiative.
 - Nevada On July 1, 2017, enacted SB53 to facilitate broadband expansion by allowing NV DOT to install conduit and fiber systems in the state rights-of-way supporting telecommunications facilities and enabling NVDOT to enter into public-private partnerships for cooperative fiber and conduit trades.





State Actions to Spur Broadband Deployment - Grants

- Colorado Broadband Deployment Board and associated Broadband Fund provides infrastructure grants for last-mile projects in unserved areas of the state. CO's High Cost Support Mechanism (HCSM) allocates monies originally designated for high cost support in areas subsequently deemed competitive to the Broadband Fund. Nearly \$2.4 million made available for first grant cycle.
- **Maine** Funds community planning and infrastructure grants for broadband projects in underserved areas (<25/3Mbps). Has awarded \$11.5M over 11 funding rounds since 2007.
- **Minnesota** As of 2014, grants fund areas without access to 25/3 wireline. Funding through annual general fund appropriation (\$20M allocated in 2017)
- Tennessee As of 2017, grants fund areas without access to 10/1 fixed terrestrial connection.
 \$25M available (\$10M year 1, \$15M year 2).





Executive Office Updates

Presidential Actions



- Executive Order (E.O.) Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure (August 2017)
- E.O. Strengthening Cybersecurity of Federal Networks and Critical Infrastructure (February 2017)
 - Protecting federal networks using the NIST Cybersecurity Framework <u>https://www.nist.gov/cyberframework</u>
- Presidential Memoranda Directing Interior to make its towers available for co-location (January 2018)
- E.O. Streamlining and Expediting Requests to Locate Broadband Facilities in Rural America (January 2018)




Broadband Interagency Working Group Federal Funding of Broadband NTIA Rural Development **Streamlining Federal USD**A aita. Permitting Leveraging Federal Assets GS.





BroadbandUSA is available to help states and communities improve their with broadband access

BBUSA Resources:

- <u>Guide to Federal Funding of</u>
 <u>Broadband Projects</u>
- <u>Community Broadband</u>
 <u>Roadmap Toolkit</u>
- Implementing a Broadband Network Vision: A Toolkit for Local and Tribal Governments
- <u>Using Partnerships to Power</u>
 <u>Smart Cities</u>

- Jennifer Duane, Senior Advisor jduane@ntia.doc.gov
- New BroadbandUSA website: <u>www.BroadbandUSA.ntia.doc.gov</u>





Laying the Foundation: Broadband, 5G Deployment, and Ensuring Rural Equity

Walter White, Vice President, State and Local Government, Verizon Wireless



SMARTER STATES, SMARTER COMMUNITIES NGA LEARNING LAB Chicago, Illinois October 17-19, 2018

Laying the Foundation: Broadband, 5G Deployment, and Ensuring Rural Equity

Paul M. Breakman

NRECA America's Electric Cooperatives Senior Director, Business & Technology Strategies National Rural Electric Cooperative Association

There are 6.3 Million Electric Co-op Households WITHOUT HIGH SPEED

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,0

Co-op area without access to broadband









Broadband Access Provides Value \$1,950/Household Annually

Lost Value to Electric Co-op Households: **\$68** Billion (over 20 years)



The Future IS the Networked Grid

Broadband Backbone → Broadband-To-The-Home

THE NETWORKED GRID

Historically, the electric grid has been a one-way street with energy flowing from large power plants to utilities, to consumers at the end of the line.



10/1 Mbps Is Not Sufficient for Advanced Telecommunications Capability

Applications	10 Mbps/1 Mbps	25 Mbps/5 Mbps	50 Mbps/10 Mbps
Web browsing	\sim	\sim	
Download 100 pg text doc with graphics	2 sec	↓ sec	1 sec
Multi-point video-conferencing streaming at 768 Kbps for group 5-6	~	~	
VoIP (10 external lines)	\checkmark		
Upload videos, presentations (1 GB)	×	27 min	14 min
Download high-def video (2 GB)	×	🗸 11 min	6 min
Telecommuting	×	\checkmark	
Distance learning	×	\checkmark	11
Telemedicine (radiological images, 160 MB)	×	✓ 52 sec	26 sec
Source: CTC Technology & Energy, 2010	Legend Goo	od 🗸 OK	🔀 Bad

