The Best States for Data Innovation

CENTER FOR DATA INNOVATION

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Daniel Castro
Josh New
John Wu

ABOUT THE CENTER FOR DATA INNOVATION

From creating a modern, evidence-based health-care system to building sustainable, energy-efficient cities, data is increasingly a critical component in many initiatives to make the world a better place. In the coming years, the collection, analysis, and use of massive amounts of data will have the potential to generate enormous social and economic benefits, but successfully capitalizing on these opportunities will require public policies designed to allow data-driven innovation to flourish.

The Center for Data Innovation is the leading think tank studying the intersection of data, technology, and public policy. Based in Washington, DC, the Center formulates and promotes pragmatic public policies designed to maximize the benefits of data-driven innovation in the public and private sectors. It educates policymakers and the public about the opportunities and challenges associated with data, as well as technology trends such as predictive analytics, open data, cloud computing, and the Internet of Things. The Center is a nonprofit, nonpartisan research institute affiliated with the Information Technology and Innovation Foundation.

CENTER FOR DATA INNOVATION

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Across the United States, data scientists, civic leaders, educators, and business leaders are laying the groundwork for using data to grow the economy and address a range of societal challenges. This report reviews a series of indicators that rank states on the degree to which they have achieved the key enablers of success in the data economy, including the availability of high-value datasets, the creation of important technologies, and the development of human and business capital. It then identifies a range of opportunities for state governments to maximize their potential for data-driven growth and progress.

INTRODUCTION

Recent technological advancements—such as faster computing, better algorithms, and more robust communication networks—have made it easier and cheaper to collect, store, analyze, use, and disseminate data. These changes have led to the emergence of the data economy: an economy where success depends on how effectively firms can leverage data to generate insights and unlock value. Better use of data will be a crucial driver of economic and societal progress in the coming decades. The widespread adoption of data analytics and artificial intelligence is expected to contribute hundreds of billions of dollars to U.S. GDP in the coming years in sectors such as finance, transportation, and manufacturing, while unlocking new opportunities to improve outcomes in fields such as education and health care.[1] In addition, the growing adoption of the Internet of Things—ordinary objects embedded with sensors and connected to the Internet—is unleashing a wave of innovation and growth as billions of devices that collect and use data come online.[2] And state and local leaders are investing in smart cities to leverage data to create sustainable, resilient communities.[3] Given the significant economic and social impact of these developments, policymakers should be leading the charge to enable data-driven innovation in their states. This effort should encompass not just the development and growth of data-driven companies, but also the use of data to address their states' most important priorities, such as improving health care, reducing crime, developing sustainable communities, and improving schools.

While data-driven innovation is a global phenomenon, some regions are better poised to enjoy the resulting benefits because they have invested in and supported the conditions necessary to succeed in the data economy. This is also true within the United States, where some states are actively building the necessary foundation for a thriving data economy and others are lagging. Decisions made today that affect the extent to which a state participates in the data economy will have long-term implications for its future growth, as data plays an increasingly larger role in many different sectors across the economy. Early adopters will benefit more quickly from using data to address a multitude of challenges, and by positioning themselves at the forefront of data-driven innovation;

they also will be able to grow and attract data-driven companies in a wide range of sectors that will make them the future hubs of the data economy.

This report uses 25 indicators across three categories to assess which states are doing the most to encourage and enable data-driven innovation. These categories are:

- Data: the extent to which key datasets are available, including data about the government, education, health care, and energy;
- Technology: the availability of key digital infrastructure, such as broadband, smart meters, and electronic health records; and
- People and companies: human and business resources, such as the number of open-data companies in the state, and the size of the data professional community.

State policymakers should support all three areas to successfully enable data-driven innovation. First, states should take steps to guarantee that data is available for use, such as by ensuring government agencies collect and release high-value datasets. Open government data promotes transparency, encourages citizen collaboration, and creates value through innovation and efficient decision-making.[4] Making data available can also provide the private sector with the building blocks necessary to develop new products and services. For example, the Chicago-based start-up SpotHero, which makes a mobile app to help drivers find and reserve parking spots, relied heavily on open government data for its initial development.[5] Government agencies can also use data to improve their services and be more efficient. For example, with no additional investment, Oregon's state marine board used its state's open data platform to replace its biennial boating handbook, which cost $150,000 to produce every two years, with a live, interactive map with location-specific regulations, docks, service stations, and navigation instructions for boaters.[6] The U.S. Department of Commerce estimates that the private sector uses government data to generate annual revenues of as much as $221 billion annually. And, globally, the McKinsey Global Institute estimates that open data has the potential to create $3 trillion to $5 trillion per year in additional value across education, transportation, consumer products, electricity, oil and gas, health care, and consumer finance sectors.[7]

Second, states should enable the deployment of the technology platforms that underpin success in the data economy. This includes facilitating the deployment of digital infrastructure, such as fixed and mobile broadband Internet, plus data platforms such as intelligent transportation systems, electronic health records, and smart meters. In addition, states should consider how they can support the development of the Internet of Things, particularly the development of smart cities that use data collected by sensors on physical infrastructure and digital transactions with government agencies.

Third, state economic development efforts should include a focus on the data economy and helping transform existing industries to make better use of data. For example, better use of data and analytics in health care—to allow doctors to make better medical decisions and provide better preventative care—could slash costs by up to $450 billion.[8] Reforms can start with developing the human capital necessary for data-driven innovation to thrive, and supporting businesses participating in the data economy. Virtually every sector of the economy can benefit from better use of data. But the growth of data-driven enterprises will be limited by the availability of workers with in-demand data skills. To this end, states should promote the growth of data-driven businesses by improving educational offerings in data science and related fields. This begins at the K-12 level, where strong math and computer-science training can equip students with the skills necessary for advanced data literacy, and continues through higher education, where degrees in technical fields can provide the highly skilled workforce needed to participate in the data economy. States should also strengthen connections among businesses, government agencies, and universities to encourage collaboration and learning among those working on data-related projects across a diverse range of industries.

METHODOLOGY

This report benchmarks the extent to which U.S. states are encouraging and enabling data-driven innovation. In order to show the magnitude of the differences between the states, and not just their rank, we calculate a final score for each state based on scores in three categories, containing a total of 25 indicators. For every indicator, we standardize the raw data and manually adjust standardized values greater or lesser than four standard deviations to a value of +4.0 and -4.0 respectively (manual adjustments were made for four data values). For every standardized indicator, we scale the standardized values to fall between 0 and 100, with the minimum standardized value translated to 0 and the maximum standardized value translated to 100. For every category, we create a composite score by summing a weighted score of 0 to 100 for each scaled standardized indicator within that category, before dividing the category by its overall weight to produce a category score between 0 and 100. For the final score, we average the scores of the three categories. We code the maps by partitioning the score distributions into quintiles. For some indicators, the quintiles do not necessarily contain an equal number of states because of an uneven distribution of scores.

Figure 1: Overview of Indicators

Section I: Ensuring Data Is Available for Use	
Legislative Data	The extent to which states publish legislative data in open and machine-readable formats.
Government Financial Data	The extent to which states publish government financial data online.
Education Data	The extent to which states have taken steps to develop education data systems.
E-Prescribing	The extent to which states use e-prescribing for controlled substances.
Health-Care Price Transparency	The existence of state health-care price transparency laws and regulations.
Energy Usage Data	Percentage of customers served by utilities participating in the Green Button initiative.
Building Energy Efficiency Data	Number of buildings in the state included in the DOE Building Performance Database per 10,000 residents.
Public Access to Government Information	A quantitative transformed measure of qualitative survey results describing legal rights to and effective access to government information.
Anti-SLAPP Laws	Whether the state has adopted laws prohibiting strategic lawsuits against public participation (SLAPPs).
Section II: Enabling Key Technology Platforms	
Broadband	A composite measure of Internet users, households with broadband coverage, and average connection speeds.
Smart Meters	The percent of electricity meters that are smart meters.
Transit Information Systems	Availability of machine-readable data on public transit systems.
Electronic Health Records	The extent to which physicians and hospitals in a state use electronic health records.
Internet of Things: Consumer Devices	A composite score of wearables per 1,000 residents and smart TVs per 1,000 residents.
Open-Data Portals	Whether the state has open-data portals and policies.
E-Government	A measure of the use of digital technologies by state governments.
Section III: Developing Human and Business Capital	
Computer Science and Statistics AP Tests	A composite score that combines the number of statistics and computer science AP tests taken per 100 AP students and the average test result for statistics and computer science AP tests.
STEM Degrees	A weighted measure of science, technology, engineering, and math (STEM) higher-education degrees conferred as a share of population aged 18 to 34.
Software Service Jobs	Total number of people working as computer programmers, software developers, and computer and information systems managers as a share of total employment.
Statistics Jobs	Total number of people working as statisticians, actuaries, database administrators, and operation research analysts as a share of total employment.
Data Science Job Listings	Number of job postings for data scientists as a share of total posted job listings.
Open Data 500 Companies	The number of Open Data 500 companies per 10,000 firms.
Information and Data-Processing Sector	The economic output of the information and data-processing industry as a share of total economic output.
Federal Funding for Data Science R&D	National Science Foundation data-science R&D awards as a share of federal R&D funding for universities.
Data Science Community	Average membership in data-related Meetup groups.

OVERALL RANKING AND ANALYSIS

The top five states—Massachusetts, Washington, Maryland, California, and Delaware—are thriving hubs of data-driven innovation and prove that policymakers can make states more competitive in the data economy. Some states benefit from certain preexisting characteristics that make them better positioned to take advantage of data-driven innovation, such as being home to leading research universities. However, leading states have all taken proactive steps to unlock innovation, such as by supporting STEM in public schools, investing in e-government, implementing robust open-data policies, and promoting the deployment of health-information technology.

The five lowest-ranking states—South Carolina, Alabama, Louisiana, West Virginia, and Mississippi—do less to promote data innovation through public policies. For example, West Virginia ranks 49th because it has not made a significant effort to provide public access to information, increase adoption of e-prescriptions for controlled substances, nor encourage the deployment of smart meters, to name a few indicators where it scored poorly.

Several states that rank in the middle have implemented useful policies to promote data innovation that other states could learn from. For example, Missouri, which ranks 27th overall and has significant room for improvement in some areas, is one of the leading states on several indicators, including public access to information, e-government, and information and data processing. The state scores well on these metrics because it has strong transparency laws, uses data and technology to improve government operations, and designs policies to make Missouri an attractive location for information and data-processing firms. Similarly, Maine scores highly for its health-data transparency, education-data utilization, and smart meters, all of which rely on government policies to be successful, rather than any inherent advantage.

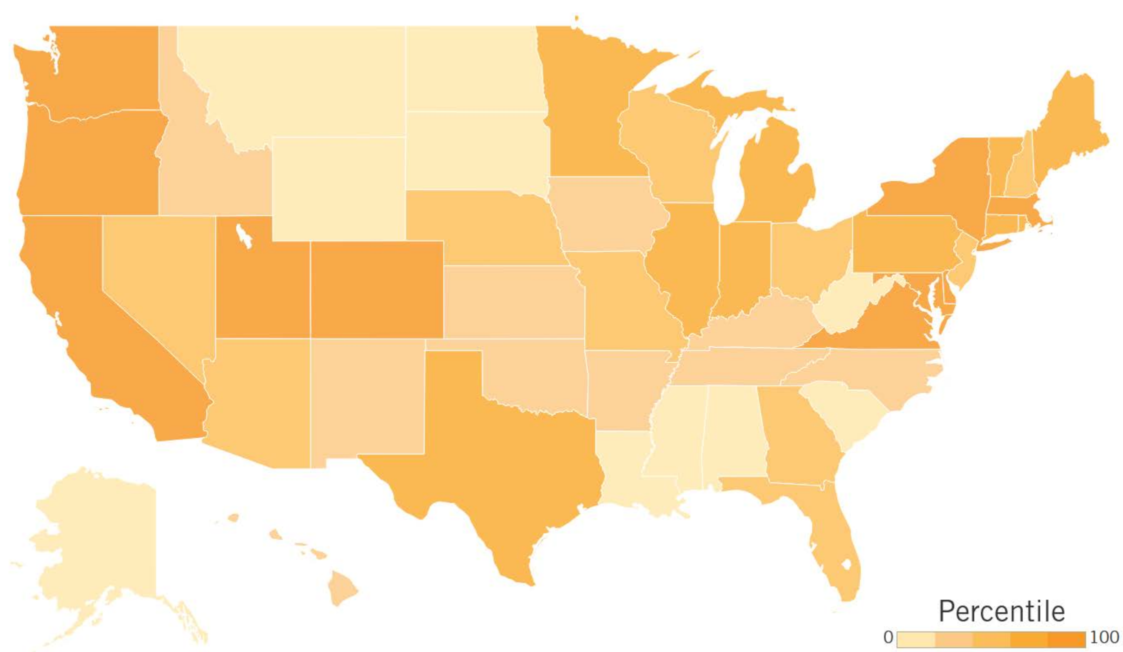
Data is often compared to the new oil; however, this analogy is imperfect. Only regions that are lucky enough to have oil reserves can benefit the most from an oil-driven economy. But all states can actively position themselves to succeed in the data economy by enacting public policies to encourage smarter collection, sharing, and use of data in both the public and private sectors. For example, New York leads in e-prescribing of controlled substances because it passed a law mandating that all doctors adhere to this requirement. Moreover, every state should require its government agencies to publish data using open, machine-readable standards. By doing so, states can spur development of new civic technology that may give rise to innovative data-driven companies and enable businesses to use government data for their own purposes.

While this analysis shows a wide gap in how states are prepared to capitalize on data innovation, low-ranked states should not be discouraged by their positions. Instead, they should look to the most innovative policies of other states that have effectively promoted data innovation as a model and begin developing strategies to maximize the benefits of data for their own citizens and businesses.

Table 1: Overall Scores and Rank

Rank	State	Score	Rank	State	Score
1	Massachusetts	63.0	26	Florida	41.0
2	Washington	60.4	27	Missouri	40.8
3	Maryland	59.2	28	New Hampshire	40.0
4	California	57.1	29	Nebraska	39.4
5	Delaware	56.9	30	Nevada	38.4
6	Utah	56.4	31	Iowa	37.4
7	Virginia	55.9	32	North Carolina	37.3
8	Oregon	55.7	33	Kansas	35.5
9	Colorado	54.2	34	Tennessee	34.5
10	New York	53.3	35	Oklahoma	33.7
11	Minnesota	50.3	36	Kentucky	32.7
12	Illinois	48.7	37	Hawaii	32.4
13	Texas	48.7	38	Arkansas	32.3
14	Vermont	47.0	39	New Mexico	29.9
15	Michigan	47.0	40	Idaho	29.6
16	Pennsylvania	46.2	41	Alaska	29.3
17	Indiana	46.1	42	North Dakota	29.0
18	Connecticut	45.2	43	South Dakota	26.1
19	Rhode Island	44.4	44	Montana	25.8
20	Maine	44.3	45	Wyoming	25.7
21	Georgia	43.9	46	South Carolina	22.5
22	Ohio	42.7	47	Alabama	22.3
23	New Jersey	41.7	48	Louisiana	21.8
24	Arizona	41.5	49	West Virginia	19.2
25	Wisconsin	41.4	50	Mississippi	18.9

Map 1: Overall Rank



SECTION I: ENSURING DATA IS AVAILABLE FOR USE

Data allows individuals and organizations to derive new insights and make better decisions. Governments use data to improve public services and promote transparency; businesses use data to improve products and services, inform company strategies, and make investment decisions; and researchers use data to discover new insights. For example, the Climate Corp., acquired by the biotech firm Monsanto for nearly $1 billion, has used open data and data science to create a risk-management system to help farmers manage volatile weather.[9]

States that work to make more data available are poised to reap the most rewards from data-driven innovation. Many datasets have myriad uses and applications, and increasing the availability of datasets generates substantial value for society. States can influence data availability in two main ways. First, states can oblige government agencies to collect and publish data. For example, state policymakers can significantly influence the amount of open data its public universities produce or its insurance regulators collect and publish.[10] Second, states can promote digitization and measurement within the private sector to increase the amount of data the private sector collects and has available to use. For example, state efforts to promote the adoption of e-prescribing and measure the energy ratings for buildings has spurred the creation of valuable data by the private sector.

The indicators in this section of the report include seven measures of the availability of various types of data, including government administrative data (legislative and financial), education data, health data, and energy data (building efficiency and energy use). In addition, this section includes two indicators that reflect whether state policies encourage the publication of certain types of public and private information.

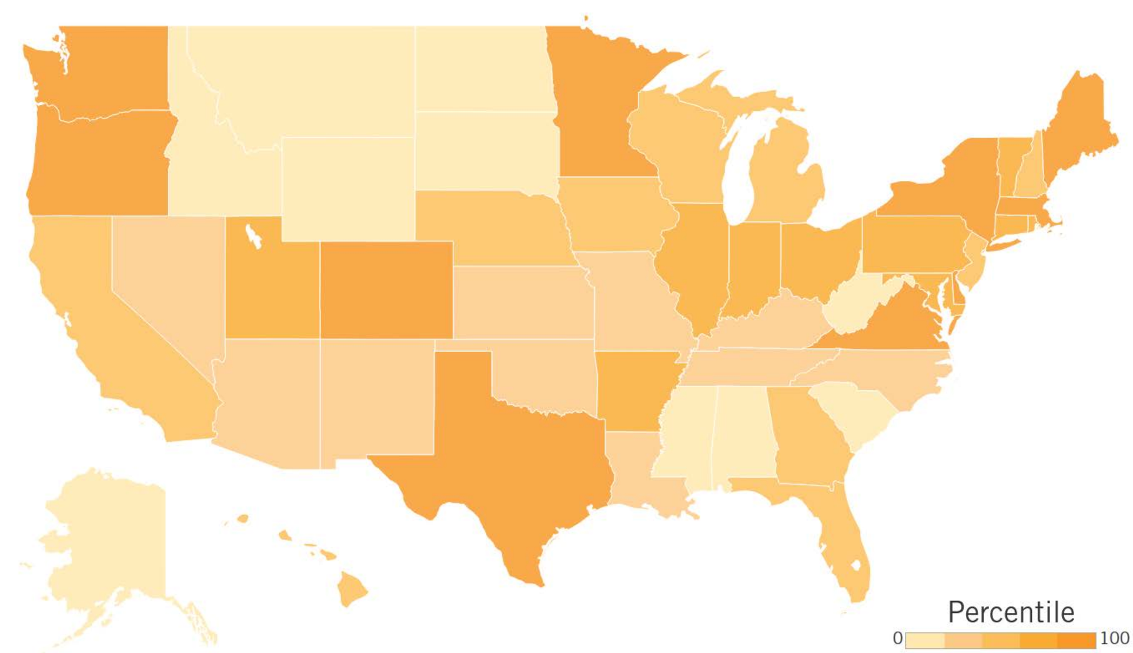
State policies can have a significant and direct impact on scores in this category of indicators. For example, state legislatures can decide whether to publish legislative data in machine-readable formats or pass laws preventing strategic lawsuits against public participation (SLAPP). Given the strong causal relationship between straightforward government actions and rank in this category, states that score poorly in this section can easily and substantially improve their standing by adopting policies for making data publicly available similar to those of highly ranked states.

No state scored highly on all indicators. Even among states that have made significant progress at making government data public, scores were inconsistent. For example, Colorado, which ranks first in this category, scores highly for making government financial data available, but poorly for publishing legislative data and public access to information. Similarly, Oregon, which ranks 2nd, scores highly on providing access to government financial data and implementing anti-SLAPP legislation, but ranks 47th on how effectively the state guarantees its citizens public access to government information.

Table 2: Ensuring Data Is Available for Use

Rank	State	Score	Rank	State	Score
1	Colorado	69.0	26	Kansas	41.5
2	Oregon	69.0	27	Nebraska	41.3
3	Delaware	67.0	28	Tennessee	41.0
4	Maine	60.0	29	New Jersey	40.9
5	Texas	59.2	30	New Mexico	39.9
6	New York	58.8	31	Nevada	39.2
7	Massachusetts	56.0	32	Missouri	38.5
8	Washington	55.3	33	Arizona	37.6
9	Rhode Island	54.8	34	Iowa	37.6
10	Minnesota	54.6	35	Wisconsin	37.5
11	Utah	54.6	36	Louisiana	37.4
12	Maryland	54.0	37	New Hampshire	37.0
13	Indiana	53.4	38	Kentucky	35.1
14	Virginia	51.9	39	Oklahoma	34.5
15	Vermont	50.8	40	North Carolina	30.7
16	Pennsylvania	47.9	41	South Dakota	26.0
17	Arkansas	47.7	42	North Dakota	25.2
18	California	46.7	43	Montana	25.0
19	Hawaii	46.3	44	West Virginia	24.6
20	Illinois	44.7	45	Mississippi	24.1
21	Georgia	43.8	46	Alaska	23.8
22	Michigan	43.3	47	Wyoming	21.9
23	Florida	43.1	48	Idaho	20.6
24	Ohio	42.8	49	South Carolina	16.4
25	Connecticut	42.0	50	Alabama	14.8

Map 2: Ensuring Data Is Available for Use



LEGISLATIVE DATA

The extent to which states publish legislative data in open and machine-readable formats.

Why Is This Important? Legislative data provides citizens with insight into the decisions made by their elected officials and helps promote government transparency and accountability. Timely information about bills, votes, and committees helps citizens understand governmental processes, engage with them, and even provide oversight. Developers can build applications to make open legislative data more useful and understandable to citizens, such as by analyzing trends, predicting voting patterns, or creating interactive visualizations, as well as facilitate conversations between elected officials and their constituents. Moreover, the openness of a state's legislative data is a good indicator of that state's approach to open data more generally.

The Rankings: Eleven states are especially successful at publishing open legislative data, with Washington being the top-scoring state. Of the leading states, Georgia, New Hampshire, Texas, and Washington all make their data available in a machine-readable format such as a comma-separated values (CSV) file or have developed an application programming interface (API) that developers can use to access the data.[11] In addition, leading states have put a premium on publishing data immediately, so that citizens can rely on using this dataset as the definitive source of information about the current status of legislation. States at the bottom of the rankings omit critical information such as roll call votes from their databases, delay updating the data for as much as a week, or do not make data available in machine-readable formats. Another significant difference between top-ranked and bottom-ranked states is permanence: It is important that not only current legislation but also bills from years past be available. States that are ranked at the top tend to have specific, linkable URLs organized by session, as well as sites that are organized and easy to navigate.

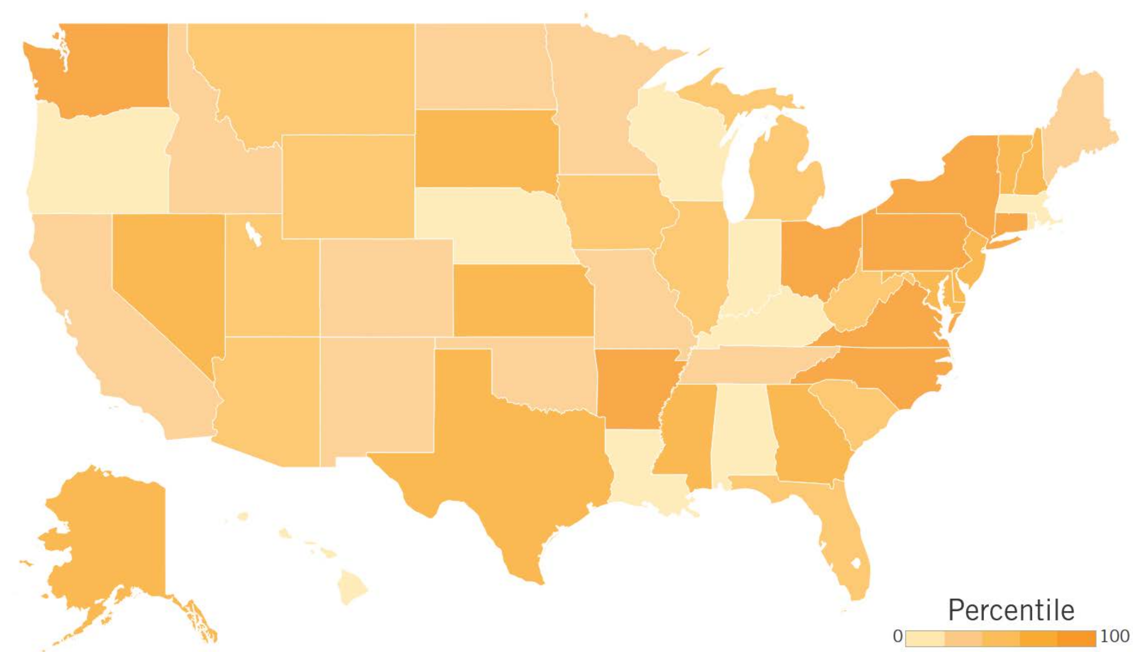
Methodology: State scores for the variables of "completeness," "timeliness," "machine readability," and "permanence" are extracted from the *Open Legislative Data Report Card*. In the original source, a state is placed on a scale that ranges from negative to positive for these variables. For this indicator, we adjusted that scale to be entirely positive. In summing up the scores from these four variables, each one can contribute up to one point toward the overall score. States can score up to a maximum of four points.

