

State & Federal Agencies are Digitizing Public Infrastructure Programs

With large funds available and a need to make infrastructure equally accessible, agencies are modernizing programs, technologies and collaborative networks

Many companies are looking for ways to streamline their tasks and better deploy their human capital for more complex projects, especially during a period of increased labor shortages. State and local governments are no different as they are usually understaffed and burdened by manual processes that reduce the efficiency of their agencies.

Recently, thought leaders from agencies and industry gathered at a [FedInsider panel discussion](#) to discuss the potential of using artificial intelligence (AI) to help state and local agencies become more efficient, and the key points that agencies need to understand about these new and emerging technologies.

AI Can Help to Predict & Combat Adverse Events & Emergency Situations

Many parts of the United States have seen an increase in various extreme weather events as climate change has continued to worsen over the previous decades. This has caused many local and state governments to adopt better weather prediction systems in order to protect residents as much as possible. These efforts allow for a more dynamic approach to weather alerts in areas that deal with frequent events such as fires or floods.

One of those areas is Norfolk, Virginia, which is prone to coastal flooding even if it has not been raining and there are no obvious

indications of danger. They partnered with a company called Flood Map to create a machine learning based tool that can predict when and where dangerous floods might happen, and then warn the public using the Waze mapping application.

"It's this model that (Flood Map) developed that takes in all this information from sensors and weather data and then uses machine learning to develop flood alerts in realtime. We then forecast that to the public to warn people when specific roadways are going to be flooded," said Acting Chief Resilience Officer for the City of Norfolk, Kyle Spencer.

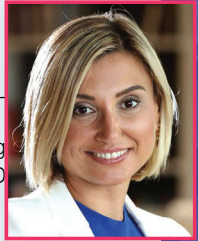
Not every area has frequent adverse weather events. However, the COVID-19 pandemic showed that adverse events can happen anywhere, and at any time. The ensuing global response to the pandemic was largely assisted with artificial intelligence. And research institutions are now using that same technology in order to predict other events, even ones as seemingly random as wildfires, which have been particularly devastating in states like California.

Division Director of Cyberinfrastructure and Convergence Research and Education at the San Diego Supercomputer Center, Dr. İlkey Altıntaş, is currently working on using AI to improve state's ability to detect wildfires, as well as employing artificial intelligence to

Featured Experts:

■ Dr. İlkey Altıntaş, Ph.D

Division Director,
Cyberinfrastructure, Convergence
Research & Education, San Diego
Supercomputer Center



■ Ken Pfeil

Chief Data Officer, Office of
Data Governance & Analytics
Commonwealth of Virginia



■ Ravi Krishnan

Chief Data Officer,
North Dakota



■ Kyle Spencer

Acting Chief Resilience Officer
City of Norfolk, VA



■ Tej Tenmattam

Senior Solutions Engineer
& Data Scientist, Federal Sales
Engineering, Cloudera



assist with combatting active fires, and even investigating what caused them.

"The moment ignition happens, we have to understand what that ignition was, and of course everyone wants to know where the fire is," Altıntaş said. "We use realtime information and societal systems like 911 alerts to bring all that data together from that first ignition within five minutes." The AI processes all of that information and then makes its findings

available to firefighters, giving them critical information about how to best combat the blaze while keeping personnel safe.

Dr. Altıntaş said that AI was needed because of the potentially thousands of data points that must be collected and analyzed for every fire. For something like combatting fires, without AI, an army of humans would be required, and even then, the response would be extremely delayed. With AI, the information is ready within minutes of a fire starting.

AI Can Cut Costs & Speedup Office Processes for State & Local Governments

While artificial intelligence and machine learning are making great strides at the macro scale, what about smaller agencies who are short-staffed and strapped for cash? Speakers at the FedInsider event said that artificial intelligence was good for them too, offering some options to help regain productive work hours.

"We introduced a lot of payroll automation to cut the time [in processing some payroll and benefits information] from 13 weeks down to about an hour and a half," said Commonwealth of Virginia Chief Data Officer at the Office of Data and Governance and Analytics Ken Pfeil. "Immediately, we saw \$12 million in savings right out of the gate."

That does not mean that artificial intelligence is a silver bullet for every office problem. While there are examples of machine learning systems tackling highly complex

problems, those are often outliers. States instead must be very careful to only employ AI where it can do the most good.

"Where many AI programs fail is when we start with something too complex, throw the data sets at it, and then expect it to just tell us everything we need," said Chief Data Officer for the State of North Dakota Ravi Krishnan.

Instead, Krishnan recommended that most state and local agencies start out small with an artificial intelligence or machine learning pilot program. He also mentioned that having a checklist ahead of time to determine what the agency wants to automate is beneficial in determining what the agency truly wants to accomplish. While the technology is improving every year, it is important to realize that there is still a long way to go in order to perfect AI and machine learning for most state and local governments.

States Need to Understand All of the Demands of AI Data Management

While there were a lot of success stories shared during the discussion, most panelists also stressed the need for having a deep understanding of data and data management. That is the foundation needed in order to properly employ most AI and machine learning programs.

"Mastering data management is very important," said Senior Solutions Engineer and Data Scientist at Cloudera Tej Tenmattam. You have to know where your data resides, where

it's collected and what exactly it represents. And once collected in one place for the AI, you also need to protect it. "At the same time, what you have to work to provide consistent security," Tenmattam said.

Given the need to collect massive amount of data to feed AI programs, and the processing power required to drive the AI, most states probably want to consider also beefing up their cloud computing efforts.

"I think [AI platforms] are best run in the cloud," Tenmattam said, "Because almost every cloud provider supports complex, extensive storage, as well as the data science and machine learning platforms that users need."

The ability to run AI programs and store the information in the cloud has benefits other than just data storage. Many cloud providers have easy-to-use tools to help agencies gather insights from their data, even if they don't have a fulltime data scientist on staff. Additionally, once data is stored within the cloud, the agency no longer has to worry about purchasing or maintaining their own servers.

The state and local success stories shared during the discussion were impressive, but any agency could accomplish similar success. It just takes careful planning, the right platform, good data management and the commitment to move forward with an innovative AI or machine learning initiative designed to solve or remediate a specific problem or situation, Tenmattam added.

FEDInsider

Hosky Communications Inc.

3811 Massachusetts Avenue, NW
Washington, DC 20016
Contact: **John Hosky**

- ☎ (202) 237-0300
- ✉ Info@FedInsider.com
- 🌐 FedInsider.com
- 📘 Facebook.com/FedInsiderNews
- 🌐 Linkedin.com/company/FedInsider
- 🐦 [@FedInsider](https://Twitter.com/FedInsider)

carahsoft.

Carahsoft

11493 Sunset Hills Road, Suite 100
Reston, VA 20190
Contact: **Edward Walinsky**

- ☎ (703) 230-7554
- ✉ edward.walinsky@Carahsoft.com
- 🌐 Carahsoft.com/cloudera
- 📘 Facebook.com/Carahsoft
- 🌐 Linkedin.com/company/Carahsoft
- 🐦 Twitter.com/Carahsoft

© 2022 Hosky Communications, Inc. All rights reserved. FedInsider and the FedInsider logo, are trademarks or registered trademarks of Hosky Communications or its subsidiaries or affiliated companies in the United States and other countries. All other marks are the property of their respective owners.

carahsoft. | CLOUDERA

MISSION BRIEF | FEDINSIDER.COM