Broadband Enables Electric Distribution Optimization

Digital Applications Enhance Controllability of Costs

Application	Annual Valuation per Meter (2018)
Distribution Automation	\$20-\$30
Substation Automation	\$1-\$3
Advanced Metering Infrastructure (AMI)	\$12-\$18
Volt/Var Optimization	\$14-\$29
Demand Management	\$88-\$140
Outage Reduction	\$1-\$3
Asset Management	\$45-\$85
Distributed Energy Resources (DER)	\$1-\$3



Financing Support for Electric Co-op Retail Internet





SOME LESSONS LEARNED FROM CO-OP CASE STUDIES

- Build it & they will come isn't necessarily right approach
- Technology is the easy part
- Gain Understanding & Appreciation for market
- Research will take you places
- Develop & Communicate right message
- Ensure staff are trained & prepared
- •Community events & social media is where the action happens
- •Execute, Execute, Execute

Strategic Questions I Ask My Members

- What will it take to exceed consumer-member expectations in a digital world?
- How can the need for improvements to the communication infrastructure also contribute to meeting the needs of the members and communities?
- What role is appropriate for co-ops to take on while they maintain their focus on delivering electric service?



Thank you!

Call Me Anytime with Questions MY MOBILE NUMBER Paul Breakman, NRECA (202) 306-2758





Laying the Foundation: Broadband, 5G Deployment, and Ensuring Rural Equity

Jannine Miller, Senior Advisor for Rural Infrastructure, U.S. Department of Agriculture



Lunch and Presentation: Security-by-Design

Beau Woods, Cyber Safety Innovation Fellow at Atlantic Council & Co-Founder, I Am The Cavalry

Beau Woods © beauwoods © beauwoods I Am The Cavalry Design Atlantic Council

Smart Cities



	Hi	story (of Al	Jto	
45,000		Cet			
40,000		Sale	ety		
35,000					
30,000					
25,000	610.0	000 Lives	Saved		
20,000	30 00	nor voa	rloct		
15,000	50,00	Ju per yea	1 1051		
10,000				Deaths	Lives Saved
5,000					
19	60 1970 Source: NHTSA Publication, "Lives Saved by Vehicle Saf	1980 etv Technologies and Associated Federal Motor Vehicle	1990 Safety Standards, 1960 to 2012"	2000	NGAS coveroft



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Holding a Mirai to Our Neglect

@ACScowcroft @iamthecavalry https://intel.malwaretech.com/pewpew.html

Individual Human Lives





College of Medicine





Public Safety and Health



CYBERATTACK



Technology Supply Chain



Public Health Readiness



Global Shipping & Logistics



Dependence

Millions of Lines of Software Code



Vulnerability



	Range	Component					
	om	Nearfield					
	CIII	Serial					
	motor	Wi-Fi					
	песе	Bluetooth					
	km	3G/4G/5G/LTE					
	Global	Internet					
Fxnosure							
		NG Scowcroft Thecavalry					

Dependence

Complexity

Vulnerability





Examining

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Adversaries

988 888 •••• 558



Capabilities

Willingness










Willingness



Capabilities















IT Security Cost/Benefit

SHARED NODE



SHERED MODE



August 2, 2018 Apple became the world's 1st \$1 Trillion company



August 17, 2018 **Sixteen year old** pled guilty to hacking Apple





Forecasted Global Cybersecurity Spending, 2017-2021:



ONE HUNDRED PERCENT of companies FORTUNE will be hacked over the same time period



For adults, teenagers and children aged five and over





Maximum once or twice a week





Countermeasures

Situational Awareness

Operational Excellence

Defensible Infrastructure

- Coordinated Vulnerability Disclosure • DevSecOps • Visible Ops
- Secure by Design
- Secure Baseline Configurations
- Secure Deployment Guidance
- Operating System and Software Support Lifetimes

- Endpoint Security
- Active Defense
- Intrusion Prevention
- Anti-Everything

•

- Penetration Testing
- Threat Intelligence
- Security Monitoring
- Threat Hunting
 - Vulnerability
 - Management
 - Change
 - Management •
- Network Admission Control
 - Egress Filtering

- Software Updateable
- Software Ingredients or Components List
- Evidence Capture and Logging



Countermeasures

Situational Awareness

Operational Excellence

Defensible Infrastructure

\$ @ACScowcroft

@iamthecavalry







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Automotive 5-Star Cyber Safety Framework

All systems fail. What is your ready posture toward failure?