Source: "Open Legislative Data Report Card," Open States, Sunlight Foundation, last modified December 4, 2013, http://openstates.org/reportcard/. Note that since initially released on March 11, 2013, this source has been updated with more recent data for Rhode Island, New York, Virginia, Colorado, and Pennsylvania.

Table 3: Legislative Data

Rank	State	Score	Rank	State	Score
1	Washington	4.0	26	Michigan	3.3
2	Arkansas	3.8	27	Arizona	3.3
2	Connecticut	3.8	27	South Carolina	3.3
2	New York	3.8	27	Utah	3.3
2	North Carolina	3.8	27	Wyoming	3.3
2	Ohio	3.8	31	Colorado	3.2
2	Pennsylvania	3.8	32	Maine	3.1
2	Virginia	3.8	32	Minnesota	3.1
9	Georgia	3.7	32	Oklahoma	3.1
9	New Hampshire	3.7	32	Tennessee	3.1
9	New Jersey	3.7	36	Missouri	3.1
12	Alaska	3.6	36	New Mexico	3.1
12	Delaware	3.6	36	North Dakota	3.1
12	Nevada	3.6	39	Idaho	3.0
12	South Dakota	3.6	40	California	3.0
12	Vermont	3.6	41	Oregon	2.9
17	Maryland	3.6	42	Louisiana	2.9
18	Texas	3.5	43	Rhode Island	2.9
19	Kansas	3.5	44	Hawaii	2.8
19	Mississippi	3.5	44	Wisconsin	2.8
21	Florida	3.4	46	Alabama	2.7
21	Illinois	3.4	47	Indiana	2.4
21	Iowa	3.4	48	Kentucky	2.4
21	Montana	3.4	49	Nebraska	2.3
21	West Virginia	3.4	50	Massachusetts	2.0

Map 3: Legislative Data



GOVERNMENT FINANCIAL DATA

The extent to which states publish government financial data online.

Why Is This Important? State governments establish online portals to report government budget information, so that citizens can identify how state funds are spent. This information is useful for citizens with an interest in government and oversight because, with proper mechanisms for participation, transparency can foster accountability in public officials.[12] Financial-data portals also benefit the state itself: Detailed, open records of expenditures often beget more efficient spending. Financial-data portals have saved some states millions of dollars each year in printing, other administrative costs, and efficiencies developed from this faster means of analyzing expenditures.[13] For example, Texas saved more than $4.8 million on administrative costs alone in the first two years its comptroller's office used a transparency website.[14] In addition, financial-data portals provide a platform for creating innovative tools to increase transparency and evaluate state government practices and contracts.[15] For example, South Dakota legislators eliminated $19 million dollars' worth of yearly redundancies from their economic program after an enterprising reporter used their new transparency website to request subsidy information.[16]

The Rankings: As of 2016, all 50 states provide at least limited checkbook-level spending information on the Internet, and states continue to improve the utility of their financial-data portals.[17] States are ranked by the overall transparency of their government financial data. Eighteen states, including top-scoring Indiana, Michigan, Ohio, Oregon, and Connecticut, operate user-friendly financial-data portals with a wide variety of detailed expenditure data available for download.[18] Middling states operate financial-data portals with similar functionality, but with a more limited selection of data. For example, Wyoming does not make data available about the impact of tax credits, exemptions, or deductions on the state budget.[19] The three worst-scoring states failed to develop data portals with minimal functionality or basic data: Alaska and California do not even have a public-facing database of expenditure data, while Idaho does not include data about the recipients of economic-development subsidies or information about tax expenditures in its portal.[20]

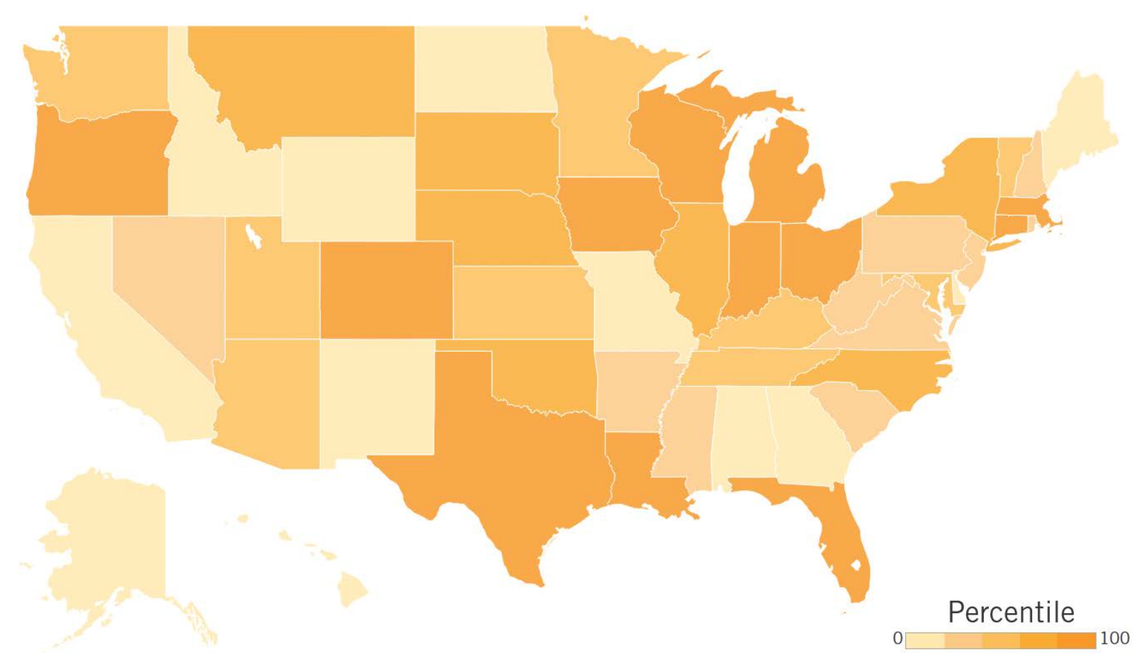
Methodology: State scores are based on each state's "point total" found in appendix B of *Following the Money 2016*, a measure of whether states provide online access to government spending data. States can score a maximum of 100 points.

Source: Michelle Surka and Elizabeth Ridlington, "Following the Money 2016: How the 50 States Rate in Providing Online Access to Government Data Spending" (U.S. Public Interest Research Group Education Fund and Frontier Group, April 2016), Appendix B, page 48, http://www.uspirg.org/sites/pirg/files/reports/USP%20FollowMoney16%20Report%20Apr16.pdf.

Table 4: Government Financial Data

Rank	State	Score	Rank	State	Score
1	Indiana	100	25	Minnesota	86
1	Michigan	100	27	Tennessee	86
1	Ohio	100	28	Kansas	84
1	Oregon	100	29	Nevada	83
5	Connecticut	99	29	New Jersey	83
6	Wisconsin	97	29	Pennsylvania	83
7	Florida	96	29	West Virginia	83
7	Louisiana	96	33	Arkansas	82
9	Massachusetts	96	33	Virginia	82
10	Iowa	95	35	Rhode Island	82
11	Colorado	94	36	Mississippi	79
11	Texas	94	37	New Hampshire	78
13	Illinois	93	37	South Carolina	78
13	New York	93	39	Delaware	77
15	Montana	92	39	Missouri	77
16	Oklahoma	91	39	New Mexico	77
17	Nebraska	90	42	Maine	76
17	South Dakota	90	43	Georgia	74
19	North Carolina	90	44	Wyoming	73
20	Kentucky	88	45	Hawaii	71
20	Maryland	88	46	North Dakota	64
20	Utah	88	47	Alabama	60
20	Vermont	88	48	Idaho	45
24	Washington	87	49	Alaska	43
25	Arizona	86	50	California	34

Map 4: Government Financial Data



EDUCATION DATA

The extent to which states have taken steps to develop education-data systems.

Why Is This Important? Data can improve educational outcomes, both by helping teachers deliver more personalized instruction and helping administrators more effectively manage schools. Ideally, educators will collect personalized data on each student to identify learning styles, strengths and weaknesses, barriers to learning, and individual progress to help better evaluate educational programs and institutions and to provide students with an education tailored to their own needs. Such a system would help educators be able to identify and intervene when students are in environments where they are not learning, enable individualized instruction based on a student's ability, and decrease dropout rates by identifying struggling students before it is too late. For example, the Oregon DATA Project (ODP) is an initiative launched in 2007 to give teachers the skills they need to collect, analyze, and use student data to be more effective educators. Students in ODP schools outperform their peers in other schools in reading and math advancement.[21] Other states, such as Delaware, employ "data coaches" to help educators better analyze and use student data in classrooms.

Many states are developing longitudinal databases for student information to provide data-driven insights to administrators, teachers, and parents. These databases are often linked to other state systems, such as those for social services. These linkages allow government analysts to better understand the effects of policy decisions on different groups, such as the impact of the Head Start program on later success in school for children from low-income families.[22] States such as Pennsylvania and Arkansas use linked data to assess the impact of early childhood program initiatives and allocate funding.[23]

The Rankings: Arkansas, Delaware and Kentucky have taken the most steps to build and fund statewide educational data systems. These steps include building data repositories, linking data across multiple systems, providing timely access to data, and training educators on how to use data effectively. These states have put in place ambitious plans to integrate data-driven decision-making into their educational systems, using funding from federal and nonprofit grants to develop statewide data systems, link existing systems, and improve data collection and quality.[24] Arkansas, for example, has created online dashboards to provide educators with quick access to student information and trends, so that they can identify problems and intervene sooner.[25] Other states that have also laid the groundwork for building a culture of data within their school systems include Indiana, Kansas, Maine, Ohio, Oregon, Texas, Utah, and Virginia.

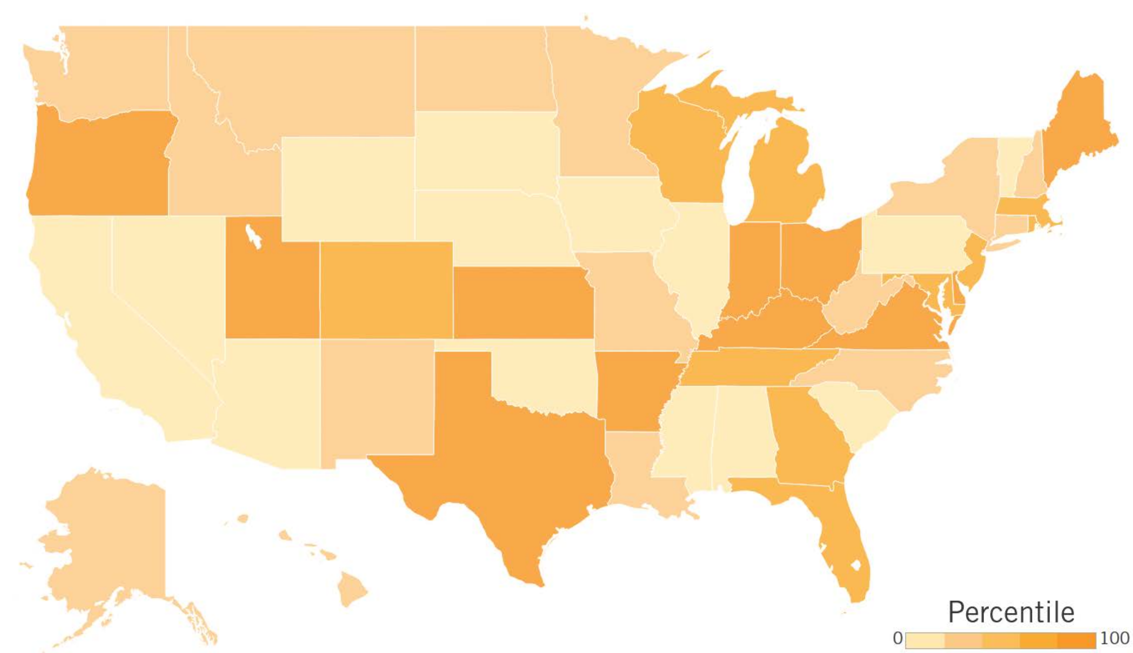
Methodology: This measure is based on each state's "action total" found on page 20 of *Data for Action 2014: Paving the Path to Success*. Each state is given one "action point" for each education data-related policy in place, for a maximum of 10 action points. Data for California, New Jersey, Oregon, and South Dakota comes from the 2011 survey, because they did not participate in the 2014 survey.

Source: "Data for Action 2014: Paving the Path to Success," Data Quality Campaign, November 1, 2014, 20, http://dataqualitycampaign.org/resource/data-action-2014-paving-path-success/.

Table 5: Education Data

Rank	State	Score	Rank	State	Score
1	Arkansas	10	22	Minnesota	7
1	Delaware	10	22	Missouri	7
1	Kentucky	10	22	New Mexico	7
4	Indiana	9	22	New York	7
4	Kansas	9	22	North Carolina	7
4	Maine	9	22	North Dakota	7
4	Ohio	9	22	Washington	7
4	Oregon	9	22	West Virginia	7
4	Texas	9	34	Hawaii	6
4	Utah	9	34	Montana	6
4	Virginia	9	34	New Hampshire	6
12	Colorado	8	37	Alabama	5
12	Florida	8	37	Arizona	5
12	Georgia	8	37	Illinois	5
12	Maryland	8	37	Iowa	5
12	Massachusetts	8	37	Nebraska	5
12	Michigan	8	37	Nevada	5
12	New Jersey	8	37	Pennsylvania	5
12	Rhode Island	8	37	Wyoming	5
12	Tennessee	8	45	California	4
12	Wisconsin	8	45	Mississippi	4
22	Alaska	7	45	Oklahoma	4
22	Connecticut	7	45	South Carolina	4
22	Idaho	7	45	South Dakota	4
22	Louisiana	7	45	Vermont	4

Map 5: Education Data



E-PRESCRIBING

The extent to which states use e-prescribing for controlled substances.

Why Is This Important? E-prescribing, a core component of data-driven health care, allows physicians to send a prescription to a pharmacy electronically, rather than by phone, fax, or via a handwritten prescription. Moving from an analog process to a digital one has multiple benefits.[26] First, e-prescribing can improve patient safety. Handwritten prescriptions may be illegible, resulting in medication errors. Moreover, many e-prescribing tools integrate with decision-support systems that check prescriptions for possible interactions with other drugs, health conditions, and allergies. Second, e-prescribing increases efficiency by reducing paperwork, both for providers and pharmacists, as it streamlines workflow and decreases calls to the prescribing doctor for clarification. It also reduces waiting time for patients, who do not have to deliver prescriptions in person. Finally, e-prescribing improves patient health outcomes and generates substantial cost savings. By improving drug adherence, patients have fewer adverse drug events, which results in fewer visits to the emergency room and primary-care doctors. This results in cost-savings of tens of billions per year in the overall health-care system, as well as directing savings to patients, as e-prescribing systems can help doctors recommend lower-cost drug options to patients.[27] While e-prescribing is now commonplace, it is still not used as frequently for prescribing controlled substances, such as prescription painkillers, creating opportunities for prescription forgery. Moreover, this information is not integrated with state-run prescription-drug monitoring programs that have been established to prevent prescription-drug abuse, and combat problems such as doctor-shopping and pill mills.[28] While federal rules previously prohibited e-prescribing of controlled substances, the Drug Enforcement Agency (DEA) issued rules that made this legal as of June 1, 2010, provided that physicians and pharmacists adhere to certain conditions.[29]

The Rankings: New York leads in e-prescribing, in part, because it passed rules mandating that all physicians must prescribe controlled substances and other prescription drugs electronically.[30] While not all physicians and pharmacies have implemented the requirements as of the March 2016 deadline, adoption rates are high.[31] Moreover, 91 percent of pharmacies in New York have met the DEA's requirements to receive prescriptions for controlled substances electronically, compared with only 69 percent in bottom-ranked Mississippi.[32] Other states, such as Nebraska, rank higher than their peers, in part because they focused early on addressing barriers to adoption. The Nebraska Information Technology Commission, an advisory commission to the governor and legislature, established an eHealth Council in 2009 to improve the adoption and use of health-information technology in the state.[33]

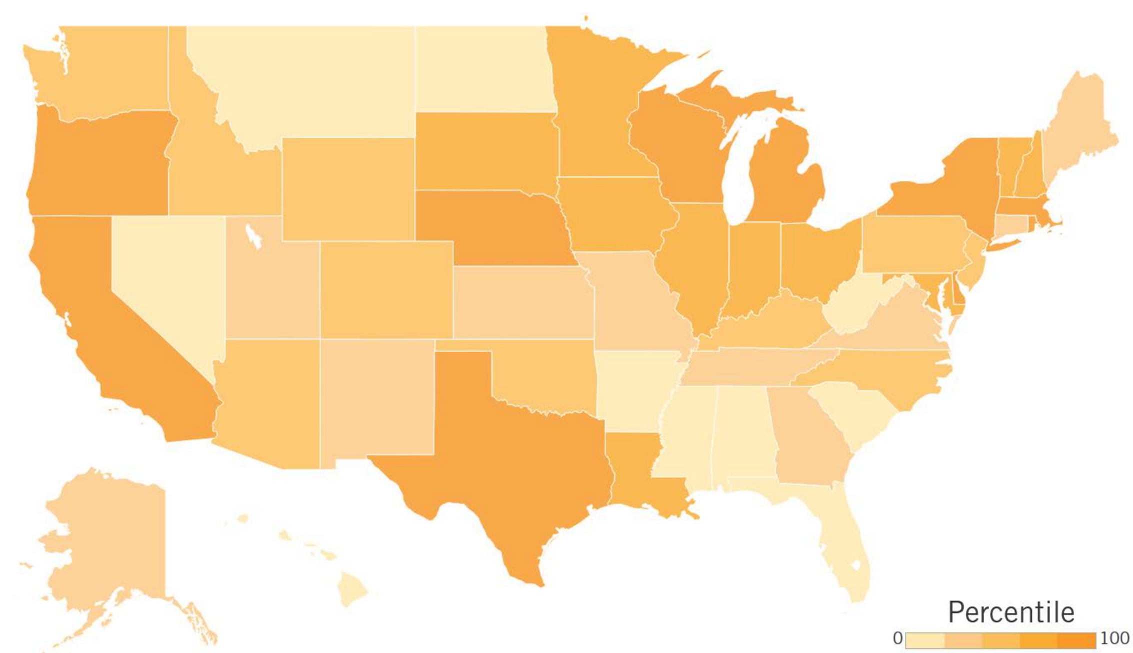
Methodology: This indicator measures the percentage of controlled substances prescribed electronically.

Source: "2015 National Progress Report," Surescripts, 2015, http://surescripts.com/news-center/national-progress-report-2015/.

Table 6: E-Prescribing

Rank	State	Percentage	Rank	State	Percentage
1	New York	37.7%	26	Washington	2.5%
2	Nebraska	20.2%	27	Colorado	2.4%
3	Delaware	11.8%	28	Kentucky	2.2%
4	California	9.6%	29	Oklahoma	2.2%
5	Texas	9.4%	30	Idaho	2.0%
6	Michigan	8.4%	31	Connecticut	1.9%
7	Wisconsin	8.3%	32	Utah	1.8%
8	Massachusetts	6.6%	33	Alaska	1.7%
9	Oregon	6.3%	34	Kansas	1.6%
10	Rhode Island	5.8%	35	New Mexico	1.6%
11	Ohio	5.3%	36	Missouri	1.5%
12	Maryland	5.3%	37	Virginia	1.5%
13	Indiana	5.1%	38	Tennessee	1.4%
14	Minnesota	4.9%	39	Maine	1.2%
15	Illinois	4.4%	40	Georgia	1.2%
16	Iowa	4.4%	41	Florida	1.2%
17	South Dakota	3.8%	42	Hawaii	1.1%
18	New Hampshire	3.8%	43	West Virginia	1.0%
19	Louisiana	3.7%	44	Alabama	1.0%
20	Vermont	3.3%	45	Montana	0.8%
21	Arizona	3.1%	46	Mississippi	0.8%
22	North Carolina	2.8%	47	South Carolina	0.7%
22	Pennsylvania	2.8%	48	North Dakota	0.7%
24	Wyoming	2.7%	49	Arkansas	0.6%
25	New Jersey	2.6%	49	Nevada	0.6%

Map 6: E-Prescribing



HEALTH-CARE PRICE TRANSPARENCY

Scores for state health-care price transparency laws and regulations.

Why Is This Important? Health care, comprising one-sixth of the nation's economy, has been consistently rising in cost over the past decade.[34] A significant portion of this high cost is the result of inefficiencies and waste caused by inaccurate or unreliable data. States that actively promote efficiency and transparency in their health-care systems should see long-term reductions in health-care costs by improving the quality of data on these costs for residents.[35] Measuring the transparency of health-care price information is a good measure of data availability in a state.

Of particular significance are all-payer claims databases (APCDs) that require health-care claim and price information to be collected from all major payers in the state, such as insurance companies, Medicaid, and Medicare. These databases cost between $1 million and $5 million annually but eventually pay for themselves.[36] Better health-care price transparency through setting up statewide APCDs, providing diagnostic test price information electronically to doctors, and requiring health-insurance companies to make personalized out-of-pocket cost estimates available will help reduce health-care costs by $100 billion over 10 years.[37] For example, New Hampshire, which made data in its APCD accessible in 2007 on its HealthCost website, has given consumers more leverage in selecting health-care providers and has caused insurers to design more economical insurance plans.[38]

The Rankings: Colorado, Maine, and New Hampshire lead for collecting and publishing a full array of useful data in an easy-to-use public-facing website. These states have been proactive about promoting health-care price transparency through legislation. Oregon, Virginia, and Vermont also scored highly, but are held back by failing to collect key data or by having APCD websites that do not make the data easily accessible. The vast majority of states received failing grades for health-care price transparency because most have failed to pass health-care price transparency laws or publish ACPD data on public websites.[39]

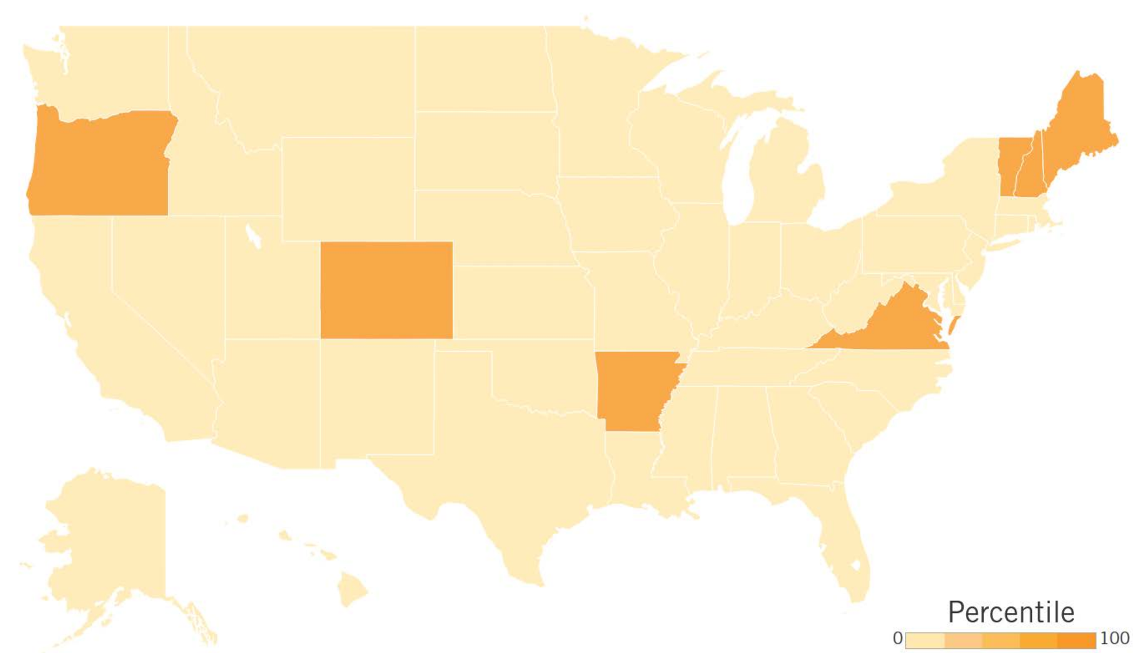
Methodology: This indicator is a measure of laws and regulations that require disclosure of health-care prices. The score is derived from each state's "grade" found in table B and table C of *Report Card on State Price Transparency Laws—July 2016*. The letter grade is converted to a numerical score as follows: A=95, B=85, C=75, D=65, F=55).

