

# 5 TECHNOLOGY TRENDS IMPACTING STATE AND LOCAL GOVERNMENTS

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THE FUTURE STARTS NOW



**State and local governments stand at the cusp of a technology renaissance, as new offerings and services are available to help agencies serve their constituents faster, more effectively and more efficiently. Technologies that once were thought of as “bleeding edge” now are increasingly ubiquitous, enabling government agencies to become more customer-centric in myriad ways, from answering billing queries to proactively identifying when customer data is being targeted by cybercriminals.**

According to research firm Gartner, government CIOs expect to spend 28 percent of their 2018 budget on digital initiatives designed to increase the value of government to constituents.<sup>1</sup> Technologies such as analytics, automation, artificial intelligence and even autonomous vehicles all have the potential to enable governments to offer services and aid their citizens in ways that not only can improve the customer experience, but also save governments time, money and labor.

Imagine logging on to a government website and being “recognized” through facial recognition, then “telling” the site what you’re looking for in plain English and receiving the results instantly. Or imagine a self-driving maintenance truck that “sniffs out” and automatically fills potholes without human intervention.

On the surface, this may sound like the stuff of science fiction. But these scenarios are coming closer to being reality, as technologies such as artificial intelligence and autonomous vehicles are moving closer to the mainstream. And their effect on state and local governments would be transformational in providing services and keeping citizens safe from physical and cyber perils.

## **TECHNOLOGIES TO WATCH**

The scope of technologies that can impact government services—and, in turn, our lives—is far-reaching, from robots that clean parks to systems that can create personalized cybersecurity by observing and learning from users’ behaviors. Some technologies are still more bleeding-edge than leading-edge, while others have the potential to be in service—and of service—today.

Five technologies in particular—artificial intelligence and robotics, autonomous vehicles, digital government, automation, and efforts to increase cybersecurity—demonstrate value to state and local government initiatives.

## **ARTIFICIAL INTELLIGENCE AND ROBOTICS**

Of all the technologies that can reap the largest benefit for governments, artificial intelligence is perhaps the one most likely to have the biggest impact. In fact, a number of agencies already are using AI to handle tasks quickly that otherwise would take much longer for humans to do, such as sorting through massive amounts of paperwork to find relevant information.

Law enforcement agencies are looking at artificial intelligence as a weapon to help fight crime by improving video surveillance, spotting criminals in crowds through facial recognition, and even helping reduce the amount of time police officers spend writing reports.

Beyond artificial intelligence, robotics is becoming a way for agencies to spend less and do more. Consultancy firm Deloitte highlights the coming of process robotics, which it describes as “... computer-coded, rules-based software that uses ‘bots’ to automate repetitive, rules-based tasks otherwise performed by humans. Requiring minimal system integration, bots can be deployed in as little as a few weeks depending on the complexity of the process.”<sup>2</sup> Any high-volume, rules-based work can be performed by process robotics, which helps free employees to focus on more valuable customer-facing activities.

Bots are already being used by agencies to help improve customer service. Chatbots in particular are being used to answer questions via the web without the need for customer service agents—a technology especially useful for agencies that are understaffed and don’t have dedicated customer-facing employees.

Deloitte estimates that employing AI technology in the government space could free up as many as 1.2 billion working hours every year, saving \$41.1 billion.<sup>3</sup>

## **AUTONOMOUS VEHICLES**

While much of the conversation around government and autonomous vehicles has focused on legislating such technology, governments can benefit from the use of autonomous vehicles in multiple ways. Another Deloitte study notes that, as end users, agencies not only can improve their government-operated fleets, but also further the concepts of shared mobility and “other new types of travel through their procurement decisions.”<sup>4</sup>

The federal government operates a fleet of more than 600,000 vehicles, including U.S. Postal Service trucks and General Services Administration vehicles leased to various agencies.<sup>5</sup> In 2016, USPS vehicles were involved in about 30,000 accidents nationwide, resulting in about \$67 million in repair and legal costs.<sup>6</sup> As a result, the agency is considering autonomous vehicles for its fleet, not only to help improve safety but also to increase productivity of letter carriers, who could ready the mail for deliveries during transit.

