



Did You Know?

- The amount of data stored worldwide rose from three zettabytes (ZB, equal to 1 sextillion bytes) in 2012 to 16 ZB in 2016. By 2025, that number is expected to increase to 163 ZB.

- Nineteen states have chief data officers (CDOs) who facilitate data collection and ensure proper data analysis.

- The top three issues government officials face when using big data are lack of staff with expertise in policy and data analytics, data quality and data accessibility.

The Big Data Revolution

BY ANNA SMITH AND RILEY HUTCHINGS

Corporations such as social media platforms and banks, and public institutions like schools and motor vehicle departments, constantly collect information. The seemingly small amounts of information created by millions of individuals on a daily basis add up to “big data” by virtue of their sheer volume. These collections of data are so vast that traditional approaches of analysis are infeasible. Predictive analytics software “mine” big data sets for patterns that can be used for anything from improving health care to mitigating the impact of natural disasters. State legislatures are

increasingly using big data to target problem areas and create effective policy.

State Action

To date, 19 states have appointed chief data officers through laws, executive orders, gubernatorial appointment and agency designation to manage and analyze data. Chief data officers support data-driven decision-making for chronic problems like poverty and opioid addiction, as well as for episodic issues like hurricanes and traffic events. States ensure the validity of data and control how it is managed,

accessed, interpreted and shared in a variety of ways.

A 2018 [report](#) by The Pew Charitable Trusts recommends that to approach big data, states can establish guiding goals and structures and train stakeholders on how to use data effectively. They can also increase data access and sharing across agencies and with other states, analyze data for important patterns and support its ongoing use.

Delaware, Illinois, New Jersey, North Carolina, Rhode Island, Tennessee and Washington, D.C. have programs in place to hire and train staff on data analytics and how to use data in policymaking. Additionally, Illinois, Louisiana, Michigan, Minnesota, Nevada, Utah and Virginia have enacted data-sharing legislation and pushed for data-sharing initiatives.

Massachusetts' response to the increase in opioid overdoses is an example of a joint state effort to harness big data. In 2015, the Massachusetts General Court passed [Chapter 55](#), authorizing administrative data to be linked between the Department of Public Health and the Executive Office of Technology Services and Security. The shared data informed a collaborative analysis of opioid overdoses and deaths between 2013 and 2014. The analysis found that most opioid-related deaths resulted from illegally obtained opioids and that those recently released from prison were 56 times more likely to die of an overdose than other members of the public.

Massachusetts responded by passing a landmark [bill](#) in 2016 that addresses several of the root causes of the opioid crisis. It established a drug stewardship program to conduct research and provide education to police officers, school officials and licensed opioid prescribers. In addition, the Department of Public Health now works directly with the Department of Corrections on prison release procedures and a prescription monitoring system.

Several other states have taken action on big data. The Oregon Office of Emergency Management developed an interactive map that uses big data from a variety of sources to help mitigate and respond to natural disasters. The map identified critical infrastructure at risk during 39 wildfires in 2014 and 2015. It also detected flood-impacted areas, which resulted in an allocation of grant funds to affected areas after a 2015 snowstorm. In

2017, the Legislative Assembly enacted [House Bill 2906](#), which establishes the Oregon Geographic Information Council to manage geospatial data and coordinate sharing efforts.

Established and initially funded by [Senate Bill 402](#) in 2013, the North Carolina Government Data Analytics Center uses data analytics for a range of services. These include improving education policy and identifying fraud across agencies. Other states, including Colorado, South Carolina and Texas, have established offices or departments through legislation that are devoted to data and information.

[Twenty-seven states and Washington, D.C.](#), have passed legislation offering tax incentives to agencies that implement data collection technology and comprehensive data collection programs. For example, Arizona and Illinois exempted data center equipment from sales taxes, and Texas eliminated most sales tax for large data centers. Colorado enacted similar legislation this year.

Federal Action

Congress is currently considering 11 bills concerning big data. The legislation encourages the use of big data to spur innovation, increase intelligence, promote energy efficiency, streamline business acquisition, prepare for cyber attacks, improve veteran health care and research dryland farming systems.

The federal government also offers incentives to help states collect big data. For example, in 2015, the Federal Bureau of Justice Assistance (BJA) awarded \$22.5 million to state and local police departments as part of its [Body-Worn Camera Pilot Implementation Program](#). The program helps states and localities collect data from police body-worn cameras.

While big data can save money and lead to innovative solutions, there is also risk. Data collection and sharing practices are often criticized for privacy and security breaches as well as discriminatory practices. When used responsibly by experts like chief data officers, however, analyzing big data can provide states opportunities to save money, streamline bureaucratic processes and tackle a wide range of policy issues. If the current trend continues, legislatures will likely find themselves using more data to support policymaking while simultaneously considering additional ways to protect and secure data.

Additional Resources

- [Electric Vehicle Fees, Foster Care, Big Data and More](#)
- [Body-Worn Camera Laws Database](#)
- [Collecting Health Data: All-Payer Claims Databases](#)

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