Source: Francois de Brantes and Suzanne Delbanco, "Report Card on State Transparency Laws" (Health Care Incentives Improvement Institute and Catalyst for Payment Reform, July 2016), 7–9, http://www.hci3.org/wp-content/uploads/2016/07/reportcard2016.pdf.

Table 7: Health-Care Price Transparency

Rank	State	Score	Rank	State	Score
1	Colorado	95	8	Michigan	55
1	Maine	95	8	Minnesota	55
1	New Hampshire	95	8	Mississippi	55
4	Oregon	85	8	Missouri	55
5	Vermont	75	8	Montana	55
5	Virginia	75	8	Nebraska	55
7	Arkansas	65	8	Nevada	55
8	Alabama	55	8	New Jersey	55
8	Alaska	55	8	New Mexico	55
8	Arizona	55	8	New York	55
8	California	55	8	North Carolina	55
8	Connecticut	55	8	North Dakota	55
8	Delaware	55	8	Ohio	55
8	Florida	55	8	Oklahoma	55
8	Georgia	55	8	Pennsylvania	55
8	Hawaii	55	8	Rhode Island	55
8	Idaho	55	8	South Carolina	55
8	Illinois	55	8	South Dakota	55
8	Indiana	55	8	Tennessee	55
8	Iowa	55	8	Texas	55
8	Kansas	55	8	Utah	55
8	Kentucky	55	8	Washington	55
8	Louisiana	55	8	West Virginia	55
8	Maryland	55	8	Wisconsin	55
8	Massachusetts	55	8	Wyoming	55

Map 7: Health-Care Price Transparency



ENERGY-USAGE DATA

Percentage of customers served by utilities participating in the Green Button initiative.

Why Is This Important? The Green Button initiative is an industry-led response to a White House challenge to provide utility customers with secure and user-friendly access to their energy-use information. Data from utility companies can reveal when, where, and in what ways customers use energy. For the millions of homeowners and businesses with access to their utility data, this can provide new ways to save money and energy.[40] For the 113 utility and software companies that offer Green Button products and services, as well as the 41 companies that have committed to offering Green Button in the future, this can provide new data about consumers' usage and preferences.[41] Developers can more easily build applications that use consumer energy data, since there is a widely-adopted open standard. The Open Energy Information website lists 31 online applications that allow consumers to access and explore their energy information.[42] In 2012, the Department of Energy partnered with Itron and Pacific Gas & Electric in hosting the Apps for Energy challenge to encourage energy-data innovation. The first-place winner, Leafully, was an app that analyzes users' uploaded data and displays it in terms of how their energy use affects the environment.[43] Green Button data is also useful for existing companies, such as WeatherBug, which offers integration between its local solar, wind, and temperature data and a user's Green Button data to show how energy use changes with the weather.[44] In October 2013, WeatherBug partnered with San Diego Gas and Electric to offer California users a service called SmartHome that measures correlations between individual homes' energy use and local weather.[45] The website UnPlugStuff.com shows San Diego Gas and Electric and Pacific Gas & Electric customers how much energy they use simply by having devices plugged in.[46]

The Rankings: Of the 40 states with utility companies that offer Green Button services, 16 offer Green Button to more than 50 percent of their utility customers. Several states have near-complete coverage, including Massachusetts—ranked the highest, with 98 percent of its population having access to Green Button; Rhode Island, with 95 percent coverage; and Hawaii, with 94 percent coverage. In Texas, which ranks fifth, many of the companies participating in Green Button have large footprints, and several, such as Oncor, are also power distributors for other smaller energy retailers. California, in sixth place, has many smaller utility companies, but the largest ones offer Green Button. States where a significant number of customers are served by large companies with service areas spanning across several states also tend to be ranked higher. States that want to promote open energy-use data should encourage the companies with the largest customer bases to participate in Green Button.

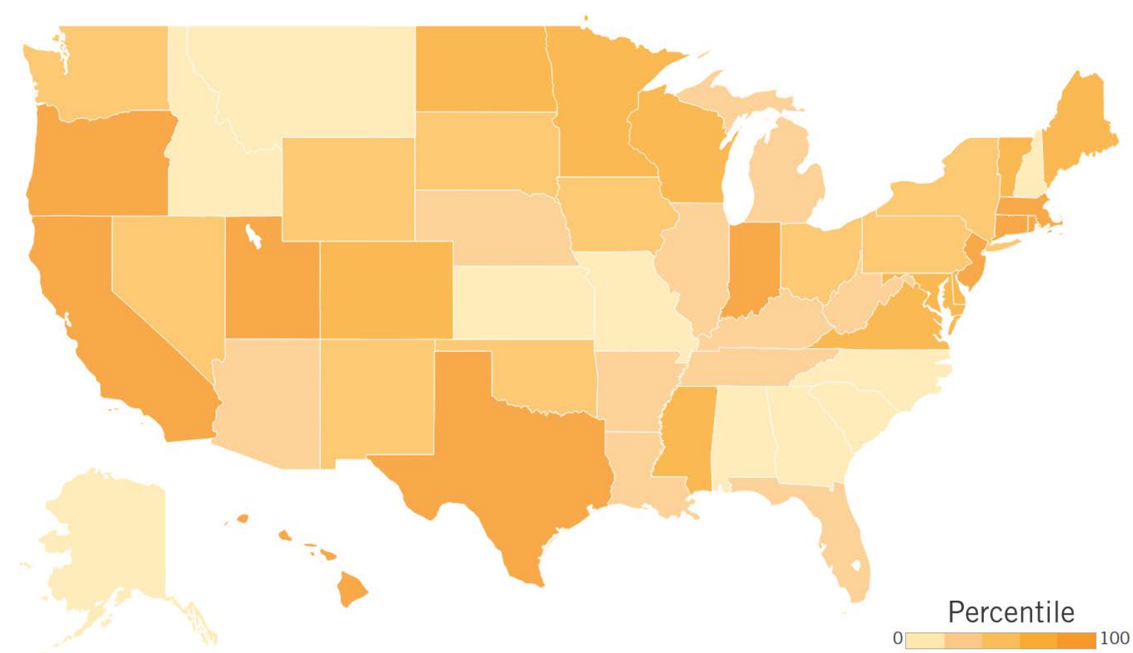
Methodology: A list of utility companies that offer Green Button coverage was matched against Energy Information Administration data that tracks the number of customers served by each utility company. The total number of customers covered across Green Button utilities is divided by the total number of customers served by Green Button and non-Green Button utilities.

Sources: "Who's Offering Green Button?" Green Button, accessed February 27, 2017, https://green-button.github.io/; Energy Information Administration, "2015 Utility Bundled Retail Sales-Total," accessed February 27, 2017, http://www.eia.gov/electricity/sales_revenue_price/pdf/table10.pdf.

Table 8: Energy-Usage Data

Rank	State	Percentage	Rank	State	Percentage
1	Massachusetts	98.3%	26	South Dakota	22.7%
2	Rhode Island	95.2%	27	Washington	17.2%
3	Hawaii	93.7%	28	Iowa	14.8%
4	Connecticut	93.2%	29	New Mexico	13.5%
5	Texas	86.9%	30	New York	12.4%
6	California	79.6%	31	Louisiana	11.1%
7	Indiana	78.0%	32	Illinois	10.2%
8	New Jersey	77.9%	33	West Virginia	8.5%
9	Utah	77.1%	34	Kentucky	8.3%
10	Oregon	77.0%	35	Arizona	8.0%
11	Maine	73.4%	36	Florida	5.5%
12	Virginia	71.2%	37	Nebraska	3.2%
13	Maryland	67.8%	38	Michigan	2.8%
14	Delaware	66.1%	39	Tennessee	1.5%
15	Vermont	63.9%	40	Arkansas	0.0%
16	Colorado	58.4%	41	North Carolina	0.0%
17	Minnesota	48.7%	42	Alabama	0.0%
18	Wisconsin	46.0%	42	Alaska	0.0%
19	North Dakota	43.9%	42	Georgia	0.0%
20	Mississippi	42.0%	42	Idaho	0.0%
21	Wyoming	41.6%	42	Kansas	0.0%
22	Pennsylvania	36.0%	42	Missouri	0.0%
23	Ohio	32.2%	42	Montana	0.0%
24	Oklahoma	30.1%	42	New Hampshire	0.0%
25	Nevada	25.4%	42	South Carolina	0.0%

Map 8: Energy-Usage Data



BUILDING ENERGY-EFFICIENCY DATA

Number of buildings in the state included in the DOE Building Performance Database per 10,000 residents.

Why Is This Important? The U.S. Department of Energy's (DOE) Building Performance Database is the nation's largest dataset of information about the actual energy performance and physical and operational characteristics of commercial and residential buildings.[47] The database is publicly available and is used to help demonstrate the relationship between building characteristics and energy performance. For each record, the database has a minimum of one year of data about the building's energy use, as well as details about the building's usage; location; climate; and heating, cooling, and lighting systems. Lawrence Berkeley National Laboratory cleanses and anonymizes all data submitted to the database before it is made public.

The database has many uses. Both government and commercial property managers can use the data to assess the efficiency of buildings they operate compared with similar buildings and the potential for savings from specific interventions. In addition, businesses selling energy-efficiency solutions can analyze the data to identify new opportunities or underserved markets; policymakers can use the data to design more effective energy-conservation programs; and financial institutions can use the data to conduct risk analyses.

The Rankings: Delaware, Colorado, Washington, Iowa, and Oregon top the rankings, with the highest ratio of buildings listed in the Building Performance Database. Several of these states have implemented energy-benchmarking rules, which are likely the main driver behind their high disclosure rates. For example, Delaware and Colorado require state-owned and state-leased buildings to benchmark energy use, and Washington requires all nonresidential building owners as well as state agency buildings to maintain benchmarking data and disclose it to prospective customers.[48]

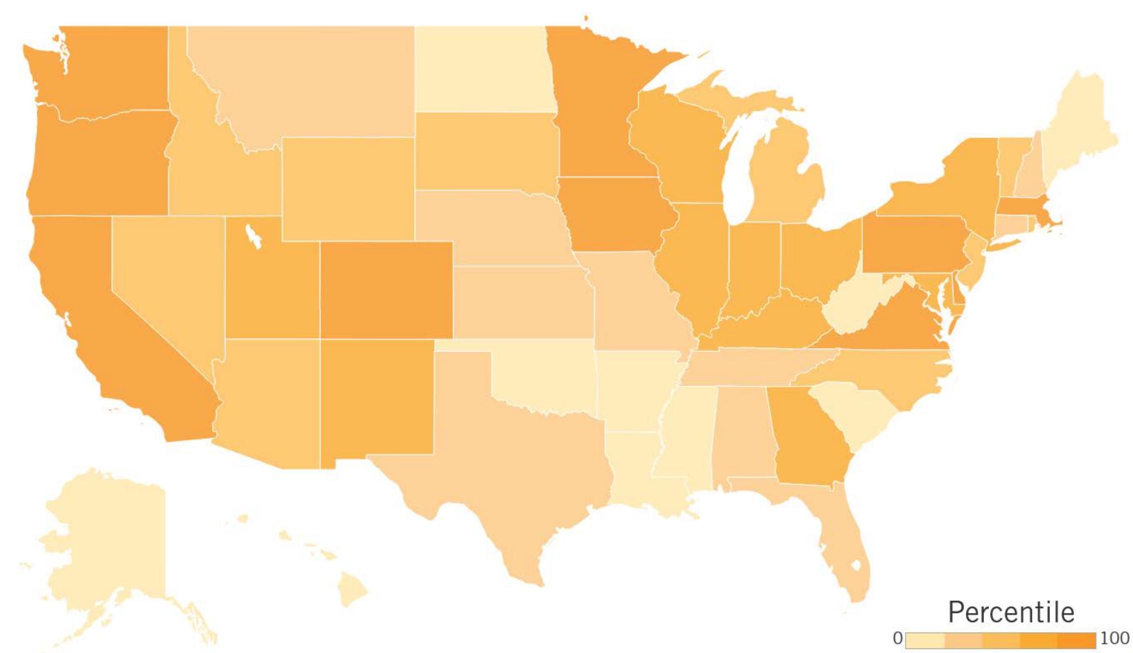
Methodology: The total number of buildings listed on the DOE's Building Performance Database is expressed as a ratio to 10,000 residents.

Sources: Building Performance Database (number of buildings by state, accessed February 27, 2017), https://bpd.lbl.gov/; U.S. Census Bureau, State Population Totals Tables: 2010–2016 (annual estimates of the resident population for the United States, regions, states, and Puerto Rico, April 1, 2010 to July 1, 2016 (NST-EST2016-01), https://www.census.gov/data/tables/2016/demo/popest/state-total.html.

Table 9: Building Energy-Efficiency Data

Rank	State	Score	Rank	State	Score
1	Delaware	5.2	26	Vermont	2.3
2	Colorado	4.8	27	North Carolina	2.2
3	Washington	4.8	28	Wyoming	2.1
4	Iowa	4.6	29	Michigan	2.1
5	Oregon	4.4	30	Rhode Island	2.1
6	Minnesota	4.4	31	Montana	2.0
7	California	3.7	32	Tennessee	2.0
8	Massachusetts	3.6	33	Texas	2.0
9	Virginia	3.5	34	Missouri	1.9
10	Pennsylvania	3.5	35	New Hampshire	1.8
11	New Mexico	3.5	36	Florida	1.8
12	Kentucky	3.1	37	Nebraska	1.7
13	Maryland	3.0	38	Alabama	1.6
14	New York	3.0	39	Kansas	1.6
15	Illinois	2.9	40	Connecticut	1.6
16	Ohio	2.7	41	North Dakota	1.6
17	Georgia	2.7	42	South Carolina	1.6
18	Indiana	2.6	43	Oklahoma	1.5
19	Wisconsin	2.5	44	Alaska	1.4
20	Utah	2.5	45	West Virginia	1.4
21	South Dakota	2.4	46	Hawaii	1.4
22	New Jersey	2.4	47	Arkansas	1.4
23	Nevada	2.4	48	Mississippi	1.4
24	Idaho	2.4	49	Maine	1.2
25	Arizona	2.3	50	Louisiana	1.0

Map 9: Building Energy-Efficiency Data



PUBLIC ACCESS TO GOVERNMENT INFORMATION

A quantitative transformed measure of qualitative survey results describing legal rights to and effective access to government information.

Why Is This Important? This metric asks three questions: Do citizens have a legal right to access information; is the right of access effective; and is information available online? The public's ability to access information is vital for enabling individuals and independent organizations to monitor actions by state legislators, judges, and civil servants and more effectively hold them accountable for their actions. In addition, public access can lead to more informed decision-making based on thorough, high-quality statistical analysis. For example, New York City's Mayor's Office of Data Analytics publishes the New York City Business Atlas, a collection of open datasets that can make it easier for businesses to understand economic factors about different neighborhoods.[49] The datasets include business filing data, demographic data, traffic data, and other valuable information that companies can analyze to make more informed decisions about growing their businesses.[50] Today, online accessibility of government documents has enabled higher levels of transparency than ever before. Placing legislative, judicial, procurement, audit, and insurance-filing information on publicly accessible websites can have a highly positive impact on levels of transparency and public involvement.

The Rankings: In top-scoring states, not only is information available for public consumption, but strong institutions are also in place to respond to data requests quickly, accurately, and without imposing financial burdens on investigating parties. However, even the highest-ranking states have key weak points in their public-access measures. In top-ranked Hawaii, for example, though citizens can access lobbying disclosure data, the state does not reliably provide information as open data, limiting its utility.[51] Interestingly, this indicator is one of the strongest areas for several states that scored very poorly overall. Alaska and Mississippi, which rank 41st and 50th overall, respectively, placed 2nd and 13th for this indicator.

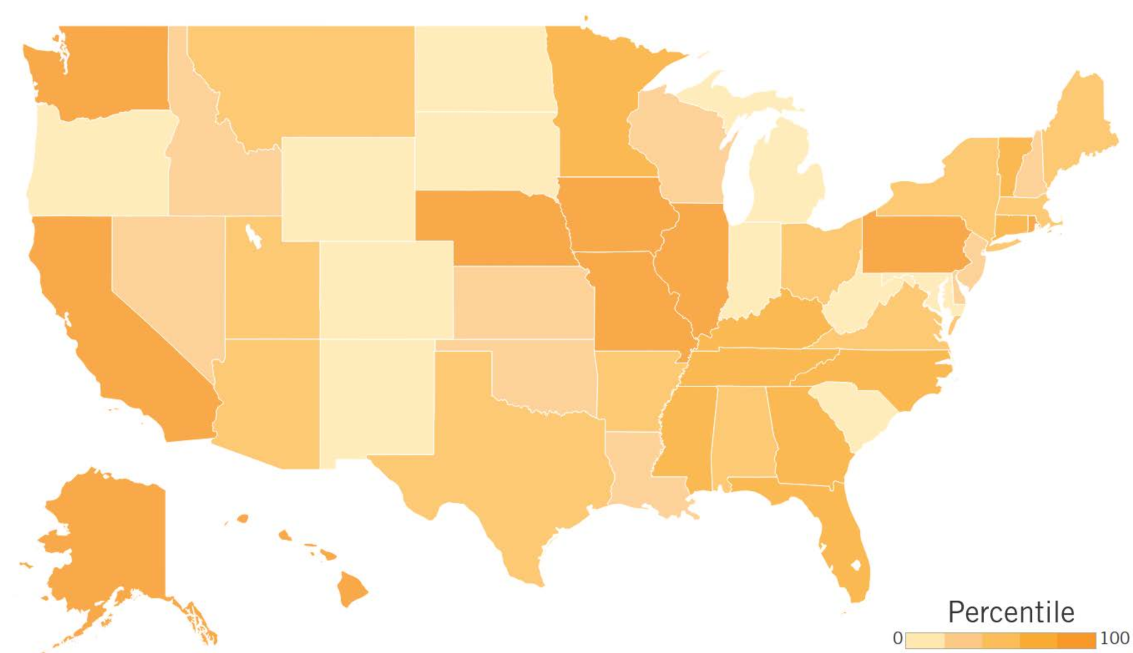
Methodology: We took 59 survey questions relevant to the public's ability to access government information from the *2015 Corruption Risk Index*. For many of these questions, states were scored 0, 25, 50, 75, or 100. For questions with the qualitative response no, moderate, and yes, answers were converted to a quantitative score of 0, 50, and 100 respectively. The final score was calculated by averaging the score of the 59 questions. The list of questions used for this indicator are as follows: section 1.1, questions 1 to 5; section 1.2, questions 6 to 13; section 2.4, questions 31 to 37; section 3.3, questions 47 to 49; section 4.4, questions 66 to 68; section 5.4, questions 83 to 85; section 5.5, questions 86 to 88; section 6.5, questions 116 to 118; section 7.4, question 138; section 8.5, questions 161 and 162; section 9.2, questions 179 to 184; section 10.3, questions 192 to 195; section 11.4, questions 205 and 206; section 12.5, questions 223 to 224 and 228 to 230; section 13.5, questions 238 and 243 to 245.

Source: Yue Qui, Chris Zubak-Skees, and Erik Lincoln, "How Does Your State Rank for Integrity?" (corruption risk index raw data, The Center for Public Integrity, November 9, 2015), https://www.publicintegrity.org/2015/11/09/18822/how-does-your-state-rank-integrity.

Table 10: Public Access to Government Information

Rank	State	Score	Rank	State	Score
1	Hawaii	64.8	26	Alabama	53.0
2	Alaska	63.6	26	Massachusetts	53.0
2	Illinois	63.6	26	Montana	53.0
4	California	63.1	26	Texas	53.0
5	Iowa	62.7	30	Maine	52.5
6	Washington	61.4	31	Nevada	52.1
7	Missouri	59.7	31	New Jersey	52.1
7	Nebraska	59.7	31	Oklahoma	52.1
7	Rhode Island	59.7	34	Louisiana	51.7
10	Pennsylvania	59.3	34	Wisconsin	51.7
11	Minnesota	58.9	36	Delaware	50.8
12	Kentucky	57.2	36	Idaho	50.8
13	Connecticut	56.8	36	Kansas	50.8
13	Mississippi	56.8	36	New Hampshire	50.8
15	Georgia	56.4	40	Colorado	50.4
16	North Carolina	55.9	40	South Carolina	50.4
16	Tennessee	55.9	40	West Virginia	50.4
16	Vermont	55.9	43	Indiana	50.0
19	Florida	55.5	43	South Dakota	50.0
20	Arizona	55.1	45	North Dakota	48.7
20	Ohio	55.1	46	Maryland	48.3
22	New York	54.2	47	Oregon	44.1
23	Arkansas	53.8	48	Michigan	43.6
23	Utah	53.8	48	New Mexico	43.6
25	Virginia	53.4	50	Wyoming	38.6

Map 10: Public Access to Government Information



ANTI-SLAPP LAWS

Whether the state has adopted laws prohibiting strategic lawsuits against public participation (SLAPPs).

Why Is This Important? Strategic lawsuits against public participation, or SLAPPs, are lawsuits designed to force an individual or organization to waste time and money defending itself against meritless claims in retaliation for some perceived offense, such as a consumer writing a negative review about a business or a journalist publishing a story critical of an elected official.[52] Even when defendants in SLAPPs prevail in court, they may still suffer financial or reputational damage from the litigation process. Thus, SLAPPs can deter people from exercising their First Amendment rights to free speech and interfere with many of the economic and social benefits that result from sharing information. For example, Internet users create millions of posts on blogs, social networks, and e-commerce platforms to share their opinions and feedback with others, and the growth of these massive, unstructured datasets have created new opportunities to identify trends and patterns about human behavior and interactions.[53] SLAPPs, or fear of SLAPPs, may discourage users from posting negative reviews on e-commerce websites, sharing critical feedback on social media, or candidly reviewing a health-care provider online. Over time, the absence of these critical voices may create significant gaps in the accuracy and completeness of the public datasets used by businesses, researchers, and government officials.[54] For example, by using predictive analytics based on restaurant-goers' online reviews, city health inspectors in Chicago are able to focus their in-person inspections on likely violators and improve public health.[55] Similarly, public-health officials in Chicago and New York City have begun analyzing social-media data to identify possible instances of food poisoning.[56] However, if individuals are reticent to accurately report negative information about businesses, the result will be much less competitive pressure in the marketplace to force businesses to improve the quality of their products and services. In this sense, shared information is a key tool in enabling the effective workings of Adam Smith's invisible hand. Anti-SLAPP laws significantly reduce the impact of SLAPP cases by allowing judges to quickly dismiss SLAPPs and penalize those who bring them, while still protecting the rights of plaintiffs to bring valid cases before a judge.

The Rankings: Thirty-one states have anti-SLAPP laws. While these laws vary in strength and scope, all limit the impact of SLAPPs. States that have anti-SLAPP laws have stronger free speech protections, and thus consumers are less likely to self-censor critical information they post online. While states with anti-SLAPP laws are fairly evenly distributed, states in the mountain west and southeast have been slower to pass legislation preventing against SLAPP lawsuits.