At the state and local level, highway maintenance departments could dispatch autonomous trucks to repair road damage such as potholes or broken curbs, clean debris from roads following a collision or events such as a parade, or clear snow and ice from roadways during inclement weather. Public transportation can also be a potential target for autonomous vehicles to help municipalities save on labor costs while keeping their fleets moving.

While autonomous vehicles can have the ability to negatively impact state and local budgets—the amount of revenue generated by traffic tickets is certain to decrease due to anticipated safer driving by autonomous vehicles—governments potentially have more to gain than lose from the technology, including decreased labor costs, increased productivity and lower legal costs related to vehicle accidents.

## **MOBILITY IN PARTICULAR IS AN AREA WHERE GOVERNMENTS AT ALL LEVELS CAN INCREASE THE QUALITY OF THEIR SERVICES AND THE EFFICIENCY OF THEIR EMPLOYEES**

### **DIGITAL GOVERNMENT**

The term “digital government” is an umbrella term used to describe technologies such as mobile services, common online identities and crowdsourcing—all designed to streamline services and improve the end-user experience.

Mobility in particular is an area where governments at all levels can increase the quality of their services and the efficiency of their employees. Apps can be used to access information

quickly and easily, enabling citizens to, for example, see in real time where tree-trimming crews are slowing traffic or virtually check in to the local DMV office to avoid waiting in line.

Mobile apps also can help government employees working offsite and in the field. Building inspectors can get instant access to building plans, permit applications and more, for example. Parks and recreation department workers can see the location and working status of every water fountain connected to an internet of things (IoT) sensor. And transportation department employees can remotely change the status of digital signage to alert motorists of changing traffic conditions.

Back-office systems that facilitate common identities for constituents also can help improve the user experience, especially when dealing with multiple agencies. Much like users can log on to various websites by connecting with social media sites such as Facebook, government agencies can use common identity systems to help simplify the process of accessing various agency sites to accomplish tasks, such as checking on the status of a request filed with the zoning commission or filing a police report for a hit-and-run traffic accident.

Crowdsourcing, once the purview of sites that harness user opinions to make recommendations on restaurants, hotels and more, is now joining the government fray, as more agencies are

depending on the “wisdom of the crowd” to help collect and disseminate information. The federal government has established a site, [citizenscience.gov](https://citizenscience.gov), to help agencies encourage public participation to accelerate innovation. It features federal citizen science efforts in climatology, ecology and disaster response, among others, to help “engage the American public in addressing societal needs and accelerating science, technology, and innovation,” according to the site.

At the state and local level, crowdsourcing can be used by agencies to gather real-time traffic information, monitor power outages and collect other data important to citizens, providing facts to the minute and on the fly.

## **AUTOMATION**

Consultancy firm KPMG pegs automation as “the next step in government’s digital transformation,”<sup>7</sup> and with good reason: Automation is perhaps the most useful technology in terms of impacting government services from both the agency and the constituent perspectives. In particular, process automation can free employees from mundane tasks such as filing paperwork to concentrate on more meaningful projects or tasks that require their full attention, such as addressing constituent issues.

Automation is one step below artificial intelligence on the technology ladder; however, interest in “intelligent automation” is growing as a way to further enhance productivity while improving accuracy. Chatbots are a simple example of intelligent automation, while IBM’s Watson with its cognitive analytics, which has the ability to learn and solve problems, offers a prime example of more complex intelligent automation.

Automation is not a new concept in government or other industries, for that matter. However, as advances in artificial intelligence and robotics continue, automation will take on a much more important role in helping governments run efficiently and providing more valuable citizen services.