- ★ Safety by Design Anticipate and avoid failure
- ★ 3rd Party Collaboration Engage willing allies to avoid failure
- ★ Evidence Capture Observe and learn from failure
- ★ Security Updates Correct failure conditions once known
- ★ Segmentation & Isolation Prevent cascading failure

Connections and Ongoing Collaborations





Security A Researchers



Automotive Policy Engineers Makers



Insurance Analysts



Accident Investigators

Standards

Organizations



Government Agencies



Great Fire October 8-10, 1871







Traceability & Transparency

1 Start Here	Nutrition Fac Serving Size 1 cup (228g) Servings Per Container 2	ts		Touchscreen / Ion-X Glass
	Amount Per Serving		7	Display Module
2) Check Calories	Calories 250 Calories from Fa	110	Loudspeaker	
	% Daily V	alue* (6) Quick Guide		Force Touch Sensor
\bigcirc	Total Fat 12g	18% to % DV	Battery	
(3) Limit these	Saturated Fat 3g	15%		Taplic Engine Module
Nutrients	Trans Fat 3g			Interconnect PCB A
	Cholesterol 30mg	10% • 5% or less	Interconnect PCB B	
	Sodium 4/0mg	20% is I ow		
	Total Carbohydrate 31g			Wireless
	Dietary Fiber 0g		Optical Pulse Sensor	Charging Coil
	Sugars 5g	• 20% or more	PCB	
	Protein 5g			Bluetooth / WLAN Antenna
(4) Get Enough	Vitamin A	4%	Button PCB	
of these	Vitamin C	2%		
Nutrients	Calcium	20%	Aluminum Housing	Digital Crown / Home
Mutrents	Iron	4%		Button
	* Percent Daily Values are based on a 2,000 calc Your Daily Values may be higher or lower depen your calorie needs.	rie diet. ding on		
	Calories 2,000 2,	500	Watch Strap	Side Button
5 Footnote	Sat Fat Less than 65g 80	g a		
	Cholesterol Less than 300mg 30	Ömg		
	Sodium Less than 2,400mg 2, Total Carbohydrate 300g 33 Dietary Eiber 252 26	400mg 5g		@ACScowcroft
	239 31	9		- Marthecavalry

Collaboration with Security Researchers









Software Security Updatability

Increasing Agility & Decreasing Cost



Beau Woods © beauwoods © beauwoods I Am The Cavalry Design Atlantic Council

Smart Cities

Resources

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MARTIN

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SHARED NODE

@ACScowcroft

@iamthecavalry

5-Star Framework Addressing Automotive Cyber Systems

5-Star Capabilities

All systems fail. What is your ready posture toward failure?

★ Safety by Design – Anticipate and avoid failure



- ★ Evidence Capture Observe and learn from failure
- ★ Security Updates Correct failure conditions once known
- ★ Segmentation & Isolation Prevent cascading failure

https://iamthecavalry.org/5star

https://iamthecavalry.org/oath

Hippocratic Oath For Connected Medical Devices

Cyber Safety Capabilities What is your ready posture toward failure?



- Cyber Safety by Design Anticipate and avoid failure
- Third-Party Collaboration Engage willing allies to avoid failure
- **Evidence Capture** Observe and learn from failure
- **Resilience and Containment** Prevent cascading failure
- Cyber Safety Updates Correct failure conditions once known



H.R.5793 - Cyber Supply Chain Management and Transparency Act of 2014

113th Congress (2013-2014)

BILL Hide Overview X

Anything sold to the US Government must:

- A. Provide a software component list Software Bill of Materials or Food Label
- B. Disclose known vulnerabilities
- C. Be software updateable



S.1691 - Internet of Things (IoT) Cybersecurity Improvement Act of 2017

115th Congress (2017-2018) | <u>Get alerts</u>



Anything sold to the US Government must:

- A. Disclose known vulnerabilities
- B. Be software updateable
- C. Avoid hard-coded credentials
- D. Have a coordinated disclosure policy





Department for Culture Media & Sport



Code of Practice for IoT Security

- 1. No default password
- 2. Coordinated Vulnerability Disclosure Policy
- 3. Keep devices updated





DoD's Vulnerability Disclosure Policy Results

Coordinated Vulnerability Disclosure

- US Department of Commerce, NTIA Template
- https://www.ntia.doc.gov/files/ntia/publications/ntia_vuln_disclosure_early_stage_template.pdf
- ISO/IEC 29147 Standard for Vulnerability Disclosure
 https://www.iso.org/standard/45170.htmlsr critical severity vulnerabilities
- ISO/IEC 30111 Standard for Vulnerability Handling Processes https://www.iso.org/standard/53231.htmlng: India, Great Britain,
 - Pakistan, Philippines, Egypt, Russia, France, Australia and Canada