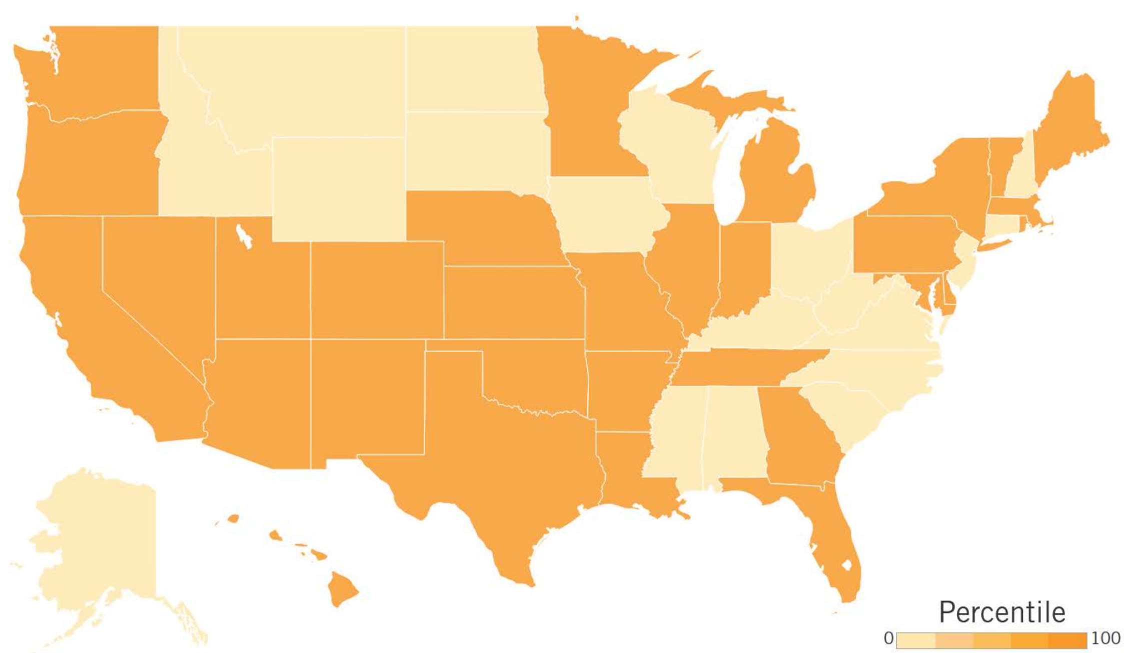
Methodology: States with an "Anti-SLAPP Law" get a score of 1; states without one get a score of 0.

Source: "State Anti-SLAPP Laws," Public Participation Project, accessed February 24, 2017, http://www.anti-slapp.org/your-states-free-speech-protection/.

Table 11: Anti-SLAPP Laws

State	Anti-SLAPP Law?	State	Anti-SLAPP Law?
Arizona	Yes	Rhode Island	Yes
Arkansas	Yes	Tennessee	Yes
California	Yes	Texas	Yes
Colorado	Yes	Utah	Yes
Delaware	Yes	Vermont	Yes
Florida	Yes	Washington	Yes
Georgia	Yes	Alabama	No
Hawaii	Yes	Alaska	No
Illinois	Yes	Connecticut	No
Indiana	Yes	Idaho	No
Kansas	Yes	Iowa	No
Louisiana	Yes	Kentucky	No
Maine	Yes	Mississippi	No
Maryland	Yes	Montana	No
Massachusetts	Yes	New Hampshire	No
Michigan	Yes	New Jersey	No
Minnesota	Yes	North Carolina	No
Missouri	Yes	North Dakota	No
Nebraska	Yes	Ohio	No
Nevada	Yes	South Carolina	No
New Mexico	Yes	South Dakota	No
New York	Yes	Virginia	No
Oklahoma	Yes	West Virginia	No
Oregon	Yes	Wisconsin	No
Pennsylvania	Yes	Wyoming	No

Map 11: Anti-SLAPP Laws



SECTION II: ENABLING KEY TECHNOLOGY PLATFORMS

Various technologies underpin the data economy and provide platforms for innovation. Technologies that make it easy to collect, share, and use data empower businesses, researchers, government agencies, and citizens alike to draw new insights, make better decisions, develop valuable new products and services, and generate considerable social benefits. In health care, for example, hospitals that adopt electronic health-record systems can lower their costs by reducing expenses associated with transcriptions and managing paper files, in addition to reducing medical errors by having better access to patient data and improving patient care through better disease management.[57] Smart thermostats use sensors and machine learning to make home heating and cooling more efficient, thereby reducing household energy bills.[58] Deployed at scale, smart thermostats improve the energy efficiency of a community, which can reduce pollution and strain on power grids.[59]

The potential for data-driven innovation hinges on the collection, sharing, and use of data. Thus, states that enable the technological infrastructures to support these functions are in a better position to capture the value of data innovation. This includes both hybrid digital-physical infrastructure, such as smart-meter deployments, and digital infrastructure, such as government open-data portals and electronic health records. The indicators in this section measure the presence and quality of seven components of technological infrastructure: broadband, smart meters, transit-information systems, electronic health records, the Internet of Things, open-data portals, and e-government technology.

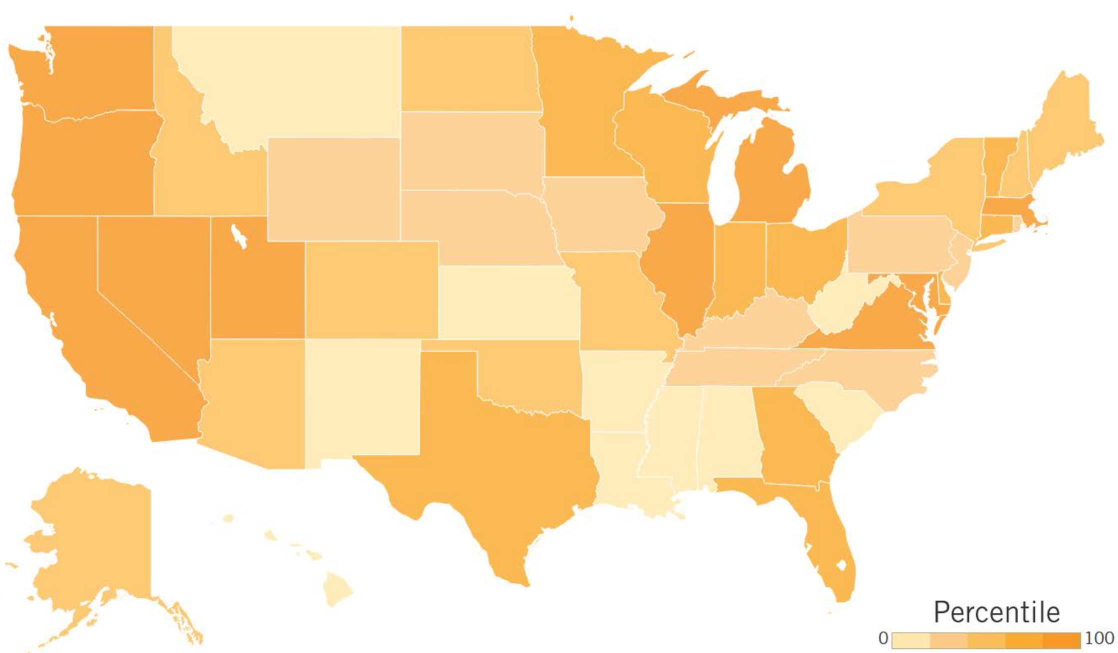
Maryland tops the chart, by ranking at or near the top on indicators such as broadband, transit-information systems, and open-data portals, and strongly in most other categories. Some of these factors likely reflect characteristics of the state. For example, wealthier states tend to have more consumers using broadband and the Internet of Things, and population density can affect broadband deployment. Utah ranks second as a result of its strong performance in almost every indicator. Though Utah has a low overall population density compared with other states, it is one of the most urbanized states in the country, which explains its high broadband deployment.[60]

There are many steps lower-scoring states can take to improve their ranks. First, state governments should look to their leading peers for best practices on using e-government technology and publishing open data. In addition, states should identify opportunities to spur the deployment of the technologies underpinning the data economy. For example, states can increase broadband access and improve broadband speeds by taking steps such as streamlining access to conduit, rights of way, and utility poles, and coordinating conduit installation with public works. States can also promote the adoption of “smart” technologies, such as by having state public utility commissions encourage utilities to offer consumers and businesses incentives for adopting smart thermostats and encouraging utilities to deploy smart meters.[61] Similarly, states can work with insurers and employers to promote adoption of wearables for health and fitness. Additionally, states can spur adoption of electronic health records by tackling barriers such as interoperability—a tactic that has helped states such as Wyoming, South Dakota, and Minnesota increase adoption rates.

Table 12: Enabling Key Technology Platforms

Rank	State	Score	Rank	State	Score
1	Maryland	75.4	26	North Dakota	48.9
2	Utah	71.2	27	Idaho	48.3
3	Washington	70.5	28	Alaska	47.7
4	Oregon	66.8	29	New York	46.9
5	Michigan	64.7	30	Missouri	46.7
6	California	62.9	31	Pennsylvania	46.5
7	Virginia	62.8	32	Wyoming	45.4
8	Nevada	60.0	33	North Carolina	44.7
9	Illinois	59.8	34	Kentucky	43.8
10	Massachusetts	59.2	35	Nebraska	42.9
11	Vermont	58.9	36	Iowa	42.8
12	Texas	58.1	37	New Jersey	40.5
13	Florida	56.2	38	Tennessee	40.1
14	Wisconsin	56.1	39	South Dakota	39.6
15	Delaware	56.0	40	Rhode Island	39.3
16	Georgia	55.5	41	Arkansas	38.6
17	Ohio	54.8	42	Hawaii	37.6
18	Minnesota	54.8	43	Kansas	36.2
19	Connecticut	54.5	44	Alabama	34.7
20	Indiana	53.3	45	Montana	32.9
21	Maine	52.3	46	South Carolina	30.6
22	Colorado	52.1	47	New Mexico	26.9
23	Oklahoma	51.1	48	Mississippi	26.7
24	New Hampshire	49.4	49	Louisiana	20.1
25	Arizona	49.3	50	West Virginia	17.3

Map 12: Enabling Key Technology Platforms



BROADBAND

A composite measure of Internet users, households with broadband coverage, and average connection speeds.

Why Is This Important? Broadband is a critical component of data-driven innovation by providing users access to data-driven services and enabling communication between the billions of devices that make of the Internet of Things. Moreover, broadband has a positive impact on economic growth, productivity, job creation, and firm efficiency.[62] Broadband deployment has increased from 10 percent of all U.S. Internet connections in 2000 to 96 percent in 2010.[63] However, a considerable percentage of the U.S. population remains unconnected. Ten percent of American adults, including 13 percent of those earning less than $20,000 a year, use smartphones and wireless mobile networks as a substitute for a computer and fixed broadband subscription. Among broadband non-adopters, most are constrained either by limited money or limited technology skills. Only 43 percent of households with annual incomes under $25,000 have broadband. Similarly, only 49 percent of Americans over the age of 65, many of whom have limited computer skills, have broadband. Higher speeds frequently depend on dense urban populations that make technologies like fiber cost effective. In the last five years, average connection speeds across the country have increased by 131 percent, including 31 percent growth in 2013 alone.[64]

The Rankings: Minnesota has the highest percentage of individuals who use the Internet, while New Hampshire has the highest percentage of home broadband adoption, and Delaware has the fastest average speeds in the country. Despite not claiming the top spot in any of these categories, Utah performs very strongly in each, ranking first overall. Broadband adoption and speeds tend to be highest in higher-income states, including the top-five-ranked states. Because it is less costly to invest in broadband in metropolitan areas, states that are predominately urban are much more likely to have more extensive, faster broadband networks. Conversely, more rural and lower-income states, such as bottom-scoring Mississippi, Arkansas, and West Virginia, have slower networks.

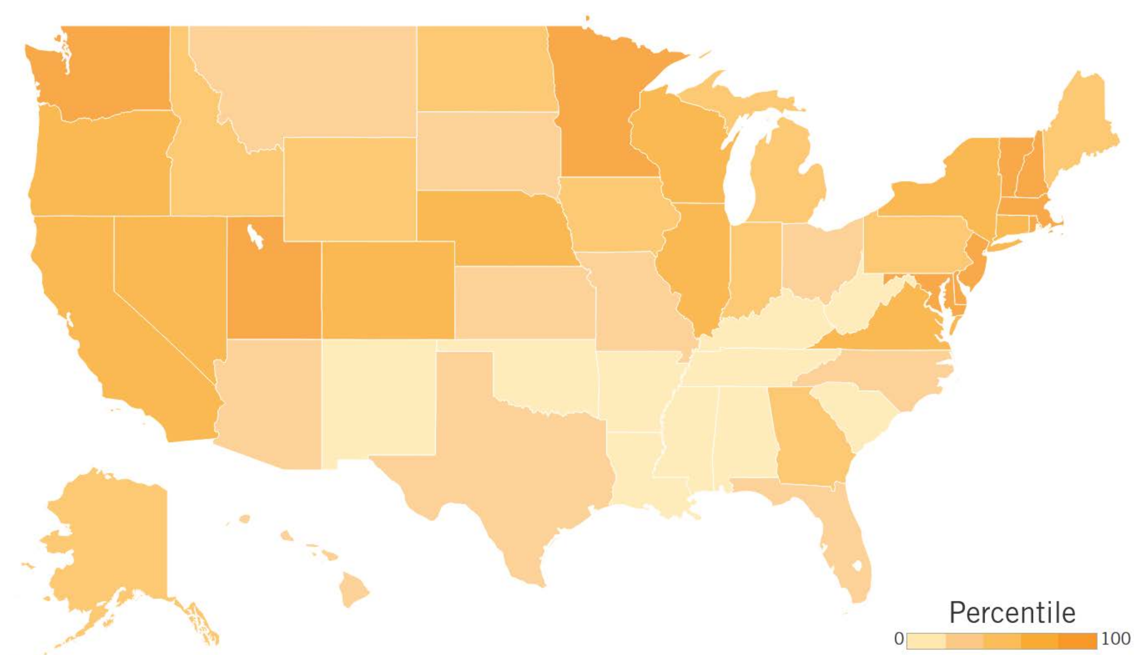
Methodology: Three variables are standardized across each state: the percent of the population who use the Internet, the percent of households with a broadband subscription, and the average connection speed. The three standardized scores are weighted equally, then summed for a final score.

Sources: National Telecommunications and Information Administration, Digital Nation Data Explorer (Internet Use (Any Location), July 2015; last updated October 27, 2016), https://www.ntia.doc.gov/data/digital-nation-data-explorer#sel=internetUser&disp=map; U.S. Census Bureau, 2015 American Community Survey 1-Year Estimates (Series R2801: Percent of Households With a Broadband Internet Subscription; accessed February 27, 2017), https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml; Akamai, Connectivity Visualizations (Internet Connection Speeds and Adoption Rates by Geography, United States, Average Connection Speed; accessed February 27, 2017), https://www.akamai.com/uk/en/our-thinking/state-of-the-internet-report/state-of-the-internet-connectivity-visualization.jsp.

Table 13: Broadband

Rank	State	Internet Use	Home Broadband	Connection Speed	Rank	State	Internet Use	Home Broadband	Connection Speed
1	Utah	80.6%	83.1%	18.4	26	Iowa	79.5%	75.0%	12.4
2	New Hampshire	82.3%	84.5%	15.4	27	North Dakota	72.5%	76.3%	15.8
3	Maryland	79.3%	81.4%	18.6	28	Pennsylvania	71.4%	75.7%	16.3
4	Massachusetts	76.7%	82.6%	19.4	29	Georgia	74.7%	74.8%	14.6
5	Washington	79.1%	83.9%	16.8	30	Maine	78.2%	77.1%	11.3
6	Rhode Island	78.9%	78.2%	19.4	31	Missouri	76.6%	73.3%	13.7
7	New Jersey	77.9%	81.6%	18.1	32	Hawaii	71.2%	82.2%	12.5
8	Delaware	77.8%	77.4%	19.6	33	Florida	70.7%	77.5%	14.9
9	Minnesota	83.1%	79.5%	14.6	34	Montana	75.0%	75.0%	12.8
10	Vermont	82.5%	78.7%	15.3	35	Kansas	73.9%	76.2%	12.8
11	Virginia	78.0%	78.6%	17.9	36	South Dakota	72.6%	75.3%	13.9
12	Oregon	80.5%	80.8%	15.2	37	Arizona	69.4%	78.1%	14.3
13	Connecticut	77.6%	82.0%	15.7	38	Texas	71.4%	74.3%	14.5
14	Illinois	81.3%	76.9%	14.9	39	North Carolina	70.4%	74.1%	14.1
15	Wisconsin	82.5%	76.9%	14.1	40	Ohio	73.6%	76.1%	11.0
16	Nevada	78.2%	79.0%	14.9	41	South Carolina	73.2%	69.9%	13.4
17	California	73.6%	81.3%	16.2	42	Oklahoma	70.7%	70.8%	14.0
18	Colorado	75.0%	83.0%	14.3	43	Tennessee	69.4%	70.2%	15.0
19	New York	72.8%	77.8%	17.8	44	Kentucky	75.3%	70.9%	10.7
20	Nebraska	78.7%	78.1%	13.7	45	Louisiana	73.5%	68.7%	12.4
21	Wyoming	80.0%	77.8%	12.9	46	New Mexico	72.1%	67.2%	12.3
22	Alaska	79.3%	81.7%	11.0	47	Alabama	69.8%	68.3%	13.2
23	Michigan	75.1%	74.4%	16.0	48	West Virginia	71.7%	69.8%	11.2
24	Indiana	76.9%	73.3%	15.1	49	Arkansas	72.0%	64.2%	10.9
25	Idaho	81.4%	76.7%	10.6	50	Mississippi	69.8%	61.0%	10.7

Map 13: Broadband



SMART METERS

The percent of electricity meters that are smart meters.

Why Is This Important? Smart meters are energy meters with enhanced, two-way communication technology that provide information to energy providers and consumers about prices, usage patterns, and inefficiencies.[65] Inefficiencies in the power grid, including electric transmission congestion, line losses, unused electricity, and power interruptions, are due to a lack of specific information about energy demand and consumption patterns.[66] Together these inefficiencies cost the United States $333 billion in 2009 and another $1.22 trillion from additional carbon emissions.[67] Installing smart meters in homes helps address these inefficiencies by enabling energy providers to dynamically adjust energy prices and consumers to adjust consumption accordingly.[68] With real-time information, utility companies will be better equipped to prevent outages, reduce operating costs, and ultimately decrease average electricity prices for consumers.[69] Moreover, utilities can build electric infrastructure based on detailed demand information. The Edison Foundation estimates the initial cost of installing 1 million smart meters at between $198 million and $272 million, but the meters will generate a net benefit between $21 million and $64 million in reduced energy costs per year.[70] The deployment of smart meters is an excellent example of better technology and better data being used to conserve energy, save money, and grow the economy.

The Rankings: As of 2015, there are 64.7 million smart meters for electricity in use throughout the United States, and 88 percent of these smart-meter installations were for residential customers.[71] A number of rural states do well in this category, such as Vermont, Maine, and Idaho, while states such as Massachusetts and New Jersey lag behind.[72] Utility company initiative is an important factor in the decision to install smart meters, although federal programs such as the $69 million SmartGrid grant Vermont received as part of the 2009 stimulus package have also helped.[73] California, for example, maintains its high ranking largely due to PG&E's partnership with the California Public Utilities Commission to install more than 9 million smart meters, where consumers must pay $75 to opt out of smart-meter installation.[74] Many states have policies requiring the use of smart meters. Several states that score quite poorly here, such as Rhode Island and New York, which have failed to achieve even 1 percent smart meter deployment, have no such policy.[75]

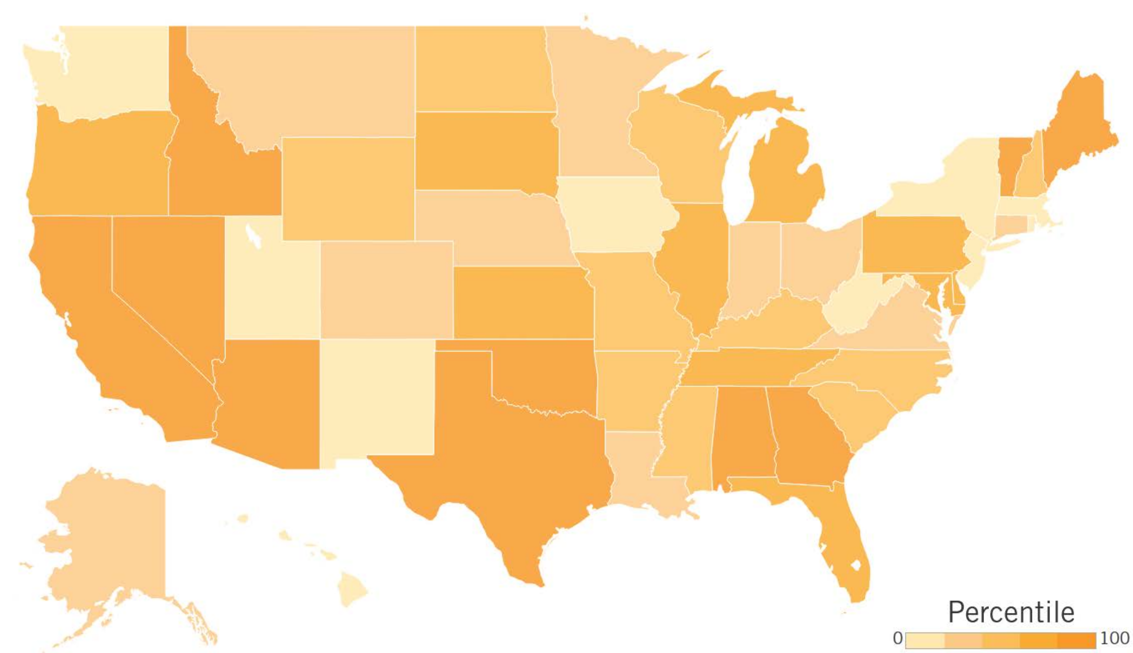
Methodology: The total number of meters with advanced metering infrastructure (i.e., smart meters) across residential, commercial, and industrial sectors is divided by the total number of electricity meters across residential, commercial, and industrial sectors.

Source: U.S. Energy Information Administration, Electricity (electric power sales, revenue, and energy efficiency Form EIA-861 detailed data files, advanced meters, 2015), https://www.eia.gov/electricity/data/eia861/.

Table 14: Smart Meters

Rank	State	Percentage	Rank	State	Percentage
1	Maine	90.9%	26	Wisconsin	23.9%
2	Georgia	87.2%	27	North Dakota	23.8%
3	Nevada	84.7%	28	New Hampshire	21.8%
4	California	82.1%	29	South Carolina	21.1%
5	Vermont	78.8%	30	Missouri	21.1%
6	Oklahoma	75.7%	31	Virginia	19.1%
7	Arizona	74.0%	32	Ohio	18.4%
8	Alabama	73.0%	33	Indiana	17.6%
9	Texas	72.0%	34	Colorado	17.6%
10	Idaho	71.5%	35	Montana	16.6%
11	Maryland	68.8%	36	Louisiana	15.9%
12	Delaware	66.3%	37	Nebraska	15.7%
13	Michigan	65.3%	38	Minnesota	13.6%
14	Florida	58.2%	39	Connecticut	12.5%
15	Pennsylvania	56.5%	40	Alaska	11.9%
16	Oregon	55.8%	41	Iowa	10.4%
17	Kansas	48.7%	42	New Mexico	9.5%
18	Tennessee	46.1%	43	Hawaii	6.2%
19	Illinois	38.1%	44	Washington	5.4%
20	South Dakota	38.0%	45	Utah	4.4%
21	Mississippi	31.4%	46	Massachusetts	2.7%
22	Arkansas	29.4%	47	New Jersey	0.9%
23	North Carolina	27.4%	48	West Virginia	0.7%
24	Kentucky	26.4%	49	New York	0.4%
25	Wyoming	25.9%	50	Rhode Island	0.0%

Map 14: Smart Meters



TRANSIT INFORMATION SYSTEMS

Availability of machine-readable data on public-transit systems.

Why Is This Important? By publishing public-transit data using the General Transit Feed Specification (GTFS), a common machine-readable data standard for transit data, departments of transportation can promote the development and use of public-transportation tools. GTFS data provides information on transit, such as information on routes and fares. Providing this information not only helps commuters make more informed transportation decisions, it also serves as a platform for developers and governments to build valuable apps and other services. In particular, publishing GTFS data in real time can encourage greater use of public transit, as this information allows riders to see precise information about commute times and delays.

The Rankings: States with robust public-transit systems, including Ohio and Washington, lead in this indicator, while more rural states, including Wyoming, West Virginia, and Maine, score poorly here. Public-transit ridership—a factor of urbanization—surely plays a large role in whether a state prioritizes publishing transit information in the GTFS format, as a state with high levels of ridership would also have higher demand for this data. Developers are more likely to prioritize the creation of apps and transit tools for areas where they could gain the most users. Despite its very low population density, Alaska still ranks highly in this indicator, with all three of its largest cities publishing GTFS data.