## **EFFORTS TO INCREASE CYBERSECURITY**

As more processes and constituent interactions occur digitally, governments must do more to protect sensitive and valuable data from cyberthreats. No longer should agencies worry about whether their systems will be breached; rather, they should worry about when their systems will be breached.

Researchers estimate damages from cybercrime will amount to \$6 trillion worldwide annually by 2021.<sup>8</sup> Included in that amount are damage and destruction of data, embezzlement, stolen money, restoration and deletion of hacked data and systems, lost productivity, theft of intellectual property, forensic investigation, theft of personal and financial data, fraud, post-attack disruption to the normal course of business, and reputational damage.

As cyberthreats continue to surge, so does the demand for qualified cybersecurity talent. However, a recent study by the Center for Cyber Safety and Education predicts there will be a worldwide shortage of 1.8 million skilled security workers by 2022.<sup>9</sup> Agencies must look for new and innovative ways, then, to secure their data and keep their systems safe from breaches and malicious activity.

The cloud is emerging as one tool in the fight against cybercrime, as technologies such as cloud workload protection platforms show promise in keeping data protected no matter where data resides—on-premises, in virtual machines or in cloud environments. Deception technologies, which are designed to throw off a would-be attacker, also can help, as well as endpoint detection and response solutions and network traffic analysis capabilities.

Artificial intelligence shows the biggest promise in improving cybersecurity, and is the technology upon which many of the new security solutions are based. It is evident that artificial intelligence will serve as the backbone for many, if not most, of the technologies powering the next generation of government services.

### **HOW THE NETWORK MATTERS WITH NEW-GENERATION TECHNOLOGIES**

State and local governments are quickly reaching the point where adoption of new technologies is inevitable. Indeed, the efficiency and effectiveness of any government agency is dependent on the technologies it uses to provide services and protect the health and welfare of its citizens.

In preparing for their impending technology renaissance, agencies first must prepare their networks to certify they are able to handle the increase in demand. Artificial intelligence, cognitive computing, mobility and other technologies can stress the bandwidth of traditional networks and impact performance.

## **MANAGED SERVICES CAN BE USED TO HELP TIE DISPARATE SYSTEMS TOGETHER AND “FILL IN THE GAPS” AS AGENCIES UPDATE THEIR CURRENT INFRASTRUCTURE, AND CAN PROVE USEFUL EVEN AFTER NETWORKS HAVE BEEN UPGRADED**

Agencies need to ascertain if they have the right foundation for both customer-facing and back-office operations, as well as new opportunities yet to be imagined. Today’s efficient networks comprise multiple technologies and platforms all chosen to ensure the solutions they support operate at peak performance without issue.

In building a network for the next generation of government services, agencies should consider an environment that

includes both on-premises, cloud, and networking technologies such as SD-WAN and high-speed broadband to make certain traffic is handled efficiently over any type of network. And networking components such as WiFi and unified communications can ensure users of the network—employees and constituents—interact with each other using their preferred method of communication.

To help ease stress on an agency’s current network—not to mention the daily burden on IT managers—managed services can be utilized to offer certain constituent services, such as bill payments, without further impacting the network. Managed services can be used to help tie disparate systems together and “fill in the gaps” as agencies update their current infrastructure, and can prove useful even after networks have been upgraded.

Working with a network service provider can help ease the burden associated with building and maintaining a network capable of handling the bandwidth-intensive needs of the next genera-

tion of government services. By working with a third-party network services provider, agencies can leverage virtual and physical private Ethernet connectivity to assure critical applications perform as expected. They also can receive all or some of their most critical connectivity functions as a managed service, including managed connectivity, WiFi, security, voice and business continuity, among others.

## CONCLUSION

New technologies loom on the horizon to help government agencies better serve their constituents, from answering billing queries to protecting sensitive data from cyberthreats. The network on which these technologies run must be robust and flexible enough to handle the traffic and bandwidth demands of today and beyond.

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