2.83/



MAYO CLINIC	 4. System information: List of 3rd Party Software List of Accounts List of Network Ports List of firewall rules (if applicable) Documentation of Security Capabilities/Configurations for System Hardening Scanning Requirements 	Provides more granular information as to how the system is setup and managed within the Mayo Clinic environment.	Provide vendor documentation (i.e. Bill of Materials) for the bulleted items. Template provided.	Deliverable 4 - System Information T
Procurement Guidance	 5. Vulnerability Assessment, including: Testing Results Remediation Tracking 	Provides an in-depth vulnerability assessment, outstanding vulnerabilities and appropriate remediation plans and timelines to resolve the issues. This provides Mayo Clinic with appropriate information on risks that may be introduced into the patient care environment and allows for collaborative mitigation strategies to be detailed.	Complete a vulnerability assessment as detailed in the Vendor Assessment Book (pdf). Once testing is completed, complete the VA Statement of Methodology and document findings and remediation plans in a report. Example VA Statement of Methodology (pdf) and Vulnerability Assessment Template report provided.	Vulnerability Assessment Book.pdf VA Statement of Methodology - mocku VA Statement of Methodology.docx Vulnerability Assessment Template
https://www.mayoclinic.o device-vendor-instructions	6. Mayo Clinic Information Security Schedule rg/documents/medical- s/doc-20389647	Provides advanced copy of Mayo Clinic's Information Security Schedule that Supply Chain Management will negotiate as part of the purchase contract or vendor agreements.	 Ensure appropriate vendor internal staff receives Mayo's Information Security Schedule for review. Perform review and prepare any proposed redline items. Provide a vendor contact to the Mayo proponent for the redlined ISS negotiation. 	Deliverable 6 - Information Security : C @ACScowcroft @iamthecavalry


Software Component Transparency (Software Bill of Materials) https://www.ntia.doc.gov/SoftwareTransparency

Coordinated Security Vulnerability Disclosure https://www.ntia.doc.gov/other-publication/2016/multistakeholder-process-cybersecurity-vulnerabilities

Device Upgradeability and Patching https://www.ntia.doc.gov/IoTSecurity

President's Commission Report on Enhancing National Cybersecurity https://www.nist.gov/cybercommission





Silo Busting: Statewide Data Governance and Data Sharing

Kay Meyer, Principal Industry Consultant, State and Local Government, SAS Tyler Kleykamp, Chief Data Officer, State of Connecticut Krishna Iyer, Chief Data Officer, Illinois Department of Innovation and Technology Jon Gottsengen, Chief Data Officer, Colorado Governors Office of Information Technology

Silo Busting: Statewide Data Governance and Data Sharing



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IN THE RIGHT PLACE

Moves efficiently between multiple systems



AT THE RIGHT TIME

Immediate reactions, streaming sensor data, overnight batch processes



IN THE RIGHT FORMAT

Validated, standardized or enriched; data is made usable



FOR ALL USERS

Usage governed; business semantics applied



BUSINESS PROBLEM





Finding, downloading, manually manipulating and aggregating data needed to solve the problem

BUSINESS DECISION



Solving

the

problem





BUSINESS

PROBLEM

20%



Spend more time on *effective* analysis of the data to arrive at better outcomes



















Challenges and Opportunities

Data Governance and Data Sharing



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Silo Busting: Statewide Data Governance and Data Sharing

Kay Meyer, Principal Industry Consultant, State and Local Government, SAS Tyler Kleykamp, Chief Data Officer, State of Connecticut Krishna Iyer, Chief Data Officer, Illinois Department of Innovation and Technology Jon Gottsengen, Chief Data Officer, Colorado Governors Office of Information Technology

NATIONAL GOVERNORS ASSOCIATION

#SmarterStatesNGA





State Team Time

Main Meeting Room/Salon 2 -4: North Dakota & Virginia Skyline room (11th floor) – New Jersey Screening room (main floor/off of the Library bar): Colorado & Nevada



Day 2: Smarter States, Smarter Communities Learning Lab

October 18, 2019







Welcome – UI Labs

Jamie Ponce, Director of Strategic Partnerships, City Tech Collaborative, UI Labs

NATIONAL GOVERNORS ASSOCIATION

#SmarterStatesNGA





Smarter Transportation

Shailen Bhatt, President & CEO, ITS America

ITSEAMERICA

SHAILEN P. BHATT President & CEO

ITS AMERICA'S VISION

A better world transformed by intelligent mobility.