Methodology: The three most populous cities per state are selected. In each of these cities, if its public transportation system has a GTFS feed, the state is awarded one point; if that GTFS feed also offers real-time data, the state is awarded an additional one point. A maximum score of six requires the public-transportation system in each of a state's three most populous cities to have a real-time GTFS feed.

Sources:

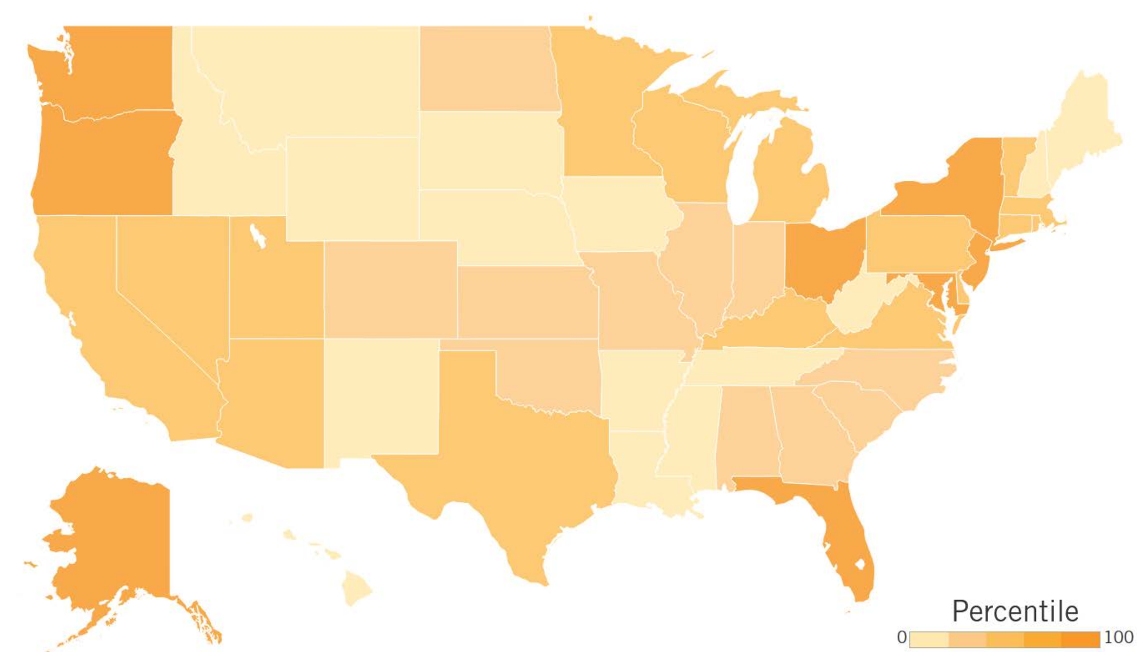
"United States," Transit Feeds, accessed March 3, 2017, http://transitfeeds.com/l/31-united-states. (Note: Fargo and Grand Forks, ND added on April 18, 2017.)

"Guide to State and Local Census Geography, 2010 Census," U.S. Census Bureau, accessed May 1, 2017, https://www2.census.gov/geo/pdfs/reference/guidestloc/All_GSLCG.pdf.

Table 15: Transit-Information Systems

Rank	State	Score	Rank	State	Score
1	Ohio	5	25	Colorado	2
1	Washington	5	25	Georgia	2
3	Alaska	4	25	Illinois	2
3	Florida	4	25	Indiana	2
3	Maryland	4	25	Kansas	2
3	New Jersey	4	25	Missouri	2
3	New York	4	25	North Carolina	2
3	Oregon	4	25	North Dakota	2
9	Arizona	3	25	Oklahoma	2
9	California	3	25	South Carolina	2
9	Connecticut	3	36	Arkansas	1
9	Delaware	3	36	Hawaii	1
9	Kentucky	3	36	Iowa	1
9	Massachusetts	3	36	Louisiana	1
9	Michigan	3	36	Mississippi	1
9	Minnesota	3	36	Montana	1
9	Nevada	3	36	Nebraska	1
9	Pennsylvania	3	36	New Mexico	1
9	Rhode Island	3	36	South Dakota	1
9	Texas	3	36	Tennessee	1
9	Utah	3	46	Idaho	0
9	Vermont	3	46	Maine	0
9	Virginia	3	46	New Hampshire	0
9	Wisconsin	3	46	West Virginia	0
25	Alabama	2	46	Wyoming	0

Map 15: Transit-Information Systems



ELECTRONIC HEALTH RECORDS

The extent to which physicians and hospitals in a state use electronic health records.

Why Is This Important? Health data underlies many efforts to reduce health-care costs, increase patient safety, and improve quality of care. Data sharing is necessary to allow medical researchers to use health data to determine the effectiveness of a treatment for particular populations or discover harmful drug side effects. It is also necessary to address specific problems, such as improving public health and combatting prescription-drug abuse. Key components of health-data infrastructure include electronic health records (EHRs) to store the data, and electronic health-information exchanges for patients and providers to access and share the data. These technologies help ensure that a patient's medical information is available at the point of care, and allow physicians to use decision-support systems to help reduce mistakes and improve quality of care. Health-data infrastructure also serves as a platform for additional health-care innovation, such as wearables and telemedicine. Broader adoption of data in health care could potentially reduce health-care spending by $300 billion to $450 billion annually, a significant consideration, since health-care costs total approximately $2.6 trillion annually.[76]

The Rankings: Nationally, physicians and hospitals have greatly increased their adoption of health information technology over the past few years. In 2015, 84 percent of hospitals had at least a basic electronic health record (EHR) system, compared with 16 percent in 2010.[77] In every state, at least 6 out of 10 hospitals utilize a basic EHR system, and from 2014 to 2015, there was an 11 percent increase in adoption of EHR systems with more advanced functionality.[78] Federal incentives have spurred much of the digitization of the health-care industry, but state policy has had an important role as well, both in collecting data and applying it to important health challenges. While every state operates a voluntary EHR incentive program to spur adoption, some states have taken additional actions to drive EHR adoption. In Wyoming, for example, the Department of Health began offering a fully certified EHR platform to Medicaid providers at no cost in May 2012.[79] Additionally, top-scoring Massachusetts and several other states participated in a multistate working group on EHR interoperability, which promoted interoperability among state vendors.[80]

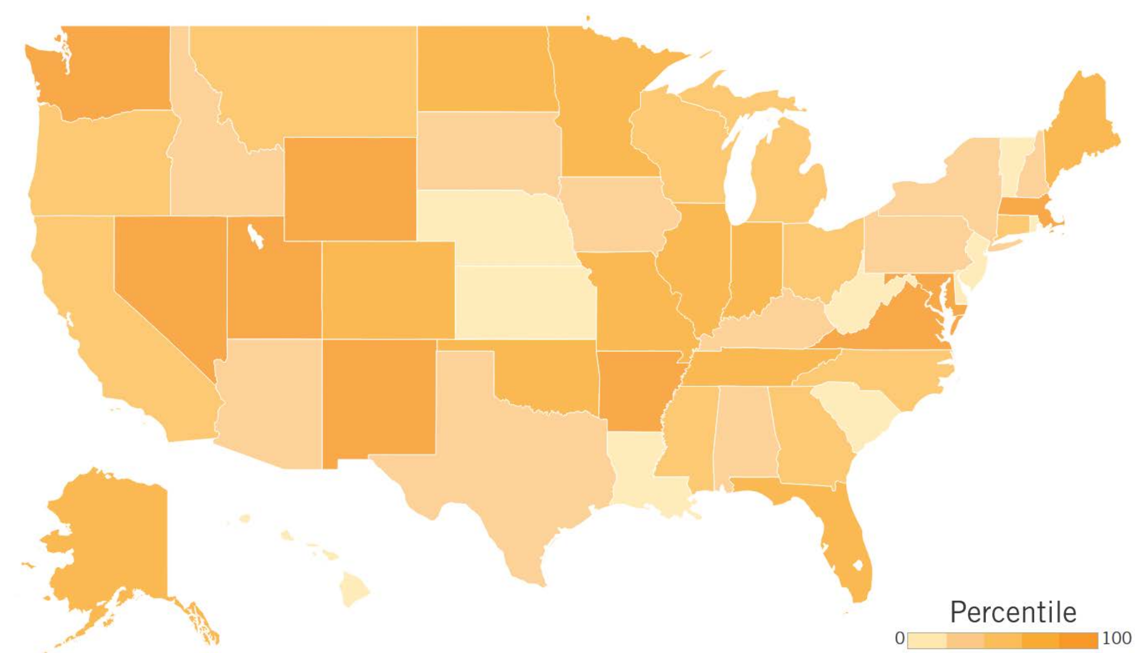
Methodology: This indicator is a composite score of two variables: the percent of all office-based physicians who have adopted a certified EHR and the percent of nonfederal acute care hospitals that have adopted basic electronic health record systems. The values for this variable are extracted directly from the source and then standardized. The standardized scores are weighted equally, then summed for a final score.

Sources: JaWanna Henry et al., "Adoption of Electronic Health Record Systems Among U.S. Non-Federal Acute Care Hospitals: 2008–2015" (data brief, the Office of the National Coordinator for Health Information Technology, May 2016), https://dashboard.healthit.gov/evaluations/data-briefs/non-federal-acute-care-hospital-ehr-adoption-2008-2015.php

Table 16: Electronic Health Records

Rank	State	Hospitals	Physicians	Rank	State	Hospitals	Physicians
1	Massachusetts	93%	90%	26	Oregon	85%	78%
2	Wyoming	94%	88%	27	Idaho	80%	81%
3	Washington	94%	86%	28	New Hampshire	79%	82%
4	Minnesota	88%	89%	29	California	85%	77%
5	Indiana	88%	89%	30	Ohio	85%	76%
6	Colorado	87%	90%	31	Texas	81%	79%
7	North Carolina	86%	89%	32	Illinois	87%	74%
8	Arkansas	90%	85%	33	Maine	87%	73%
9	North Dakota	89%	84%	34	Alaska	89%	71%
10	New Mexico	90%	82%	35	Alabama	80%	78%
11	South Dakota	80%	90%	36	Connecticut	83%	75%
12	Michigan	85%	85%	37	Montana	83%	75%
13	Mississippi	86%	83%	38	Kansas	73%	83%
14	Maryland	95%	73%	39	New York	82%	75%
15	Tennessee	87%	80%	40	Georgia	85%	69%
16	Kentucky	82%	84%	41	Arizona	78%	74%
17	Wisconsin	83%	83%	42	Delaware	67%	83%
18	Florida	87%	79%	43	Pennsylvania	78%	73%
19	Utah	93%	73%	44	West Virginia	74%	75%
19	Virginia	93%	73%	45	South Carolina	71%	77%
21	Missouri	87%	79%	46	Vermont	65%	79%
22	Nevada	94%	72%	47	Hawaii	71%	71%
23	Oklahoma	87%	77%	48	Louisiana	70%	69%
24	Nebraska	75%	87%	49	Rhode Island	70%	69%
25	Iowa	82%	81%	50	New Jersey	75%	62%

Map 16: Electronic Health Records



INTERNET OF THINGS: CONSUMER DEVICES

A composite score of wearables per 1,000 residents and smart TVs per 1,000 residents.

Why Is This Important? The Internet of Things describes the reality of the Internet: It is no longer just a global network for people to communicate with one another using computers, but it is also a platform for devices to communicate electronically with other devices and the world around them.[81] The result is a world that is alive with information, as data flows from one device to another and is shared and reused for a multitude of purposes. The growth of the Internet of Things is being driven by advancements in sensors, low-power processors, scalable cloud computing, and ubiquitous wireless connectivity. These technologies can be used for many things, including monitoring roads and bridges, automating household appliances, monitoring health and fitness, and improving agricultural efficiency. These devices generate growing volumes of data that can be used for multiple purposes. For example, after an earthquake in California, Jawbone, which produces wearable fitness devices, found it could use anonymized data from its users to detect tremors at different distances from the epicenter. Seismographs said the tremor, which occurred at 3:20 a.m. near the city of Napa, was a 6.0 on the Richter Scale—but Jawbone could quantify its intensity in more human terms by showing, that it interrupted people's sleep as far away as Sacramento and San Jose.[82] Harnessing the potential of smart devices and the data they generate for economic and social good will be one important opportunity in the coming years.

The Rankings: Wealthier states such as Utah, Virginia, and Washington topped the rankings. Rural states largely scored poorly in this category, likely due in part to smart televisions, which typically offer streaming services and rely on higher Internet speeds than many rural communities may have access to. Interestingly, this does not seem to apply to Wyoming or Alaska, which placed fourth and fifth overall.

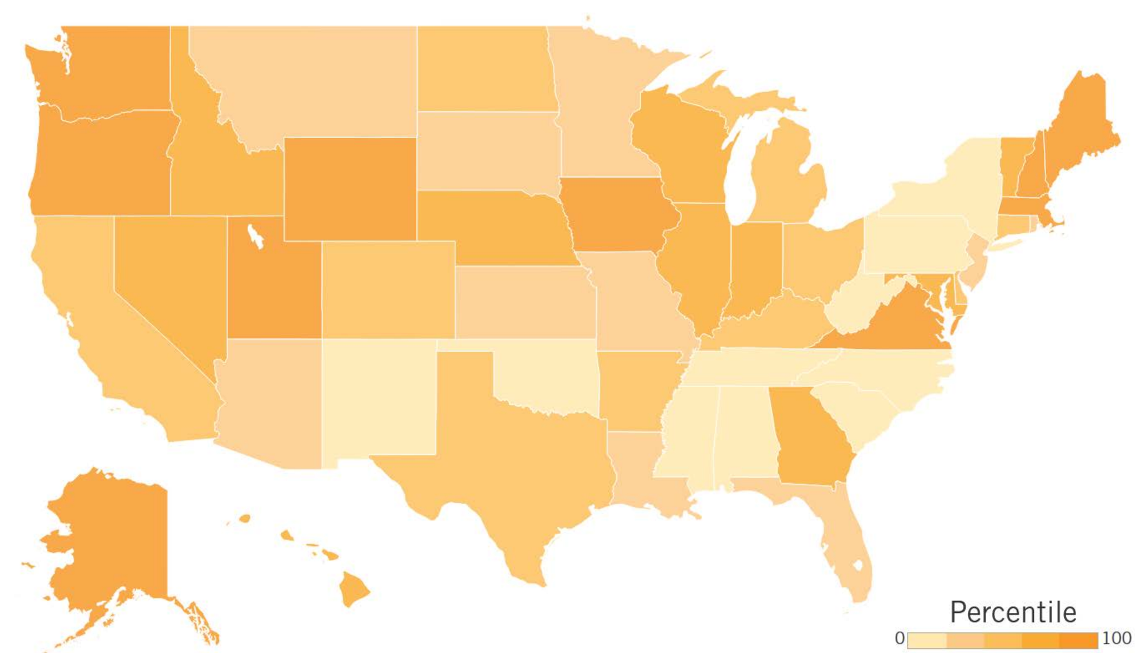
Methodology: This indicator uses data on the adoption of wearables and smart TVs as a proxy for the adoption of the Internet of Things. The total number of wearables expressed as a share of 1,000 residents and the total number of smart TVs expressed as a share of 1,000 residents as of 2015 are calculated. Both of these values are standardized across the 50 states, given equal weight, and summed for the final score.

Sources: National Telecommunications and Information Administration, Digital Nation Data Explorer (smart TV or TV-connected device use and wearable device use, July 2015; last updated October 27, 2016), https://www.ntia.doc.gov/data/digital-nation-data-explorer#sel=internetUser&disp=map; U.S. Census Bureau, State Population Totals Tables: 2010–2016 (annual estimates of the resident population for the United States, regions, states, and Puerto Rico: April 1, 2010 to July 1, 2016 (NST-EST2016-01); accessed February 27, 2017), https://www.census.gov/data/tables/2016/demo/popest/state-total.html; U.S. Census Bureau, American Community Survey (series S1101: households and families; accessed March 2, 2017), https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

Table 17: Internet of Things: Consumer Devices

Rank	State	Wearables	Smart TVs	Rank	State	Wearables	Smart TVs
1	Utah	20.1	332.8	26	Colorado	7.2	311.4
2	Virginia	18.0	316.7	27	California	14.0	244.2
3	Washington	14.7	320.5	28	North Dakota	9.7	277.0
4	Wyoming	14.3	312.6	29	Texas	13.1	242.5
5	Alaska	16.5	291.3	30	Kentucky	9.4	274.8
6	Oregon	15.5	296.8	31	Arizona	8.9	270.5
7	Massachusetts	19.3	259.0	32	New Jersey	10.4	255.5
8	Iowa	16.5	279.5	33	Florida	14.4	213.5
9	New Hampshire	16.1	280.4	34	Rhode Island	8.0	275.0
10	Maine	15.6	284.6	35	South Dakota	10.6	239.1
11	Illinois	11.7	317.6	36	Minnesota	5.5	289.1
12	Idaho	10.1	328.2	37	Kansas	9.2	250.4
13	Vermont	14.2	281.5	38	Louisiana	11.9	224.1
14	Nevada	10.9	309.3	39	Missouri	7.9	262.0
15	Maryland	15.6	260.2	40	Montana	6.9	268.9
16	Indiana	12.8	285.8	41	South Carolina	9.7	239.3
17	Hawaii	21.3	200.3	42	Pennsylvania	10.1	232.3
18	Georgia	15.4	256.6	43	Tennessee	9.3	237.7
19	Nebraska	12.8	274.7	44	North Carolina	8.4	234.9
20	Wisconsin	13.7	266.1	45	Oklahoma	6.6	242.0
21	Michigan	13.4	267.1	46	New York	7.8	209.2
22	Ohio	12.3	275.9	47	West Virginia	8.3	195.8
23	Connecticut	14.7	246.3	48	Alabama	10.9	154.9
24	Delaware	13.5	256.9	49	New Mexico	4.4	215.4
25	Arkansas	16.7	223.3	50	Mississippi	6.2	194.1

Map 17: Internet of Things: Consumer Devices



OPEN-DATA PORTALS

States with open-data portals and policies.

Why Is This Important? Open-data portals are the front door to state government datasets. Open-data portals allow users to explore and download thousands of government datasets across a wide array of topics, such as agriculture, education, and the economy. Popular datasets vary by state. In Utah, the most accessed portal item is a summary of the different types of fish stocked in the state, whereas in Missouri the top item is a list of severe weather alerts. Open-data portals often provide information for developers about application programming interfaces (APIs), as well as tools to allow individuals to request certain datasets. Open-data portals are often established as part of a state's open-data policy. These policies encourage government transparency and accountability, public participation, and innovation by guaranteeing access to wide varieties of public information in an open and machine-readable format.

The Rankings: State open-data policies are becoming increasingly common. Of the six highest-ranked states, Oklahoma enacted its policy in 2011 (revised in 2013), Hawaii and New York enacted their policies in 2013, and Illinois, Maryland, and Utah enacted theirs in 2014. These six states have specific open-data policies, open-data portals, and machine-readability written into both the portals and the policies. Of the 24 other states that make machine-readable data available, none require machine readability in their open-data policies. Requiring machine readability by law instead of only by practice facilitates more consistent application and a wider variety of data available for immediate computer analysis. For example, whereas the top six states offer developers APIs to download all of the data in machine-readable formats, Texas, which ranks eighth, is only required to publish open, machine-readable data for expenditures. Others offer only some or no data in such formats. This can be limiting for developers who are seeking to use public data for beneficial purposes and can only access PDFs or other incompatible file formats. The form of the policy is also important: Of the top six states, Hawaii, Illinois, Maryland, Oklahoma, and Utah enshrine open-data policies via legislation, and New York maintains its policy via executive order. Of the 10 states with open-data policies, only ten maintain them via executive order. Executive orders, being issued by state governors, provide an easier and faster means of making policy than legislation, but they are also easier to overturn and limited to the existing constitutional powers of the governor, so legislation can be a more effective tool for creating long-term policies.

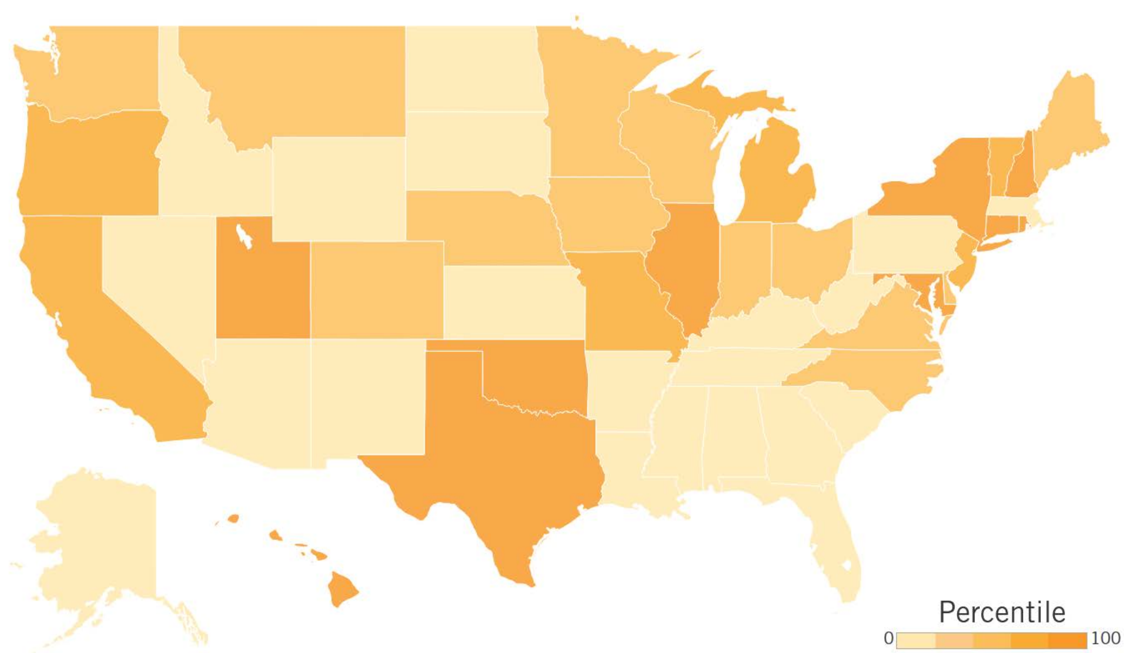
Methodology: States scores were taken from the report "State Open Data Policies and Portals." In this report, states were scored based on the presence and quality of their open-data portals and policies (eight points maximum).

Source: Laura Drees and Daniel Castro, "State Open Data Policies and Portals" (Center for Data Innovation, August 18, 2014), http://www2.datainnovation.org/2014-open-data.pdf.

Table 18: Open-Data Portals

Rank	State	Score	Rank	State	Score
1	Hawaii	8	17	Ohio	3
1	Illinois	8	17	Virginia	3
1	Maryland	8	17	Washington	3
1	New York	8	17	Wisconsin	3
1	Oklahoma	8	30	Arizona	2
1	Utah	8	30	Arkansas	2
7	Connecticut	7	30	Florida	2
7	Texas	7	30	Georgia	2
9	New Hampshire	6	30	Idaho	2
9	Rhode Island	6	30	Kentucky	2
11	California	4	30	Mississippi	2
11	Michigan	4	30	New Mexico	2
11	Missouri	4	30	North Dakota	2
11	New Jersey	4	30	Pennsylvania	2
11	Oregon	4	30	South Carolina	2
11	Vermont	4	30	Tennessee	2
17	Colorado	3	30	West Virginia	2
17	Delaware	3	43	Alabama	1
17	Indiana	3	43	Alaska	1
17	Iowa	3	43	Kansas	1
17	Maine	3	43	Louisiana	1
17	Minnesota	3	43	Massachusetts	1
17	Montana	3	43	Nevada	1
17	Nebraska	3	43	South Dakota	1
17	North Carolina	3	43	Wyoming	1

Map 18: Open-Data Portals



E-GOVERNMENT

A measure of the use of digital technologies by state governments.

