

## FOR STATE AND LOCAL AGENCIES, DATA DELIVERS OPPORTUNITIES AND CHALLENGES

State, county and city governments can reap significant benefits and actionable insights from the data available to them today. With the rise of the Internet of Things – a world of interconnected sensors and devices – areas such as transportation, health and human services, criminal justice and other government operations already generate significant amounts of data on a daily basis.

This rising tide of data is being used to create reports and dashboards, to track performance against mission goals and highlight areas to improve citizen service.

In the near future, the volume of civic data will dramatically expand the opportunities for enhanced efficiencies and improved citizen service. In 2018, just over 23 billion devices were estimated to be connected worldwide to the internet. By 2025 that number could rise to 75 billion, and the overall volume of data coming from those devices will be 10 times what it is now. The cloud offers an efficient and cost-effective way to manage this valuable new resource.

## ANALYTICS & MACHINE LEARNING DELIVER VALUE

This vast wave of new data could transform government, but only if it is put to use effectively. Two key tools — analytics and machine learning — help to make the promise of data a reality. Analytics turns information into intelligence, while machine learning offers the means to convert that intelligence into action. Taken together, ML and analytics can deliver:



# 1

A deeper understanding of individual agency operations.

# 2

More targeted delivery of citizen services.

# 3

More efficient and cost-effective execution of agency mission needs.

# 4

Easier and more accurate ways to plan and execute budget goals.

All this speaks to the new, higher levels of efficiency to be gained through the judicious use of data. At the same time, states are looking to AI and ML to help move the needle on fraud, which can cost state agencies billions of dollars a year. By detecting patterns too subtle for human auditors to catch, from trumped-up claims to illegitimate billings, sophisticated analytics can help states to detect and prevent fraudulent activity among beneficiaries of services as well as within the vendor community.

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## SOME AGENCIES ALREADY ARE BENEFITING FROM DATA

Agencies that share information across government, and are able to apply analytics to their shared data sets, have seen the greatest gains. Examples include:

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### Health & Human Services

When an HIV outbreak occurred among opioid drug users in rural Scott County, Indiana, the Centers for Disease Control utilized CAADS — Collaborative Advanced Analytics & Data Sharing — which typically runs on Cloudera's Hadoop distribution, to provide recommendations for front-line medical personnel fighting the disease. Researchers later leveraged key data from Scott County to make recommendations for preventing future outbreaks.

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### Public Safety and Criminal Justice

Keeping track of offenders released from prison, who are required to wear a tracking monitor, helps prevent recidivism. Securus Technologies has signed on over 600 customers in 43 states to its aptly named Satellite Tracking of People (STOP) for this purpose. Using Hadoop to analyze years' worth of data, STOP can identify whether tracked offenders are at or near the scene of a crime. "Agencies rely on technological solutions to help keep their communities safe," said Jon Secrest, General Manager for Securus Monitoring Solutions.

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### Transportation

Kentucky first deployed automatic vehicle location (AVL) technology on its snow and ice trucks to collect data on truck position, road conditions, temperatures and salt application rates. It has since rolled out AVL across half of state-owned trucks. Using big data technologies like Hadoop, the data "provides helpful information and informs decisions regarding how to efficiently apply materials [and] will also reduce the amount of manual recordkeeping of staff hours and materials used during events," state officials report.

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### Traffic safety

Through its Smart City PDX technology initiative, Portland, Oregon is installing 200 sensors on existing smart light fixtures along some of the city's most dangerous streets. The sensors will tally data on vehicles, pedestrians and bicycles, and will also track vehicle speeds. Traffic engineers will then leverage this real-time data to improve street safety design.