Safer. Greener. Smarter.

CONVENING KEY PLAYERS

Our members include city and state DoTs, MPOs, private companies, research organizations, and academic institutions.











Panasonic_®

Singapore: Smart Nation

MERICA





Laying the foundation for safe HAV operation





VISI@N ZER@









EXCLUSIVE Meet the (weary) parents America's only sextuplets

weekly

AT HOME WITH

She's a pop music sensation at 24-but is her secret in her pipes or her dream marriage to the most powerful man in music?













ITS America Task Forces







Rob Bauer, AIG Tilly Chang, SFCTA Steve Heminger, MTC Michelle Maggiore, Cisco Chris Murphy, GM

Data and the Digital Highway November 5 | San Francisco

MOBILITY ON DEMAND ALLIANCE



















CONGRESSIONAL ACTION REQUIRED

National framework + continued state and local operational authority = prevent future tragedies, save more lives



ITS AMERICA ANNUAL MEETING 2019

Intelligent Mobility. Scher. Greener. Sharter

ITS AMERICA JUNE 2019 June 4-7

WORLD CONGRESS 2020: LOS ANGELES

Focusing on seamless mobility in an increasingly complex world, **ITS WORLD CONGRESS 2020** is the preeminent forum for professionals to discuss and build systems addressing global transportation challenges.



The New Age of Mobility





My reason for doing this. What is yours?

THANK YOU!



ITSZAMERICA



Emergency Management

Craig Fugate, Chief Emergency Management Officer, One Concern



The Smarter Grid

Bob Borzillo, Vice President of Smart Cities, Itron



IDENTIFYING STATE STRATEGIES TO ENABLE SMART TECHNOLOGY DEPLOYMENT

BOB BORZILLO | VICE PRESIDENT SMART CITIES BUSINESS DEVELOPMENT | ITRON



THE UTILITY DILEMMA

AGING INFRASTRUCTURE





\$24 BILLION ANNUALLY of electricity T&D a year lost in the US*



2 TRILLION GALLONS of water a year lost in US annually*

WORKFORCE GAPS

50% OF THE NATION'S utility workforce will retire in the next five to 10 years*

Sources: *US Dept. of Energy, AWWA, US Dept. of Labor
THE ENERGY LANDSCAPE IS EVOLVING



...AND THE VISION FOR CONNECTED ENERGY & COMMUNITIES IS GETTING BROADER





IIoT Applications Are Making an Impact Today



POLE SENSOR



METHANE DETECTION



TRAFFIC MONITORING



WATER LEAK DETECTION



ACOUSTIC GUNSHOT DETECTION



DYNAMIC LIGHTING

HURRICANES HARVEY & IRMA

Itron



CONSISTENT, RAPID STORM RESTORATION

FLORIDA POWER & LIGHT, FLORIDA, USA

2.7 M CUSTOMER OUTAGES RESTORED IN 48 HOURS 4.4 M CUSTOMER OUTAGES RESTORED IN 10 DAYS

"The fastest restoration of the largest amount of people by any one utility in U.S. history."

 Eric Silagy, President and CEO, Florida Power & Light

How Can We Work Together Today?





SHARED NETWORKS BUSINESS MODELS



REGULATORY OVERSIGHT



PREPARING TODAY FOR TOMORROW



WE'RE STANDING ON THE EDGE OF WHAT'S POSSIBLE



Smarter Public Safety

John Hollywood, Senior Operations Researcher, RAND Corporation



Smarter Public Safety

John S. Hollywood RAND Corporation Arlington, VA



This presentation and supporting research were funded by cooperative agreements and grants with the Office of Science and Technology of the National Institute of Justice and the Bureau of Justice Assistance. The views in this presentation are those of the authors and do not represent official findings of these agencies.