Why Is This Important? Across the country, state governments have made considerable progress in using technology to improve the efficiency and effectiveness of their services.[83] For example, state governments regularly allow businesses and individuals to use the Internet to pay taxes, renew licenses, and apply for permits. Many of these projects involve making formerly paper-based processes digital, and thus create new supplies of transactional data that can be used for other purposes. For example, once building inspection data is fully digitized, this information can then be incorporated into automated tools to prioritize fire or other safety inspections. The New York City Fire Department plans its inspections by creating risk scores from data on buildings' age, materials, wiring condition, and other factors.[84] In this way, successful e-government projects are often the precursor to building more advanced data-driven government initiatives. State governments that make investments today in modernizing their data architecture and building public application programming interfaces that allow others to interact with the information they maintain will be best positioned to take advantage of emerging technologies, such as machine learning, in the years to come.[85]

The Rankings. Much of the progress on digital government appears to be driven by the efforts of individuals, such as governors, secretaries of states, chief information officers, and legislative committee chairs. Strong gubernatorial leadership is surely at play in explaining some states' higher scores. For example, the governor of Utah, which tied for first with several other states, set high standards for improvements in government efficiency and directed the state Department of Technology Services to spur e-government adoption to help meet these goals.[86] Ohio, which also tied for first, places a similar focus on government efficiency with its Lean Ohio initiative.[87]

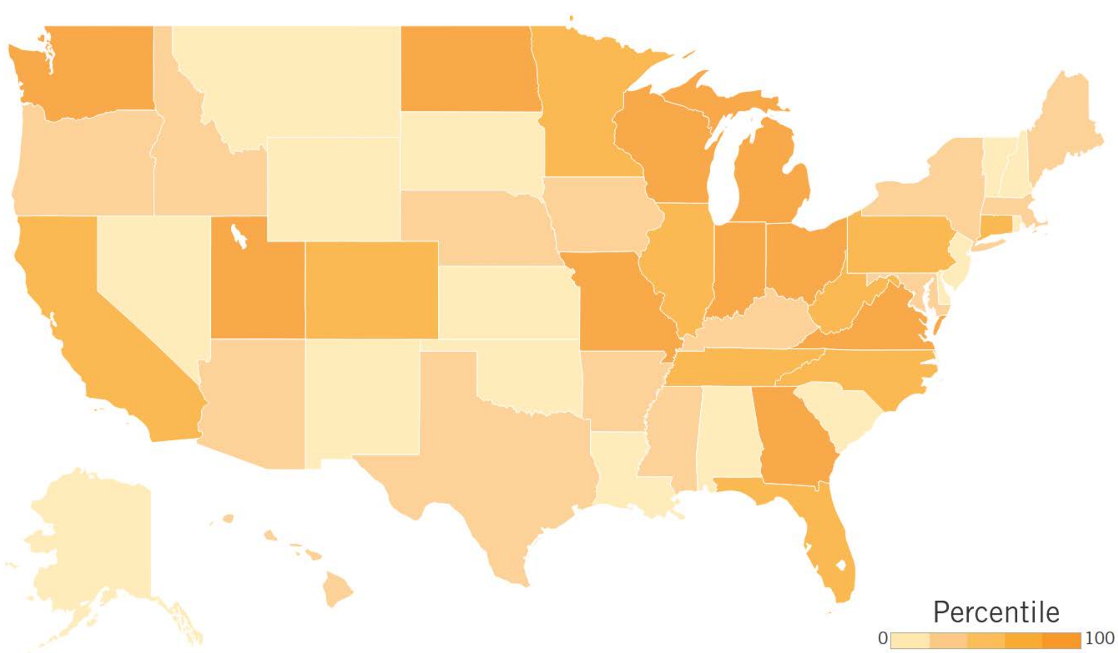
Methodology: Scores are based on each state's "Grade" in the *Digital States Survey 2016*. The letter grade is converted to a numerical score as follows: A=95, A-=90, B+=85, B=80, B-=75, C+=70, C=65, C-=60, D+=55, D=50, D-=45, F=40).

Source: Janet Grenslitt, "Digital States Survey 2016 Results," *Government Technology*, September 19, 2016, http://www.govtech.com/cdg/digital-states/Digital-States-Survey-2016-Results.html.

Table 19: E-Government

Rank	State	Score	Rank	State	Score
1	Michigan	95	21	Kentucky	80
1	Missouri	95	21	Maine	80
1	Ohio	95	21	Maryland	80
1	Utah	95	21	Massachusetts	80
1	Virginia	95	21	Mississippi	80
6	Georgia	90	21	Nebraska	80
6	Indiana	90	21	New York	80
6	North Dakota	90	21	Oregon	80
6	Washington	90	21	Texas	80
6	Wisconsin	90	35	Delaware	75
11	California	85	35	Montana	75
11	Colorado	85	35	New Hampshire	75
11	Connecticut	85	35	New Mexico	75
11	Florida	85	35	Oklahoma	75
11	Illinois	85	35	South Carolina	75
11	Minnesota	85	35	South Dakota	75
11	North Carolina	85	35	Vermont	75
11	Pennsylvania	85	43	Alabama	70
11	Tennessee	85	43	Louisiana	70
11	West Virginia	85	43	Nevada	70
21	Arizona	80	43	New Jersey	70
21	Arkansas	80	47	Alaska	65
21	Hawaii	80	47	Rhode Island	65
21	Idaho	80	47	Wyoming	65
21	Iowa	80	50	Kansas	60

Map 19: E-Government



SECTION III: DEVELOPING HUMAN AND BUSINESS CAPITAL

Data innovation does not just happen; people make it happen. For people to thrive in the data economy, they need the necessary skills, the right jobs available, and organizational support. First, a skilled workforce trained in data science, computer science, and statistics is essential for unlocking the value of data. Experts expect a growing global shortage of workers and managers with the analytical skills necessary to succeed in the data economy, and states will have to compete for these workers.[88] This section considers indicators of student preparation on data skills, such as each state's ranking on computer science and statistics AP tests and the proportion of science and engineering college students.

States can only retain skilled workers if they have jobs for them. We include two types of indicators of data-related jobs. First, we include indicators of software service jobs and statistics jobs, to measure current industry efforts. These workers will be the ones creating the most innovative and successful data companies, identifying ways for existing firms to use data-driven innovations to increase productivity, and building the next generation of data-driven applications. Data-literate workers, even when employed in nontechnical industries, are highly valuable, since they can still use analytics to solve problems and create new business opportunities. Second, we include an indicator for the demand from businesses for data-science jobs to show which states have employers hiring the most in these fields.

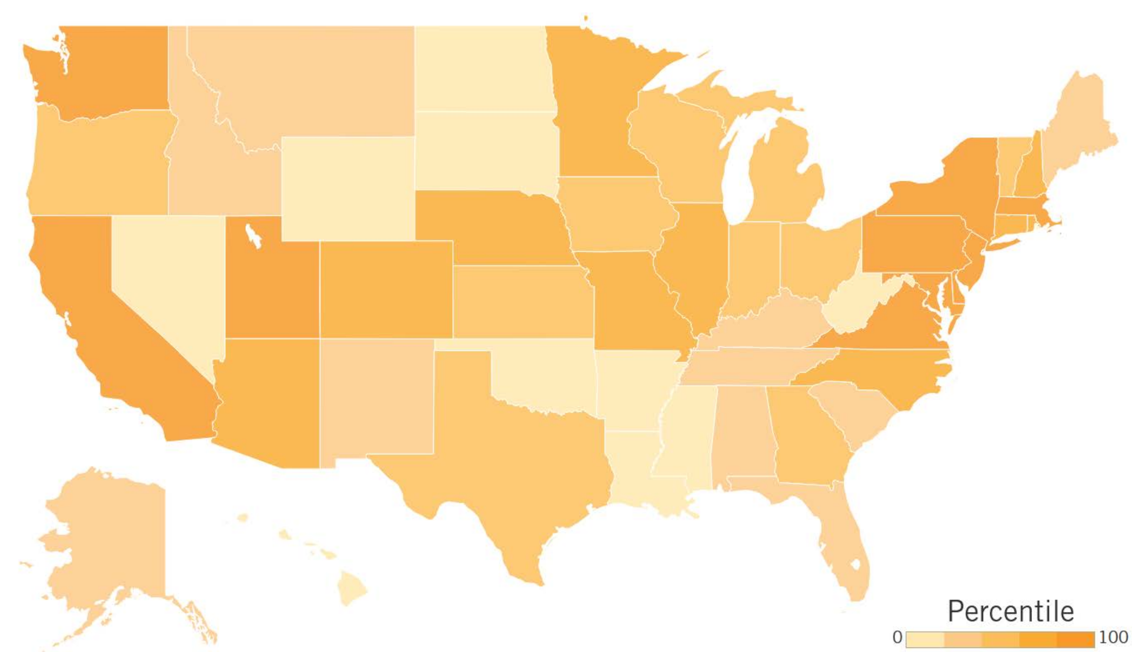
Finally, data-driven innovation is often a team effort, and data workers are likely to have an impact, learn from peers, and find a supportive culture in states where there are businesses and professional organizations committed to this field. We include indicators on the size of the state's data economy, with metrics on the number of companies using open data, the extent to which information and data processing is part of the state economy, the amount of federal research dollars going to data-related research, and the size of the data-science community.

States with historically strong technology sectors, such as Massachusetts and California, took top spots in many of the indicators in this category. Many of these indicators, such as the number of data-science jobs in the state, are harder for state policymakers to influence directly; some indicators reflect long-standing investments in attracting certain types of businesses or improving public education. Therefore, states that rank lower on these indicators have an uphill battle. A state can take steps to make itself attractive to certain kinds of industries, which would go a long way to draw the highly paid, highly skilled workforce of the data economy. Missouri, for example, has taken steps to promote itself as a desirable location for the information and data-processing industry by offering tax incentives for data centers that open in the state.[89] And in states where businesses are not sponsoring regular educational and networking events for professionals interested in data science, government agencies could step in and organize these gatherings.

Table 20: Developing Human and Business Capital

Rank	State	Score	Rank	State	Score
1	Massachusetts	73.9	26	Vermont	31.2
2	California	61.8	27	Wisconsin	30.7
3	Washington	55.4	28	Ohio	30.3
4	New York	54.1	29	Kansas	28.7
5	Virginia	53.1	30	Texas	28.7
6	Maryland	48.1	31	Florida	23.5
7	Delaware	47.7	32	New Mexico	23.1
8	Pennsylvania	44.4	33	Tennessee	22.3
9	New Jersey	43.6	34	Maine	20.5
10	Utah	43.3	35	South Carolina	20.5
11	Illinois	41.8	36	Idaho	19.9
12	Colorado	41.6	37	Montana	19.3
13	Minnesota	41.5	38	Kentucky	19.1
14	Connecticut	39.2	39	Alabama	17.2
15	Rhode Island	39.0	40	Alaska	16.3
16	Arizona	37.6	41	Nevada	15.9
17	Missouri	37.1	42	Oklahoma	15.6
18	North Carolina	36.5	43	West Virginia	15.6
19	Nebraska	33.9	44	Hawaii	13.3
20	New Hampshire	33.7	45	North Dakota	12.9
21	Michigan	32.8	46	South Dakota	12.7
22	Georgia	32.6	47	Arkansas	10.7
23	Iowa	31.6	48	Wyoming	9.9
24	Indiana	31.6	49	Louisiana	7.8
25	Oregon	31.3	50	Mississippi	5.8

Map 20: Developing Human and Business Capital



COMPUTER SCIENCE AND STATISTICS AP TESTS

A composite score that combines the number of statistics and computer-science AP tests taken per 100 AP students and the average test result for statistics and computer-science AP tests.

Why Is This Important? A workforce with strong science, technology, engineering and mathematics (STEM) skills is vital to economic prosperity. Students who take computer science and statistics in high school, in addition to being more data literate, are more likely to major in STEM in college and go into STEM fields.[90] Even in non-STEM fields, the advent of big data has made it increasingly important for workers to be able to interpret data and statistics they are exposed to on a daily basis.

The Advanced Placement (AP) test allows high school students to demonstrate their knowledge of different subjects. The statistics AP test has become popular in many high schools, with 196,000 students taking the test in 2015.[91] In contrast, the AP computer-science test attracts fewer students, with only 48,994 students taking the test in 2015.[92] Even more troubling, more than three male students take the AP computer-science test for every female student who does, which easily makes computer science the most gender-skewed AP test.[93] To put these numbers in perspective, the English language and composition AP test was the most popular in 2015, with 527,247 taking this test.[94]

The Rankings: States in the northeast did very well in this category, sweeping the top five. Interestingly, although many states have begun to require state public universities to award college credit for students who receive certain minimum scores on AP tests, no strong correlation exists between this policy and student performance. Indeed, none of the top five states—Massachusetts, New Jersey, New Hampshire, Connecticut, and Pennsylvania—has such a requirement.[95]

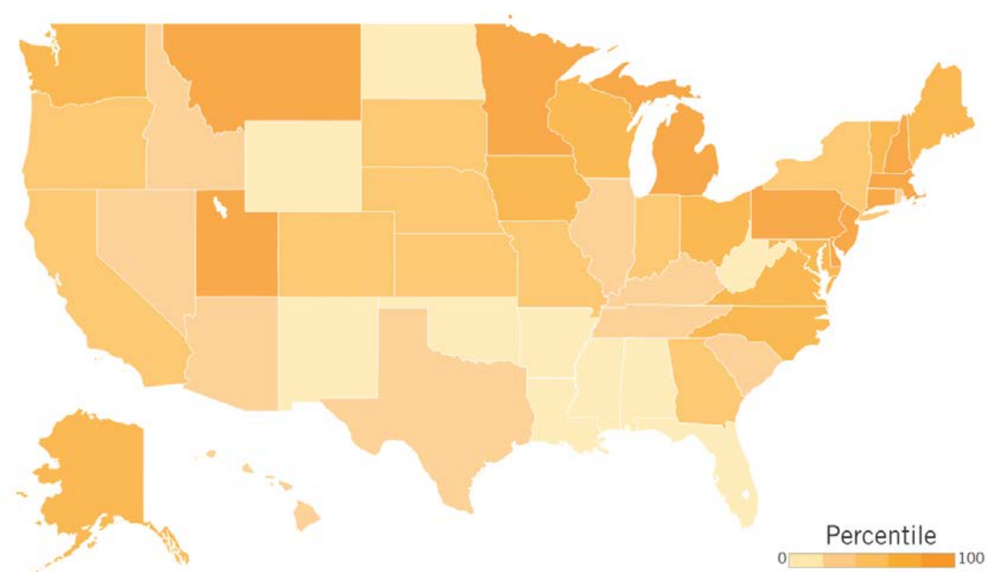
Methodology: This score represents a composite of two variables. First, for each state, the number of students who took the computer-science AP test and the number of students who took the statistics AP test are summed, and this total is expressed as a ratio of all students in that state who took an AP test. Second, the average test score in each state is calculated by taking the total of all test scores in computer science and statistics and dividing that value by the total number of AP tests taken. Both of these values are standardized across the 50 states, given equal weight, and then summed together.

Source: College Board, AP Program Participation and Performance Data 2016 (State Reports, Total Tests Taken, Computer Science A and Statistics, 2016; accessed March 3, 2017), https://research.collegeboard.org/programs/ap/data/participation/ap-2016.

Table 21: Computer-Science and Statistics AP Tests

Rank	State	Tests / 100 Students	Average Test Score	Rank	State	Tests / 100 Test Takers	Average Test Score
1	Massachusetts	16.6	3.1	26	Nebraska	9.0	2.9
2	New Jersey	14.1	3.3	27	New York	8.3	3.0
3	New Hampshire	13.5	3.2	28	South Dakota	7.7	3.0
4	Connecticut	13.8	3.1	29	Colorado	9.6	2.8
5	Pennsylvania	12.6	3.2	30	Indiana	9.1	2.8
6	Utah	9.4	3.4	31	South Carolina	9.1	2.8
7	Minnesota	12.3	3.1	32	Rhode Island	10.0	2.6
8	Delaware	15.0	2.8	33	Tennessee	8.0	2.8
9	Montana	11.0	3.2	34	Kentucky	8.4	2.7
10	Michigan	10.7	3.2	35	Texas	7.8	2.8
11	Ohio	11.1	3.1	36	Illinois	1.6	3.4
12	Maine	13.7	2.8	37	Idaho	7.6	2.7
13	Vermont	12.5	2.9	38	Arizona	6.8	2.7
14	North Carolina	15.0	2.6	39	Hawaii	10.3	2.4
15	Maryland	12.3	2.9	40	Nevada	7.8	2.6
16	Wisconsin	10.2	3.1	41	Wyoming	7.1	2.6
17	Virginia	12.3	2.9	42	West Virginia	6.8	2.6
18	Iowa	9.0	3.2	43	Florida	7.7	2.4
19	Washington	10.7	3.0	44	Oklahoma	7.2	2.4
20	Alaska	10.1	3.0	45	Alabama	7.9	2.2
21	California	10.8	2.9	46	Arkansas	7.9	2.1
22	Missouri	8.3	3.2	47	North Dakota	1.8	2.6
23	Oregon	8.4	3.1	48	Mississippi	4.3	2.3
24	Kansas	7.3	3.2	49	Louisiana	3.2	2.3
25	Georgia	9.9	2.8	50	New Mexico	5.4	2.0

Map 21: Computer-Science and Statistics AP Tests



STEM DEGREES

A weighted measure of science, technology, engineering, and math (STEM) higher education degrees conferred as a share of population aged 18 to 34.

Why Is This Important? From 2003 to 2013, the number of bachelor's degrees awarded nationally in science, technology, engineering, and mathematics (STEM) fields grew by 39 percent.[96] This considerable growth reflects the increasingly important role of STEM talent in the economy. From May 2009 to May 2015, jobs in STEM fields grow by a rate of 10.5 percent, more than double the 5.2 percent growth of non-STEM jobs over the same period.[97] As the economy becomes increasingly data driven, the supply of STEM-trained workers will be vital to local, state, and national economic growth because graduates from these programs typically have developed many of the skills necessary to become data scientists. However, despite the increase in STEM degrees, the supply of workers trained in data science is already falling short of the demand. The McKinsey Global Institute estimates that, through 2024, though the number of graduates with data science-related degrees is likely to increase by 7 percent per year, the demand for data science jobs will increase by 12 percent per year, leading to a shortage of approximately 250,000 data-science workers.[98]

The Rankings: Unsurprisingly, Massachusetts, with its high-performing universities in Boston, tops the list. Massachusetts also benefits from STEM graduates in the surrounding states, many of whom are drawn by opportunities in Boston's high-tech clusters in biotechnology and IT after graduating. Iowa ranks second in this category, likely due in part to the relatively large size of its information and data-processing sector. In 2011, Iowa's governor also established the Governor's STEM Advisory Council to increase student interest and achievement in STEM, which has likely boosted the number of high-school students who go on to pursue STEM degrees at in-state colleges and universities.[99] Southern states scored particularly low in this category, as did Alaska, though Nevada took the bottom spot. And despite its high-tech reputation, numerous highly ranked engineering schools, and the largest information and data-processing sector in the country, California ranked just 28th.

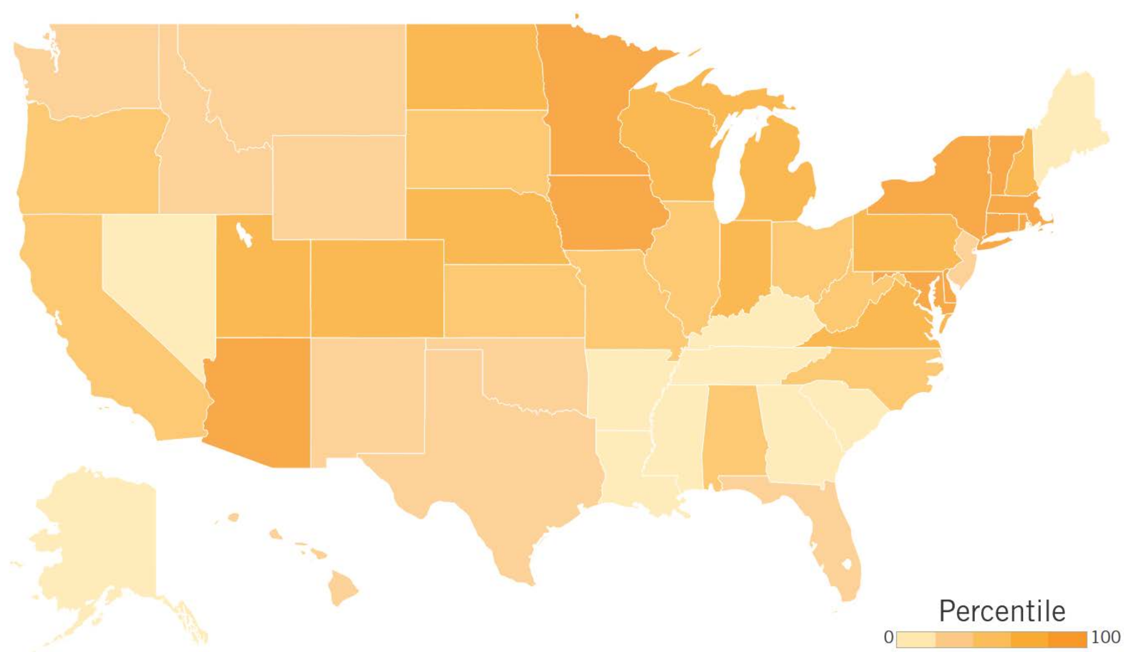
Methodology: STEM higher education degrees include engineering, physical sciences, computer and mathematical sciences, agricultural and biological sciences, social sciences, science technologies, and engineering technologies. The number of STEM associate degrees is multiplied by 0.5, bachelor's degrees by 0.75, and graduate degrees by 1. The sum of these three adjusted categories is then divided by the total population between the ages of 18 and 34.

Source: National Science Foundation, Science and Engineering Indicators 2016 (Section 8; Tables 16, 18, 20, 21, 22; January 2016), https://www.nsf.gov/statistics/2016/nsb20161/#/data.

Table 22: STEM Degrees

Rank	State	Score	Rank	State	Score
1	Massachusetts	3.1	26	Missouri	1.5
2	Iowa	2.3	27	North Carolina	1.5
3	Rhode Island	2.2	28	California	1.5
4	Minnesota	2.1	29	Oregon	1.5
5	Vermont	2.0	30	Alabama	1.5
6	Arizona	2.0	31	Montana	1.4
7	Connecticut	2.0	32	Wyoming	1.4
8	Maryland	1.9	33	New Mexico	1.3
9	New York	1.9	34	New Jersey	1.3
10	Delaware	1.9	35	Washington	1.3
11	Pennsylvania	1.9	36	Idaho	1.3
12	Colorado	1.8	37	Oklahoma	1.3
13	New Hampshire	1.8	38	Florida	1.2
14	North Dakota	1.7	39	Hawaii	1.2
15	Virginia	1.7	40	Texas	1.2
16	Indiana	1.7	41	Maine	1.2
17	Michigan	1.7	42	Louisiana	1.2
18	Nebraska	1.6	43	Georgia	1.1
19	Utah	1.6	44	South Carolina	1.1
20	Wisconsin	1.6	45	Kentucky	1.1
21	Ohio	1.6	46	Tennessee	1.1
22	South Dakota	1.6	47	Mississippi	1.0
23	Illinois	1.6	48	Alaska	1.0
24	West Virginia	1.6	49	Arkansas	0.9
25	Kansas	1.5	50	Nevada	0.7

Map 22: STEM Degrees



SOFTWARE SERVICE JOBS

Total number of people working as computer programmers, software developers, and computer and information-systems managers as a share of total employment.

Why Is This Important? Service jobs related to computers and information systems comprise an important part of a state's knowledge economy. Advanced technologies have helped businesses and institutions collect, share, and analyze data. To be useful, these advanced technologies must be leveraged by quantitatively skilled computer service workers able to visualize and create tools from data, and incorporate data into better decision-making.[100] The effectiveness of computer programmers, software developers, and information-system managers in producing valuable products is reflected by high wages in these fields. Software service jobs on average are significantly more lucrative than the average career: Computer and information systems managers make $131,600 per year; computer programmers make $79,530 per year; and software developers make $100,690 per year.[101] While the software services sector as a whole is expected to grow substantially through 2024, interestingly, computer-programming jobs are expected to decline by eight percent, with computer and information-systems manager and software developers increasing by 15 percent and 17 percent, respectively.[102]

The Rankings: Washington, Virginia, and Massachusetts score well ahead of the pack in terms of software jobs, with 2.86 percent, 2.28 percent and 2.27 percent, respectively, of all employment being in this field. This should come as no surprise, given these states' tech-savvy reputations. The number of software service jobs is very strongly correlated to the presence of Open Data 500 companies, suggesting that states with a high number of software service workers are in a better position to take advantage of open data, and that the use of open data can increase the size of this highly skilled workforce. Though not scoring in the top five, several states have experienced rapid growth in their technology sectors in recent years, giving them higher rankings than might be expected and suggesting their standings in this category will continue to improve.[103] States that lagged in this indicator, such as Wyoming, Idaho, and Mississippi, are mostly rural, have relatively small few service jobs, and possess economies that are not as knowledge intensive.