## MANY STILL STRUGGLE WITH HOW TO SHARE AND USE DATA...

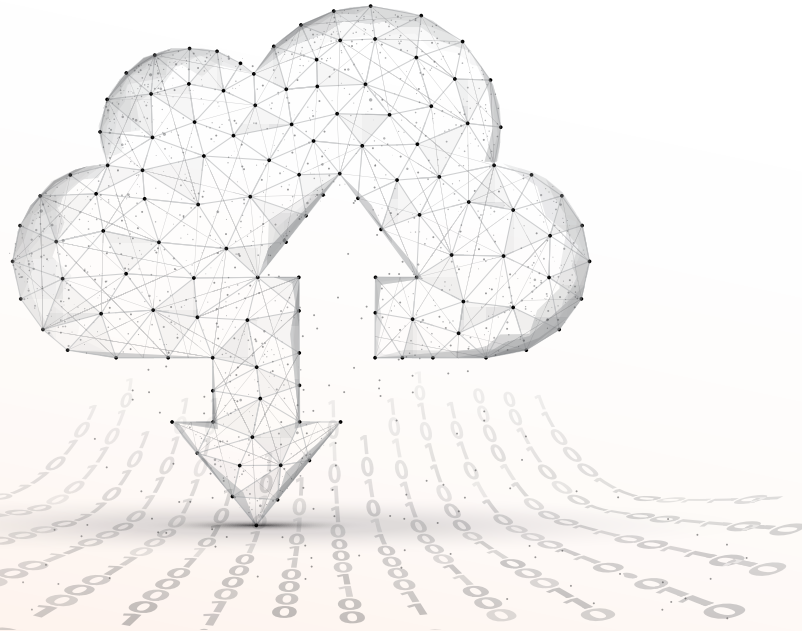
Many agencies are still unable to extract the maximum benefit from the available data, however. Most of their time and money is spent on maintaining legacy infrastructure, with prolonged procurement cycles making it difficult for agencies to move forward with their data-driven visions.

The data that government agencies need for daily operations often is stored in custom databases and can't be easily shared. State technology leaders put data consolidation and optimization as #3 on their Top 10 Priorities list, according to a survey from the National Association of State Chief Information Officers. In that same survey, state CIOs say they need a suitable framework to put that data to use in support of digital services.

City officials are equally concerned. The National League of Cities analyzed more than 150 speeches by American mayors to generate its annual State of the Cities report: In the most recent survey, data and technology emerged as among the most pressing issues.

Monolithic data silos pose the biggest problem for state, local and municipal governments that want to use both structured and unstructured data — such as text, video and audio — to improve their operations and service delivery through advanced analytics and machine learning.

Every state, local and municipal government or agency is facing increasing citizen expectations for digital services. To meet that challenge, they need to tackle the issue of data sharing.



## ...BUT GETTING IT RIGHT OFFERS HIGH RETURNS

Agencies that make better use of data are improving operational outcome and advancing citizen service. Benefits include:

- > **FASTER** decision-making
- > **REDUCED** inefficiencies
- > **HIGHER ROI/ LOWER TCO** on IT investments
- > **LOWER** waste, fraud and abuse
- > **IMPROVED** cybersecurity
- > **BETTER** strategic and long-term planning

## MODERNIZED CIVIC INFRASTRUCTURE IS CRITICAL

The stakes are high: A ransomware attack froze Baltimore's civic IT infrastructure for more than two weeks in mid-2019, a reminder of what can happen when modernization lags. With such incidents in mind, state and local governments must focus their efforts on systems and infrastructures that can securely and cost effectively:

Consolidate and normalize data government-wide.



Centralize and manage the resulting data sets.



Integrate both structured and unstructured data.



Enable advanced analytics and machine learning capabilities for a variety of different use cases.



Improvements must integrate with current database systems, adding to rather than replacing the infrastructure investments that have already been made.

# AN ENTERPRISE DATA CLOUD FOR ANY DATA, ANYWHERE, FROM THE EDGE TO AI

An enterprise data cloud unlocks the power of your data to serve customers better, operate with greater efficiency and strengthen security to protect your business. We use the cloud to make machine learning and analytics easier, faster and safer. With an enterprise data cloud you control your data and your future.

## WHY CLOUDERA?

### 1 Hybrid and Multi-Cloud

Control, analyze and experiment with data wherever it lives. Run your analytics on the clouds you choose. Easily and securely move data and metadata between on-premises file systems and cloud object stores.

### 2 Analytics from Edge to AI

Solve demanding business use cases. Apply real-time stream processing, data warehousing, data science and iterative machine learning across shared data, securely, at scale on data anywhere from the Edge to AI.

### 3 Security and Governance

Simplify data privacy and compliance for diverse enterprise data. Use a common security model, role and attribute based access policies and sophisticated schema, lineage and provenance controls on any cloud.

### 4 100% Open

We empower customers with the freedom to choose — open source, open compute, open storage, open architecture and open clouds. Open for developers, partners, and open for business. No lock-in. Ever.

## ABOUT CLOUDERA

At Cloudera, we believe that data can make what is impossible today, possible tomorrow. We empower state, local and municipal governments to transform complex data into clear and actionable insights that will improve citizen services, help manage emergency response and increase the overall security, efficiency and performance of operations. We deliver the modern platform for machine learning and analytics optimized for the cloud. Public Sector organizations around the world trust Cloudera to help solve their most challenging data problems. Learn more at [cloudera.com](https://cloudera.com).

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