Emerging Findings on Technology and Governance to Improve Public Safety

- What's ahead: issues that will result from the next iterations of information technologies
- Staying ahead of the game: from technology at the center to supporting users at the center
 - Providing displays of information as needed
 - With improved governance and processes
 - Ensuring data, security, privacy and civil rights protections
- Making smart IT investments: tips and lessons learned

Examples of Emerging Issues from NIJ's *Future Internet Technologies* Workshop

- Self-driving and flying vehicles how will we interface with them?
- Internet of Things / widespread cameras how do we take advantage of the volumes of data? How do we ensure security, privacy and civil rights protections?
- Intelligent agents which tasks could be automated? Which need tools to help humans?
 - E.g., scene and interview capture; report-writing assistance; prioritizing tasks and workloads

Some Technologies That Have Received a Great Deal of Recent Attention

Video Analytics (Ref. NISTIR 8164)



Sensor Fusion



 Capabilities to interpret physical features and activities in video streams

Analyses Matching Features with Identities

- Facial recognition
- License plate recognition

- Capabilities to analyze multiple sensor streams to help make inferences beyond what one can do with a single stream
- Focus on "video plus other sensors"
 - E.g., "move camera to where a shot was detected"

Four Key Business Cases for Video Analytics & Sensor Fusion



RAND

Crosscutting Cyber, Security, and Civil Rights Protections

What a Video & Sensor Fusion Network Might Look Like



A Technology on the Way to SA Policing: Predictive Policing

Input data May include: Crimes ٠ **Disorder calls** • **Estimates of Suspicious activity** ۲ future crime **Field interviews** • → & criminal Time and date ۲ Weather risk ۲ Geography **Statistical** ۲ (predictions) Interventions **Gang intelligence** ۲ model & assessment **Criminal histories** ۲ (many types)

RAND

Etc.

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Predicting Robberies: Hot Spots or PP?

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RAND

Predicting Robberies: Hot Spots or PP?

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RAND

The Future Will Not Look Like Minority Report

- Unless the maps can start telling us where and when to go to pick up the criminals, we are just getting hot spots, and we've done hot spot policing for years.
 - Paraphrase of a comment from the Shreveport Predictive Policing Experiment
 - This would require several thousand-times increases in predictive accuracy
- Instead, need to ask "how do we identify and resolve problems driving crime risk?"

Using Data as a Business Process



RAND



Also Generically Referred To As "Dashboards" in the Information Systems Business



RAND

Source: "3 Dashboards" by Kate07lyn - Jinfonet Software. Licensed under Creative Commons Attribution-Share Alike 3.0 via Wikimedia Commons http://commons.wikimedia.org/wiki/File:3_Dashboards.JPG#mediaviewer/File:3_ Dashboards.JPG

From Dashboards to Real-Time Operations and Decision Support Centers



Chicago Police Department Highlights New Technology

https://www.youtube.com/watch?v=54-z8_s9Nbc

"... nerve centers that include predictive crime software..., additional cameras, gunshot detection systems, and mobile phones to officers in the field who receive real-time notifications and intelligence data at their fingertips"

SDSC Technologies

Genetec Citigraf situational awareness maps and surveillance camera displays Source: SecurityInfo Watch.com in succession in the

ShotSpotter Displays



HunchLab Predictions



Also: access to datasets (CLEAR), including a network analysis tool and an app on events, persons, and warrants of interest

SDSCs Have Helped Enable Much More Rapid Decision Cycles...

COMPSTAT				
Data on delays of a month or greater Planning on a monthly or greater basis	Weekly Meetings on topics like shootings Assigns resources over next week	Daily Meeting on events within the past day	Real Time Monitoring of radio, cameras, & dashboard, Assigns resources right now	
		Assigns resources over next day		

...Including Near Real-Time Monitoring, Response, and Other Ongoing Activities

24x7 monitoring

- Calls for service and radio traffic
- Live map of calls, units, and other data
- 4 surveillance camera feeds
- ShotSpotter

Immediate response

- Directing units
- Assisting units
- "Virtual chases"
 - tracking
 - suspects across cameras
- Analytic support

Ongoing analyses & information sharing

- Preparing slides for briefings
- Crime analyses
 & investigations
- Ad-hoc meetings

 "get info out of notebooks"

Examples of Issues & Responses at Daily Meetings

Issue	Response
Cars stolen after being left with ignition on to warm up	Distribute flyers to residents warning them about the risk
Shot Spotter hits (no victims found)	Send warning letters to owners
Patterns of crimes (recent spikes or computer predictions)	Concentrate resources in hot spots and times of the pattern
Open-air drug dealing at gas stations	Send resources to gas stations
Crimes on commercial properties	Send warning letters to owners and set up meetings
Shooting, with a risk of retaliation	Meet with those at risk