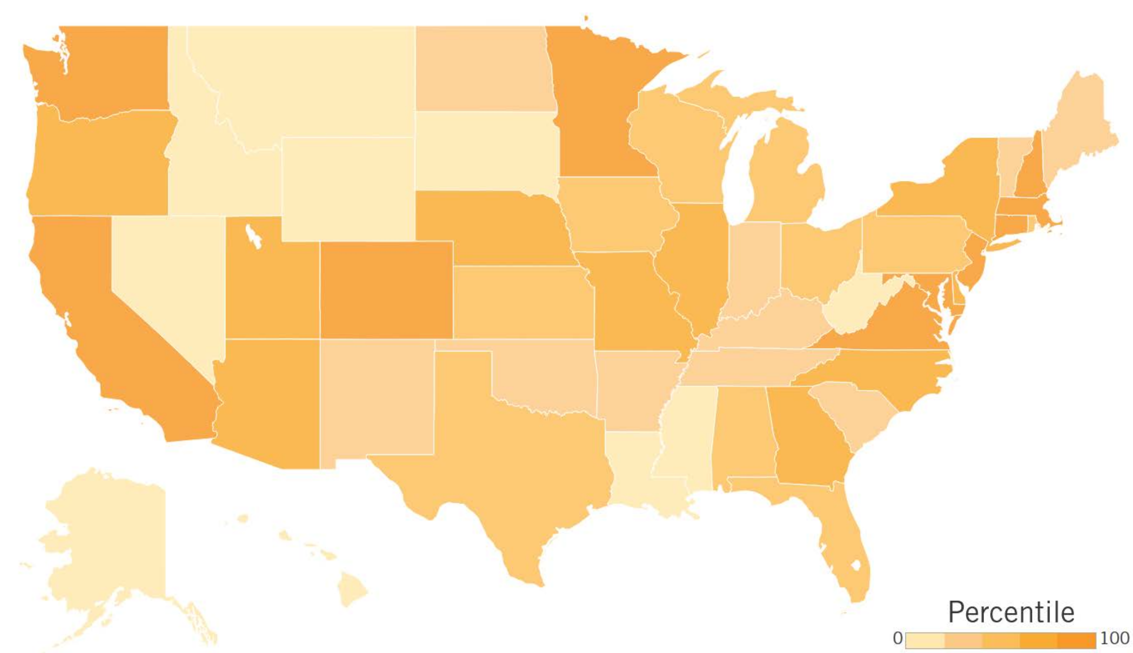
Methodology: Total employment in the occupations (coded by the Bureau of Labor Statistic's standard occupation categories 2010) of 11-3021 (computer and information systems managers), 15-1131 (computer programmers), 15-1132 (software developers, applications), and 15-1133 (software developers, systems software) is summed before being divided by total employment across all occupations.

Source: Bureau of Labor Statistics, Occupational Employment Statistics (state May 2015 data; accessed February 27, 2017), http://data.bls.gov/oes/.

Table 23: Software Services Jobs

Rank	State	Percentage	Rank	State	Percentage
1	Washington	2.86%	26	Wisconsin	0.98%
2	Massachusetts	2.28%	27	Alabama	0.97%
3	Virginia	2.27%	28	Iowa	0.92%
4	New Jersey	2.05%	29	Kansas	0.89%
5	California	1.91%	30	Florida	0.85%
6	Colorado	1.88%	31	Vermont	0.76%
7	Maryland	1.63%	32	Oklahoma	0.71%
8	New Hampshire	1.56%	33	Arkansas	0.69%
9	Connecticut	1.53%	34	Indiana	0.68%
10	Minnesota	1.46%	35	New Mexico	0.67%
11	Georgia	1.43%	36	Maine	0.67%
12	Arizona	1.42%	37	Tennessee	0.65%
13	Utah	1.40%	38	South Carolina	0.65%
14	North Carolina	1.25%	39	Kentucky	0.61%
15	Oregon	1.24%	40	North Dakota	0.57%
16	New York	1.23%	41	Montana	0.57%
17	Nebraska	1.21%	42	Nevada	0.52%
18	Delaware	1.17%	43	South Dakota	0.51%
19	Missouri	1.15%	44	Hawaii	0.46%
20	Illinois	1.15%	45	Alaska	0.46%
21	Rhode Island	1.14%	46	West Virginia	0.39%
22	Texas	1.13%	47	Louisiana	0.33%
23	Pennsylvania	1.03%	48	Mississippi	0.31%
24	Michigan	1.03%	49	Idaho	0.26%
25	Ohio	0.99%	50	Wyoming	0.22%

Map 23: Software Services Jobs



STATISTICS JOBS

Total number of people working as statisticians, actuaries, database administrators, and operation research analysts as a share of total employment.

Why Is This Important? Jobs heavily steeped in the use of statistics and database-management skills are keys to innovation in both technical and nontechnical industries. Statisticians, actuaries, operational research analysts, and database administrators contribute to making data more widely available and accessible, analyzing big data to identify trends, and creating data-based increases in productivity. The Bureau of Labor Statistics predicts the number of statistics jobs to grow at a rate of 34 percent between 2014 and 2021, which is substantially faster than the national average for all jobs.[104] Statistics jobs are also higher paying than the national average, with a median annual wage of $80,110 as of May 2015, compared with the $36,200 median wage for all occupations.[105]

The Rankings: Maryland and Virginia top the rankings, likely due to the high number of statisticians employed by the federal government and government-contracting sector in nearby Washington, D.C. Rural and southern states score quite poorly in this category, likely due to the high correlation between statistics jobs and STEM degree holders, which are significantly less prevalent in southern states compared with the rest of the country. South Dakota in particular has a very low number of statistics jobs, which make up just 0.03 percent of its workforce, while Wyoming, the next lowest-ranking state, has 0.07 percent of its workforce in statistics jobs.

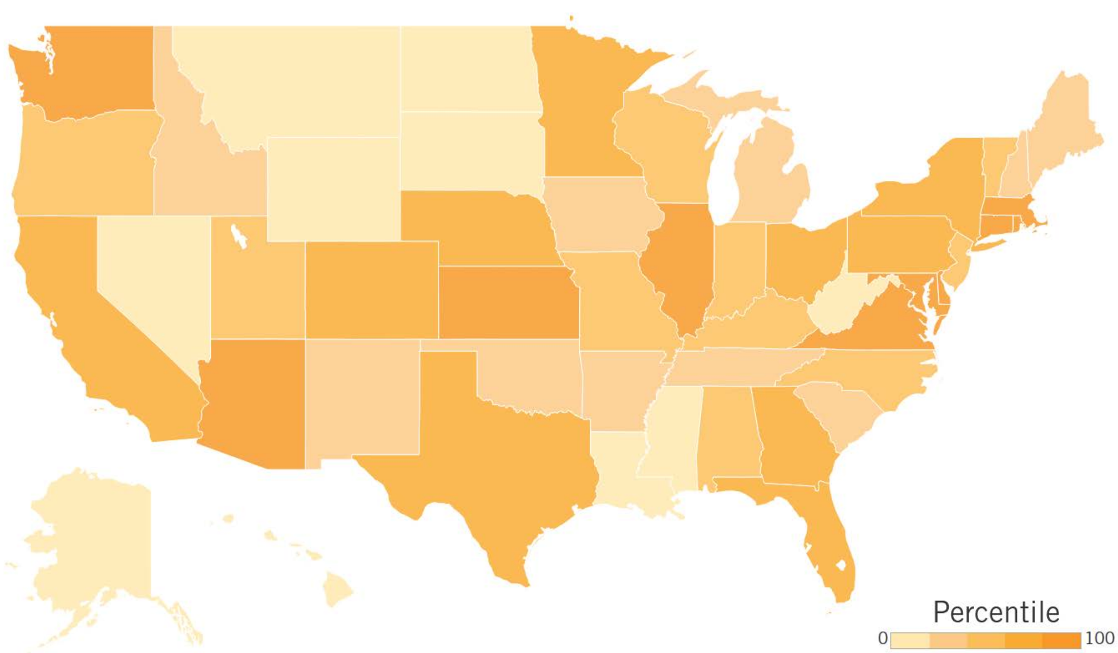
Methodology: Total employment in the occupations (coded by BLS's Standard Occupation Categories 2010) of 15-1141 (database administrators), 15-2011 (actuaries), 15-2031 (operations research analysts), and 15-2041 (statisticians) is summed before being divided by total employment across all occupations. Missing data was estimated from the residual from national level employment.

Source: Bureau of Labor Statistics, Occupational Employment Statistics (state May 2015 data; accessed February 27, 2017), http://data.bls.gov/oes/.

Table 24: Statistics Jobs

Rank	State	Percentage	Rank	State	Percentage
1	Maryland	0.39%	26	Oregon	0.14%
2	Virginia	0.35%	27	Vermont	0.14%
3	Delaware	0.34%	28	Utah	0.14%
4	Massachusetts	0.31%	29	Indiana	0.13%
5	Arizona	0.27%	30	Kentucky	0.13%
6	Connecticut	0.24%	31	Iowa	0.13%
7	Illinois	0.24%	32	Tennessee	0.13%
8	Rhode Island	0.23%	33	Idaho	0.12%
9	Kansas	0.22%	34	Michigan	0.12%
10	Washington	0.22%	35	South Carolina	0.12%
11	Pennsylvania	0.21%	36	New Hampshire	0.12%
12	Minnesota	0.21%	37	Maine	0.12%
13	Nebraska	0.20%	38	Oklahoma	0.12%
14	Texas	0.20%	39	New Mexico	0.11%
15	California	0.19%	40	Arkansas	0.10%
16	Georgia	0.19%	41	West Virginia	0.10%
17	Florida	0.18%	42	Alaska	0.10%
18	Ohio	0.18%	43	Hawaii	0.09%
19	New York	0.18%	44	Louisiana	0.09%
20	Colorado	0.16%	45	Montana	0.08%
21	Missouri	0.16%	46	Mississippi	0.08%
22	Alabama	0.16%	47	Nevada	0.08%
23	Wisconsin	0.16%	48	North Dakota	0.07%
24	New Jersey	0.15%	49	Wyoming	0.07%
25	North Carolina	0.15%	50	South Dakota	0.03%

Map 24: Statistics Jobs



DATA-SCIENCE JOB LISTINGS

Number of job postings for data scientists as a share of total posted job listings.

Why Is This Important? This indicator measures the demand for workers trained in data science. Indeed.com is the country's largest job search site, with some 16 million listed openings.[106] By tracking its job listings, we analyzed several components of the data-driven economy. The indicator first measures state demand for skilled data workers. High demand implies high levels of growth that will serve to attract highly skilled workers from other parts of the country and other parts of the world. Second, the indicator conveys how quickly the knowledge-based economy is moving. High turnover rates in jobs imply high levels of innovation, risk-taking, and entrepreneurship that characterize dynamic economies. Finally, relatively high scores on the indicator suggest the adoption of data-intensive tools by non-technology firms. Many of the firms listed are hiring statisticians and computer scientists in an expanding range of industries that are effectively using data scientists to improve the goods and services they produce.

Rankings: Few states that ranked at the top of this indicator were surprises, with high-tech states with high numbers of statistics and software-services jobs sweeping the rankings. States that ranked near the bottom, such as Wyoming, Hawaii, and Montana, tended to be rural and remote where industries such as farming, tourism, and mining play a larger role in their economy than data-intensive sectors such as medicine, banking, and advanced manufacturing. This indicator is particularly promising for Alaska, which ranks near the bottom of most other indicators. Though it has one of the smallest shares of statistics and software-services jobs, it ranks 15th for the number of data-science job postings, indicating that the state is beginning to grow into the data economy. If Alaska can boost its supply of STEM degree holders or otherwise meet this demand, the state stands to benefit significantly.

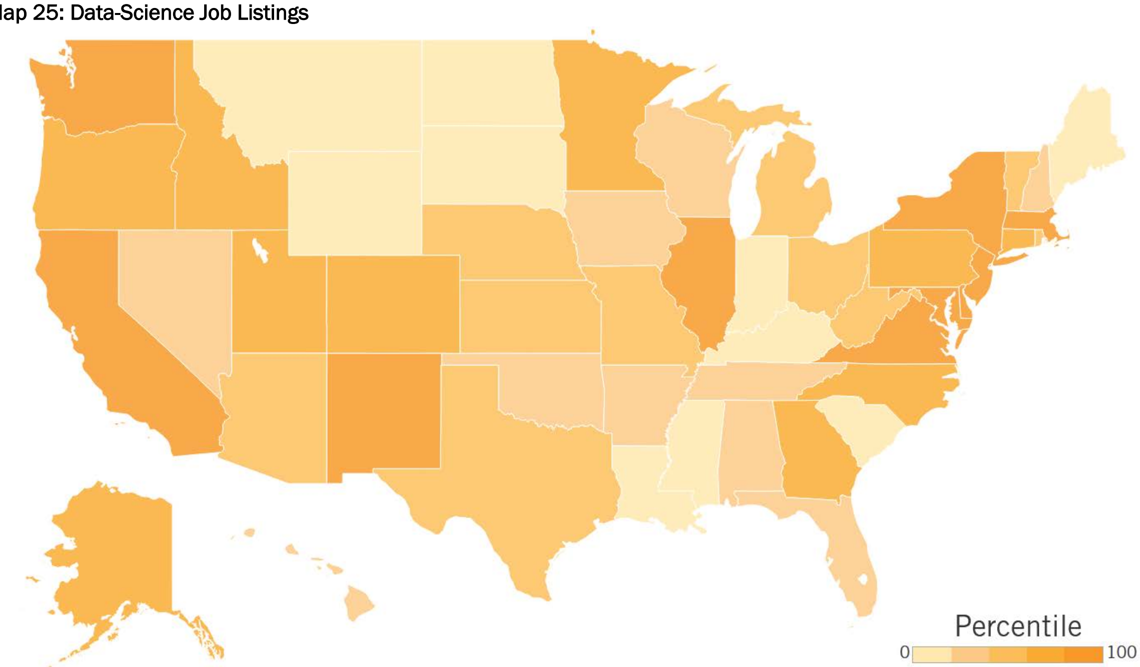
Methodology: Number of search results for *"Data Science, Data Scientist"* on Indeed.com, calculated as a share of total job listings posted as of March 8, 2017.

Source: Indeed.com (search for "*Data Science, Data Scientist*"; accessed March 8, 2017), http://www.indeed.com/.

Table 25: Data-Science Job Listings

Rank	State	Percentage	Rank	State	Percentage
1	Washington	12.0%	26	Arizona	2.7%
2	Maryland	7.8%	27	Kansas	2.7%
3	Massachusetts	7.4%	28	Ohio	2.6%
4	Virginia	7.0%	29	Vermont	2.5%
5	California	6.6%	30	West Virginia	2.5%
6	New York	5.7%	31	Hawaii	2.3%
7	New Jersey	5.7%	32	Florida	2.3%
8	Delaware	4.7%	33	Arkansas	2.2%
9	Illinois	4.2%	34	New Hampshire	2.2%
10	New Mexico	4.1%	35	Nevada	2.1%
11	Colorado	4.0%	36	Wisconsin	2.1%
12	Oregon	3.8%	37	Alabama	2.0%
13	Pennsylvania	3.8%	38	Oklahoma	2.0%
14	Connecticut	3.7%	39	Tennessee	1.9%
15	Alaska	3.5%	40	Iowa	1.8%
16	Utah	3.4%	41	Indiana	1.7%
17	North Carolina	3.3%	42	Maine	1.6%
18	Minnesota	3.2%	43	Wyoming	1.6%
19	Georgia	3.1%	44	North Dakota	1.4%
20	Idaho	3.0%	44	South Dakota	1.4%
21	Michigan	3.0%	46	South Carolina	1.4%
22	Rhode Island	2.9%	47	Kentucky	1.4%
23	Missouri	2.8%	48	Louisiana	1.3%
24	Texas	2.8%	49	Montana	1.2%
25	Nebraska	2.8%	50	Mississippi	1.2%

Map 25: Data-Science Job Listings



OPEN DATA 500 COMPANIES

The number of Open Data 500 companies per 10,000 firms.

Why Is This Important? The Open Data 500 identifies U.S. companies that use open government data as an important component of their business. Currently, researchers have identified 511 such companies in a variety of fields, including insurance, finance, mapping, education, and transportation.[107] Companies in these fields may use open data to set fairer prices, better understand consumer habits, develop new products and services, and identify larger market trends.[108] Federal agencies, such as the Department of Commerce, the Department of Health and Human Services, and the Securities and Exchange Commission, are major suppliers of open data to these companies. In addition, many companies use open data from state and local governments.

Any firm can use open data since it is freely available. However, not all firms choose to do so. Therefore, the number of companies using open government data is good indicator of how motivated and capable firms in a state's economy are too make better use of data.

The Rankings: States with large tech sectors such as Massachusetts, New York, California, and Washington topped this list. Unsurprisingly, the number of Open Data 500 companies in a state is highly correlated with an encouraging labor market for people with data-science skills, as indicated by the availability of data-science jobs and the size of the information and data-processing sector. Perhaps counterintuitively, very little correlation exists between the presence of Open Data 500 companies in a state and whether or not a state has robust open-data policies. This is likely due to the fact that many businesses rely heavily on federal data, and few exclusively use data from state governments.

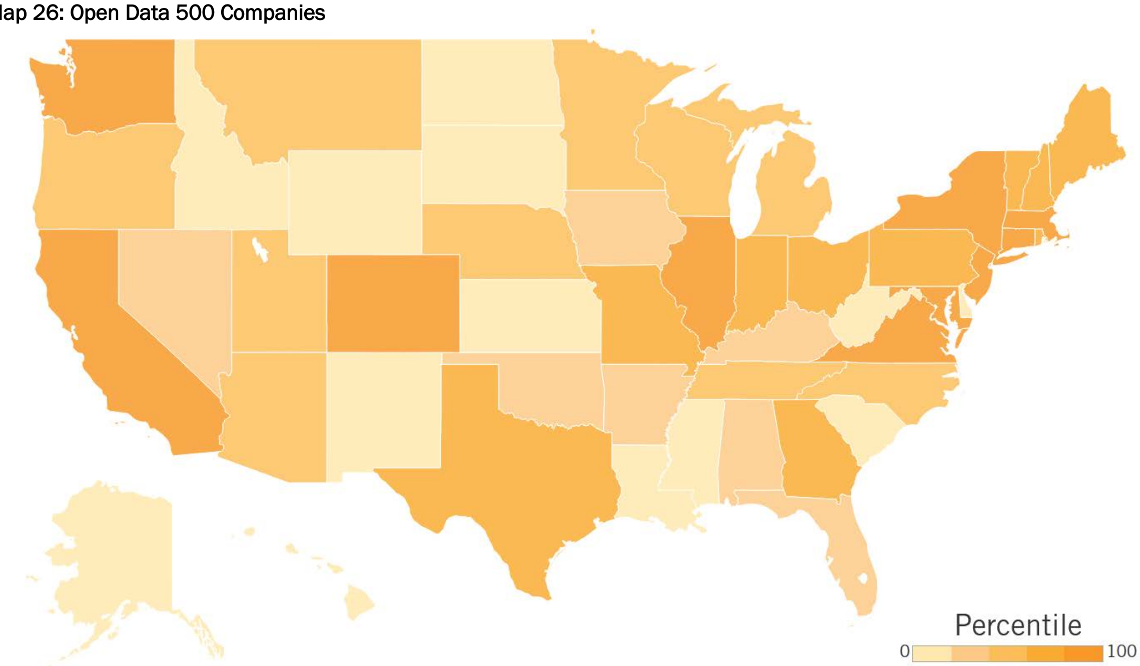
Methodology: The number of Open Data 500 companies in each state as a share of total firms.

Source: GovLab, Open Data 500 Companies (Open Data 500; accessed February 27, 2017), http://www.opendata500.com/us/download/us_companies.csv; U.S. Census Bureau, Statistics of U.S. Businesses (2014 SUSB Annual Data Tables by Establishment Industry, U.S. & States, totals; last revised December 1, 2016), https://www.census.gov/data/tables/2014/econ/susb/2014-susb-annual.html.

Table 26: Open Data 500 Companies

Rank	State	Score	Rank	State	Score
1	Massachusetts	3.00	26	Arizona	0.29
2	New York	2.31	27	Michigan	0.29
3	California	1.82	28	Minnesota	0.25
4	Washington	1.70	29	Nebraska	0.24
5	Virginia	1.47	30	Oregon	0.22
6	Maryland	1.20	31	Nevada	0.20
7	Connecticut	1.12	32	Arkansas	0.20
8	Illinois	1.02	33	Florida	0.16
9	Colorado	0.84	34	Iowa	0.16
10	New Jersey	0.77	35	Kentucky	0.15
11	New Hampshire	0.66	36	Oklahoma	0.14
12	Indiana	0.65	37	Alabama	0.14
13	Maine	0.60	38	Alaska	0.00
14	Vermont	0.55	38	Delaware	0.00
15	Missouri	0.50	38	Hawaii	0.00
16	Pennsylvania	0.48	38	Idaho	0.00
17	Rhode Island	0.42	38	Kansas	0.00
18	Georgia	0.41	38	Louisiana	0.00
19	Texas	0.41	38	Mississippi	0.00
20	Ohio	0.38	38	New Mexico	0.00
21	Wisconsin	0.37	38	North Dakota	0.00
22	Utah	0.33	38	South Carolina	0.00
23	Montana	0.31	38	South Dakota	0.00
24	Tennessee	0.31	38	West Virginia	0.00
25	North Carolina	0.30	38	Wyoming	0.00

Map 26: Open Data 500 Companies



INFORMATION AND DATA-PROCESSING SECTOR

The economic output of the information and data-processing industry as a share of total economic output.

Why Is This Important? Information and data-processing businesses play a crucial role in enabling other firms to extract value from data. As companies collect growing volumes of data, they increasingly rely on third parties to help manage the technological infrastructure to store, manage, analyze, and share this data. The information and data-processing sector delivers these services, often allowing other companies to purchase these services at a lower cost than if they were to develop them on their own, and with a higher quality. For example, cloud-storage providers, such as Amazon Web Services, can offer scalable storage at a fraction of the cost it would take for a company to build and operate its own private data center. Cloud computing is particularly valuable for smaller businesses or businesses with variable computing needs, as using shared computing resources is significantly more cost effective than maintaining their own data centers. Indeed, cloud computing helps facilitate business growth. A 2014 Deloitte survey of start-ups in the United States and Europe found that 83 percent believe cloud technologies give them access to services they would not have been able to otherwise afford, and that because these services are easily scalable, 85 percent of small and medium businesses believe cloud technologies allow them to grow their business faster than if they had to develop and maintain this infrastructure themselves.[109]

The Rankings: Many states with well-known tech hubs, such as California and New York, do well in this indicator. Some states, such as Missouri, ranked second, and Utah, ranked third, are appealing locations for data centers. For example, Missouri has a mild climate, low energy costs, a robust Internet infrastructure, and an initiative run by the Missouri Department of Economic Development to pre-certify sites that meet the needs of industrial developments.[110] Utah has a low risk of natural disaster, strong communications infrastructure, and low energy and water costs.[111] Rural and remote states, such as Alabama, Hawaii, Wyoming, and Alaska, rank among the lowest in this sector, as extreme weather, weaker network infrastructure, and a workforce without technical skills make them undesirable locations to build and operate data centers.