Top Policing Strategies to Enable, Based on Evidence

From the Better Policing Toolkit, an upcoming site providing tips and articles on strategies Reduce crime in places: Problem-Oriented Policing

Reduce individuals' risk: Focused Deterrence

Improve community relations: Legitimacy Policing

Solve serious crimes: BJA's *Homicide Process Mapping* guidebook

Not recommended: Zero tolerance / aggressive policing

The Future of Data Will Include Civil Rights and Privacy Disputes

- "We regard as inevitable, particularly with the technology's widespread adoption and attendant increased publicity, Fourth Amendment-based lawsuits challenging its use."
 - From License Plate Readers for Law Enforcement
 - But widely applicable... and focusing on uses can help



Bottom Line on Privacy Policies

Don'ts

- Allow just about anyone to access the data
- Keep as much data as possible forever
- Allow just about any data use
- Not sure about what will be done with data, other than catch bad guys – maybe
- Don't talk to anyone about what you're doing

Do's

- Access policies / authentication measures
- Restrictions on collection and retention
- Auditing of collection and use
- Defined use cases, e.g.—
 - Search for social media threats at major public events
- Talk with community and experts about what you're doing in advance

Bottom Line on Privacy Policies

Don'ts

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Need a user / activity focus – in other words, a focus on what you will do with the data – to do these properly

• Keep

Allow

- Allow just about any data use
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Do's

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Should be a clear storyline (*logic model*) linking investments to activities, to outputs, to improvements in outcomes (i.e., performance metrics)







IT in support of: to improve quality of life by protecting life and property; detecting, solving, and reducing crime; reducing fear of crime; and enhancing security and safety in cooperation with citizens and the community

• Created from analyzing ten agencies' mission statements

Questions? (johnsh@rand.org)

Search: RR-233



in Law Enforcement Operations

www.rand.org Search: RR-467

License Plate Readers for Law Enforcement

Opportunities and Obstacles

Keith Gierlack, Shara Williams, Tom LaTourrette, James M. Anderson, Lauren A. Mayer, Johanna Zmud

Search: RR-569

Police Department Investments in Information Technology Systems

Challenges Assessing Their Payoff

Brian A. Jackson, Victoria A. Greenfield, Andrew R. Morral, and John S. Hollywood

Improving Information-Sharing Across Law Enforcement: Why Can't We Know?

John S. Hollywood, Zev Winkelman

Search: RR-645

Using Future Internet Technologies to Strengthen Criminal Justice

Search: RR-928

John S. Hollywood, Dulani Woods, Richard Silberglitt, Brian A. Jackson

Using Social Media and Social Network Analysis in Law Enforcement

Creating a Research Agenda, Including Business Cases, Protections, and Technology Needs

John S. Hollywood, Michael J. D. Vermeer, Dulani Woods, Sean E. Goodison, Brian A. Jackson

Search: RR-2301

Report on video analytics & sensor fusion forthcoming

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Lunch & Plenary Presentation on Innovative Technology Procurements

Robin Carnahan, Director, State and Local Practice, 18F, U.S. General Services Administration

Waldo Jaquith, Technology Advisor, 18F, U.S. General Services Administration



Campfire Discussions: identifying State Strategies to Enable Smart Technology Deployment

Smarter Transportation

Smarter Emergency Management & Public Safety

A Smarter Grid



State Strategies Report Out

Moderator: Sue Gander, NGA Center



State Team Time

Main Meeting Room/Salon 2 -4: North Dakota & Virginia Skyline room (11th floor) – New Jersey Screening room (main floor/off of the Library bar): Colorado & Nevada



Day 3: Smarter States, Smarter Communities Learning Lab

October 19, 2018







Dig Deeper: Jurisdictional Partnerships in Illinois

Robin Woodsome, Manger for Field Operations, Regional Technology Center, IL Department of Innovation & Technology

Roger Fahnestock, Executive Director, Information Technology Department, Kane County Government

Michael Pegues, Chief Information Officer, Information Technology Division, City of Aurora



Strategic Public & Legislative Engagement

Moderator: Mallory Huggins, Senior Policy Director, The Keystone Policy Center

Tyler Clark, Chief of Staff, IL Department of Innovation & Technology

Robby Demeria, Deputy Secretary of Commerce & Trade for Technology, Commonwealth of Virginia

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Lunch & State Team Time

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Report Out & Sharing Next Steps

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