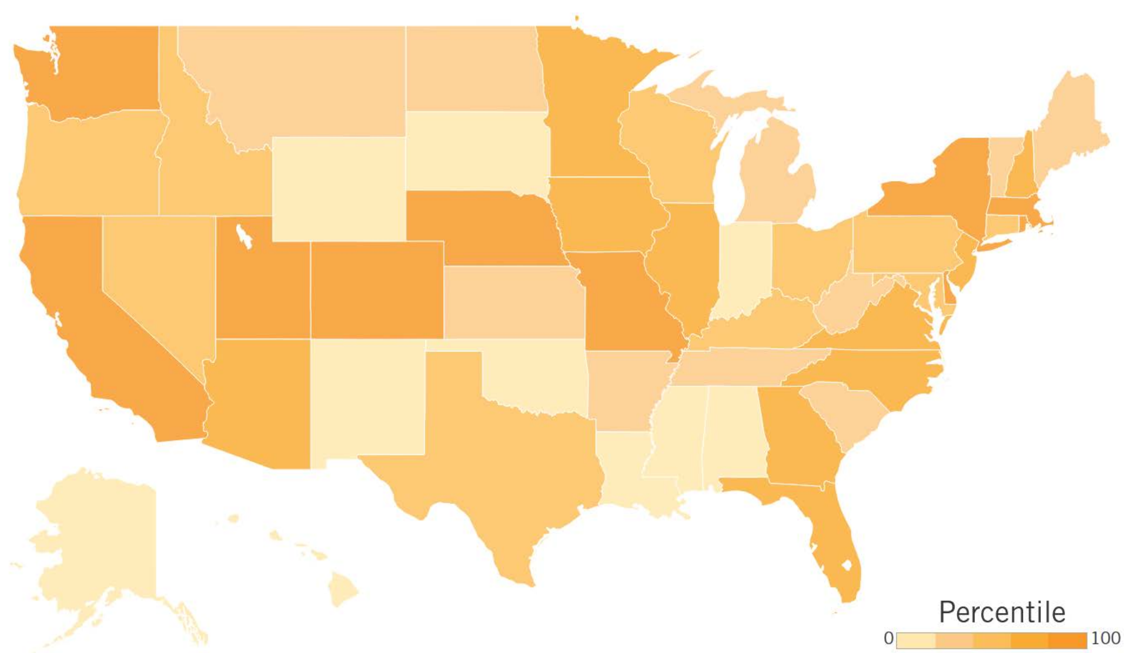
Methodology: The three-year average (2012, 2013, 2014) economic output of the “data processing, internet publishing, and other information services” industry is expressed as a share of the three-year average (2012, 2013, 2014) of total economic output.

Sources: Bureau of Economic Analysis, Interactive Data, (GDP & personal income, annual gross domestic product (GDP) by state, real GDP in chained dollars; February 27, 2017), https://www.bea.gov/itable/.

Table 27: Information and Data-Processing Sector

Rank	State	Percentage	Rank	State	Percentage
1	California	1.27%	26	Kentucky	0.32%
2	Missouri	0.80%	27	Pennsylvania	0.32%
3	Utah	0.79%	28	Connecticut	0.32%
4	Rhode Island	0.77%	29	Ohio	0.29%
5	New York	0.74%	30	Maryland	0.29%
6	Nebraska	0.73%	31	Tennessee	0.27%
7	Massachusetts	0.72%	32	Michigan	0.25%
8	Washington	0.71%	33	South Carolina	0.24%
9	Delaware	0.67%	34	Vermont	0.21%
10	Colorado	0.63%	35	Kansas	0.20%
11	Virginia	0.59%	36	Maine	0.18%
12	New Jersey	0.53%	37	Montana	0.17%
13	Arizona	0.50%	38	Arkansas	0.16%
14	Illinois	0.50%	39	West Virginia	0.16%
15	North Carolina	0.49%	40	North Dakota	0.15%
16	Minnesota	0.48%	41	Indiana	0.14%
17	Florida	0.44%	42	Mississippi	0.13%
18	Iowa	0.42%	43	Oklahoma	0.13%
19	New Hampshire	0.41%	44	Alaska	0.12%
20	Georgia	0.40%	45	Hawaii	0.12%
21	Wisconsin	0.40%	46	Alabama	0.11%
22	Oregon	0.37%	47	Louisiana	0.10%
23	Texas	0.37%	48	Wyoming	0.08%
24	Idaho	0.37%	49	New Mexico	0.08%
25	Nevada	0.36%	50	South Dakota	0.05%

Map 27: Information and Data-Processing Sector



FEDERAL FUNDING FOR DATA SCIENCE R&D

National Science Foundation data-science R&D awards as a share of gross state product.

Why Is This Important? In a knowledge economy, innovation—driven by public and private-sector research and development (R&D)—is one of the main drivers of economic growth.[112] However even with heavy private-sector R&D investment, the private sector will fall short of the optimal level of investment in R&D, since firms do not capture all the benefits of these investments.[113] As a result, the private sector will underinvest in R&D, and without supplemental public-sector investment, the U.S. economy will grow slower than is optimal.[114] Universities play an increasingly important role in public-sector R&D, and university R&D generates substantial economic benefits for the private sector.[115] As key technologies of the data economy are still nascent, such as machine learning and the Internet of Things, robust R&D investment is crucial for ensuring these technologies mature, and thus can be deployed in force, quickly. The National Science Foundation (NSF) awards R&D funding to academic researchers for a wide scope of data-intensive research, and states with faculty who successfully pursue this funding can further deepen their data-science talent pool. Moreover, states pursuing data-science R&D may be able to benefit from efforts to commercialize new technology that comes out of these research initiatives.

The Rankings: Most leading states in this category, barring New Mexico, which ranked number one, are home to universities with the highest levels of research activities, according to the Carnegie Classification of Institutions of Higher Education.[116] Though New Mexico does not have one of these universities, it benefits from other factors that contribute to its high ranking. In 2013 the governor of New Mexico launched the Technology Research Collaborative to encourage New Mexico universities to ramp up their R&D efforts by helping them commercialize products they develop.[117] Additionally, New Mexico universities have easier access than other states to the Sandia and Los Alamos national laboratories, which are located in Albuquerque and Los Alamos, making them better poised to take on advanced research projects.

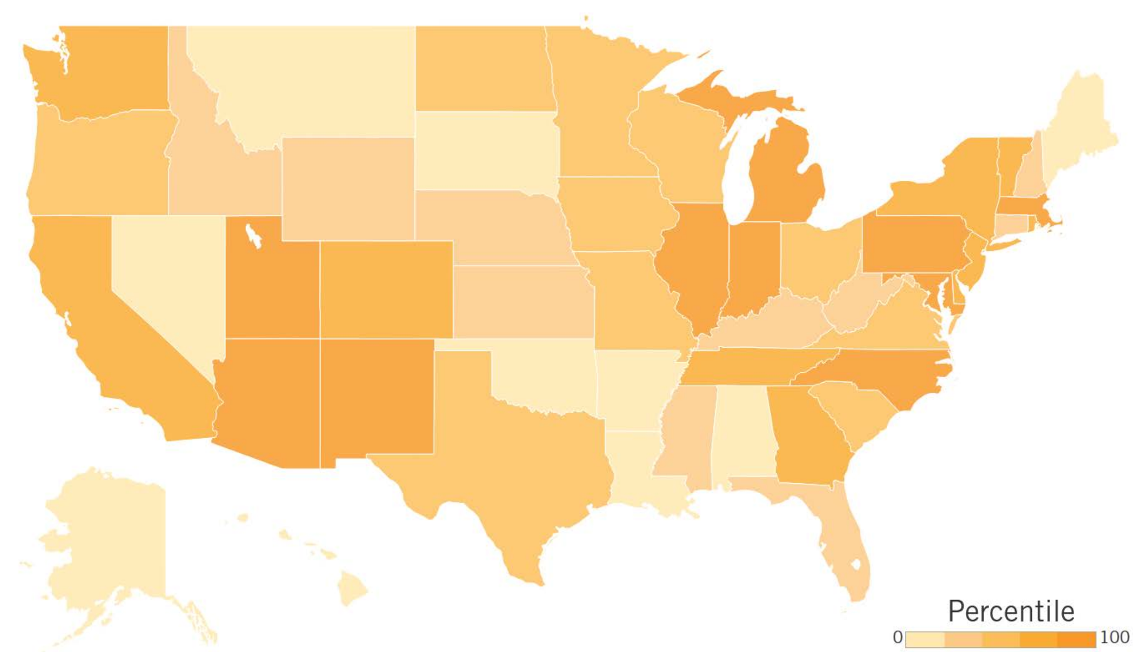
Methodology: Data for NSF awards from 2014 to 2016 were collected under these 11 element codes: 024Y (BD spokes-big data regional I), 1269 (statistics), 7495 (robust intelligence), 7726 (DataNet), 8029 (computational and data-driven materials research), 8068 (data infrastructure), 8069 (computational and data-enabled science and engineering), 8083 (big data science and engineering), 8084 (computational and data-enabled science and engineering), 8294 (data infrastructure), and 8800 (science resources statistics). From the collected data, a three-year average (from 2014 to 2016) of data-science R&D awards is calculated and expressed as a share of gross state product (GSP). GSP is calculated from a three-year average from 2014 to 2016 and expressed in $10,000 units.

Sources: National Science Foundation, Awards Advanced Search, (element code as listed in methodology, award start date between January 2014 and December 2016; accessed March 2, 2017), https://www.nsf.gov/awardsearch/advancedSearch.jsp; Bureau of Economic Analysis, Regional Data, (GDP & personal income, annual gross domestic product (GDP) by state, current dollars; June 27, 2017), https://www.bea.gov/itable/.

Table 28: Federal Funding for Data-Science R&D

Rank	State	Percentage	Rank	State	Percentage
1	New Mexico	41.2%	26	Oregon	4.8%
2	Indiana	29.3%	27	Texas	4.6%
3	Pennsylvania	26.6%	28	Ohio	4.3%
4	Massachusetts	18.7%	29	Missouri	4.1%
5	Michigan	16.3%	30	Wisconsin	3.7%
6	Illinois	13.8%	31	Connecticut	3.3%
7	North Carolina	13.6%	32	Florida	3.1%
8	Arizona	12.7%	33	Idaho	2.8%
9	Maryland	10.5%	34	Kansas	2.2%
10	Utah	10.5%	35	Kentucky	1.8%
11	Tennessee	10.1%	36	Mississippi	1.7%
12	California	8.6%	37	Nebraska	1.6%
13	Colorado	8.5%	38	West Virginia	1.5%
14	New York	7.9%	39	New Hampshire	1.5%
15	Georgia	7.7%	40	Wyoming	1.2%
16	New Jersey	7.4%	41	Alabama	1.2%
17	Washington	7.4%	42	Oklahoma	1.1%
18	Rhode Island	7.3%	43	Nevada	1.1%
19	Delaware	6.7%	44	Hawaii	0.9%
20	Vermont	6.6%	45	Alaska	0.3%
21	Virginia	6.0%	46	Louisiana	0.3%
22	Iowa	6.0%	47	Arkansas	0.1%
23	North Dakota	5.9%	48	Maine	0.0%
24	Minnesota	5.5%	48	Montana	0.0%
25	South Carolina	4.9%	48	South Dakota	0.0%

Map 28: Federal Funding for Data-Science R&D



DATA SCIENCE COMMUNITY

Average membership in data-related Meetup groups.

Why Is This Important? A thriving data-science community can encourage knowledge sharing, promote collaboration, and build networks between people within a state who have data-science skills and interests. Throughout the country, many individuals—including industry professionals, students, educators, government workers, civic technologists, and entrepreneurs—regularly gather to discuss a wide array of data-focused topics, from lectures by industry experts on advances in machine learning to workshops from peers on new tools and techniques. Many of these groups also support civic hacking. For example, in New York City, the NYC Open Data group on Meetup.com has more than 4,500 members who regularly host and attend workshops teaching data-science skills and collaborate on projects using open data to build apps and tools.[118] Similar Meetup groups in San Francisco and Boston each have thousands of members and serve as communities of practice for professionals interested in data topics ranging from data visualization to artificial intelligence.[119] Not only are these data-science communities important for improving the skills of a state's existing STEM workforce, they can also generate interest in data science and attract people who want to cultivate these skills to the field, as well as lead to collaborations on research, business ideas, and other opportunities.

The Rankings: New York, California, Massachusetts, Illinois, Virginia and Washington lead on this indicator. One reason these states likely lead in this category is that they all have a sizable number of businesses involved in data processing and many science and engineering students at their universities. Conversely, the state with the weakest data-science communities, such as Wyoming and Mississippi, typically score very low in these areas. However, it seems that the presence of data-driven industry is the more critical factor, because North Dakota and South Dakota score poorly for categories related to data-science jobs, but have relatively high STEM degree-holding populations. Nonetheless, they still have among the smallest data-science communities. One explanation for this outcome may be that these voluntary groups often depend on corporate sponsors.

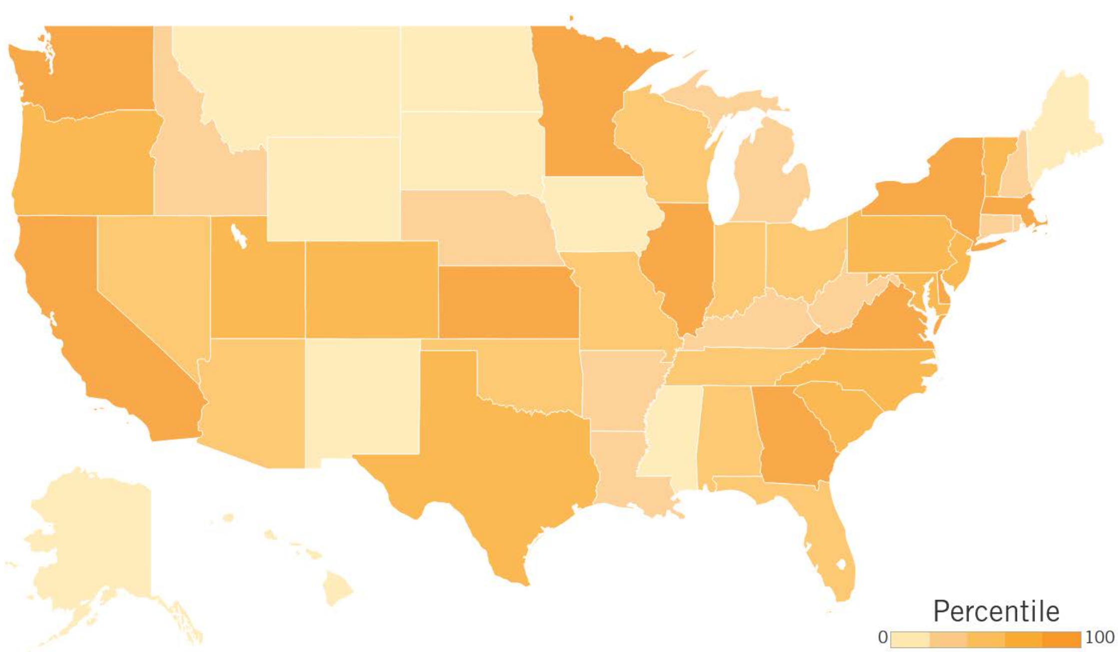
Methodology: For all U.S. cities with a population of 50,000 or greater, the Meetup.com API is used to identify all data-related groups within a 25-mile radius. Data-related groups are those that match the topic area's terms: big data analytics, big data, data analytics, data visualization, data mining, data center and operations automation, open data, operations and data center management, data center networking and design, linked data, or data warehouses. The score is calculated as the total membership across all groups divided by the number of groups. Only groups that have hosted an event and were last active at least since 2014 were included.

Sources: "MeetUp API," Meetup, accessed May 1, 2017, https://www.meetup.com/meetup_api/docs/2/groups/; U.S. Census Bureau, (a national 2010 urban area file containing a list of all urbanized areas and urban clusters (including Puerto Rico and the Island Areas) sorted by UACE code; accessed May 1, 2017), https://www.census.gov/geo/reference/ua/urban-rural-2010.html.

Table 29: Data-Science Community

Rank	State	Score	Rank	State	Score
1	New York	1033	26	Florida	268
2	California	874	27	Alabama	264
3	Massachusetts	683	28	Tennessee	255
4	Illinois	654	29	Ohio	253
5	Virginia	563	30	Nevada	239
6	Washington	558	31	Michigan	229
7	Delaware	551	32	Connecticut	229
8	Kansas	477	33	Kentucky	228
9	Minnesota	445	34	Louisiana	185
10	Georgia	435	35	Idaho	178
11	Texas	429	36	New Hampshire	161
12	Colorado	412	37	Nebraska	159
13	Pennsylvania	399	38	Rhode Island	156
14	Maryland	396	39	West Virginia	142
15	Utah	369	40	Arkansas	141
16	New Jersey	363	41	Maine	118
17	Oregon	357	42	Iowa	117
18	South Carolina	323	43	Hawaii	108
19	North Carolina	302	44	Alaska	103
20	Vermont	301	45	New Mexico	101
21	Missouri	297	46	Montana	67
22	Arizona	287	47	North Dakota	24
23	Indiana	287	48	Mississippi	0
24	Wisconsin	278	48	South Dakota	0
25	Oklahoma	270	48	Wyoming	0

Map 29: Data-Science Community



RECOMMENDATIONS

As this report shows, states vary widely in their propensity for data innovation, with some—such as Virginia, Utah, Washington, Massachusetts, and Maryland—consistently coming out at the top of the rankings for many indicators, while others—such as Alabama, Wyoming, Alaska, and South Carolina—consistently ranking among the lowest. Undoubtedly, some states have natural advantages that allow them to excel on certain metrics. For example, Missouri's mild climate, its low risk of natural disasters, and its large number of old quarries that can serve as pre-built subterranean infrastructure gives the state a competitive edge when courting the development of data centers, whereas Alaska, which ranked last for the information and data-processing indicator, lacks these qualities.[120] Regardless of any natural advantages or disadvantages states may have, however, every state can take direct actions that would have a positive impact on its capacity for data-driven innovation. For example, though Texas' warm climate is already a natural driver of energy-saving smart-thermostat adoption, several of its energy providers and municipalities also offer financial incentives or bill credits for homes that install smart thermostats, thereby increasing adoption.[121]

In many cases, states can take concrete and straightforward actions to promote data innovation. If they have not done so already, state policymakers should:

- Publish legislative data in open and machine-readable formats.
- Publish checkbook-level government financial data online in open and machine-readable formats.
- Develop an open-data portal and statewide open-data policy.
- Develop a publicly accessible all-payer claims database (APDC).
- Promote the adoption of e-prescribing for controlled substances, such as through legislative requirements or incentive programs.
- Pass anti-SLAPP legislation.
- Create a statewide e-government strategy, which includes consideration of emerging technologies such as the Internet of Things, and work with municipal governments to drive e-government adoption.[122]

In other cases, states can take actions that will support the efforts of local governments and the private sector to promote data innovation. By taking these steps, states can expect to improve their capacity to reap the benefits of data-driven innovation. State policymakers should:

- Lead by example by having public agencies participate in programs such as submitting data to the DOE's Building Performance Database.
- Work with state utility commissions and utility providers to accelerate the adoption of smart meters, by allowing utilities to include smart meters in the rate base, and smart thermostats, by developing incentive programs or offering tax credits, as well as encouraging participation in the Green Button initiative.
- Provide leadership and support to state and municipal departments of transportation to publish transit data in real time using the GTFS standard.
- Support efforts to increase broadband access and improve broadband speeds, such as by streamlining access to conduit, rights of way, and utility poles at reasonable rates; work to provide access to information on available state- or city-owned infrastructure and rights of way, and coordinate conduit installation with public works; and efforts to support digital literacy and broadband-adoption programs.

States should also avoid enacting policies that would hinder some of this progress. For example, multiple states have begun to implement programs that would make it more difficult to implement smart-meter programs, such as by requiring consumers to opt in to these programs and allowing consumers to refuse the upgrade.[123]

Data-driven innovation occurs in every industry, so states should focus on applying data science to the industries where they are already succeeding. But growing a state's data-driven economy can still present a chicken-or-egg problem for policymakers: A state may have challenges courting data-driven businesses if there are few workers with the skills to work with data, while at the same time a state is unlikely to be able to attract a large data-science workforce unless there is sufficient demand from businesses. There are nonetheless actions that states can take to help overcome these obstacles. For example, states can use economic-development programs in partnership with state-run universities, such as the Utah Science Technology and Research Initiative (USTAR), which can diversify a state's economy, attract researchers, and promote entrepreneurship in targeted industries. States can also host, sponsor, and participate in data-science and open-data networking groups, conferences, and competitions. Many states have seen these efforts yield positive results. For example, in 2013, the Illinois Science and Technology Coalition awarded $15,000 each to developers who created apps, such as one that organized and made searchable hundreds of pages of city ordinances, and one that analyzed and ranked housing developments by location.[124]

In addition, many advances within a state will occur because of steps taken by municipal governments. For example, local governments will typically decide whether to publish data about public transit, building permits, or restaurant health inspections. These efforts can have important results. For example, the New York City BigApps competition has yielded apps such as a map overlaying traffic density, noise complaints, and neighborhoods; a map of best places to watch sunsets by time of day and year; and an app that layers turnstile activity, rent prices, income, and other urban data onto subway maps.[125]

While the data economy is rapidly growing, these are still its early years. Policymakers who want to maximize their state's potential to leverage data for social and economic good should not waste time investing in the data, technology, and people necessary for data-driven innovation to flourish.

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APPENDIX A: WEIGHTS

Indicator	Weight
Ensuring Data is Available for Use	240
Legislative Data	20
Government Financial Data	20
Education Data	30
E-Prescribing	30
Health-Care Price Transparency	30
Energy Usage Data	30
Building Energy Efficiency Data	30
Public Access to Government Information	20
Anti-SLAPP Laws	30
Enabling Key Technology Platforms	240
Broadband	40
Smart Meters	40
Transit Information Systems	40
Electronic Health Records	40
Internet of Things: Consumer Devices	40
Open-Data Portals	20
E-Government	20
Developing Human and Business Capital	240
Computer Science and Statistics AP Tests	30
STEM Degrees	30
Software Service Jobs	20
Statistics Jobs	20
Data Science Job Listings	20
Open Data 500 Companies	15
Information and Data-Processing Sector	45
Federal Funding for Data Science R&D	30
Data Science Community	30

APPENDIX B: SCORES

	Overall		Ensuring Data Is Available for Use		Legislative Data		Government Financial Data		Education Data	
State	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Alabama	47	22.3	50	14.8	46	34.1	47	39.4	37	16.7
Alaska	41	29.3	46	23.8	12	80.5	49	13.6	22	50.0
Arizona	24	41.5	33	37.6	27	64.2	25	78.8	37	16.7
Arkansas	38	32.3	17	47.7	2	90.2	33	72.7	1	100.0
California	4	57.1	18	46.7	40	49.6	50	0.0	45	0.0
Colorado	9	54.2	1	69.0	31	58.5	11	90.2	12	66.7
Connecticut	18	45.2	25	42.0	2	90.2	5	98.5	22	50.0
Delaware	5	56.9	3	67.0	12	80.5	39	65.2	1	100.0
Florida	26	41.0	23	43.1	21	70.7	7	93.9	12	66.7
Georgia	21	43.9	21	43.8	9	83.7	43	60.6	12	66.7
Hawaii	37	32.4	19	46.3	44	39.8	45	56.1	34	33.3
Idaho	40	29.6	48	20.6	39	52.0	48	16.7	22	50.0
Illinois	12	48.7	20	44.7	21	70.7	13	89.4	37	16.7
Indiana	17	46.1	13	53.4	47	22.0	1	100.0	4	83.3
Iowa	31	37.4	34	37.6	21	70.7	10	91.7	37	16.7
Kansas	33	35.5	26	41.5	19	74.0	28	75.8	4	83.3
Kentucky	36	32.7	38	35.1	48	20.3	20	81.8	1	100.0
Louisiana	48	21.8	36	37.4	42	46.3	7	93.9	22	50.0
Maine	20	44.3	4	60.0	32	56.1	42	63.6	4	83.3
Maryland	3	59.2	12	54.0	17	78.0	20	81.8	12	66.7
Massachusetts	1	63.0	7	56.0	50	0.0	9	93.2	12	66.7
Michigan	15	47.0	22	43.3	26	65.9	1	100.0	12	66.7
Minnesota	11	50.3	10	54.6	32	56.1	25	78.8	22	50.0
Mississippi	50	18.9	45	24.1	19	74.0	36	68.2	45	0.0
Missouri	27	40.8	32	38.5	36	54.5	39	65.2	22	50.0
Montana	44	25.8	43	25.0	21	70.7	15	87.9	34	33.3
Nebraska	29	39.4	27	41.3	49	17.9	17	84.8	37	16.7
Nevada	30	38.4	31	39.2	12	80.5	29	74.2	37	16.7
New Hampshire	28	40.0	37	37.0	9	83.7	37	66.7	34	33.3
New Jersey	23	41.7	29	40.9	9	83.7	29	74.2	12	66.7
New Mexico	39	29.9	30	39.9	36	54.5	39	65.2	22	50.0
New York	10	53.3	6	58.8	2	90.2	13	89.4	22	50.0
North Carolina	32	37.3	40	30.7	2	90.2	19	84.1	22	50.0
North Dakota	42	29.0	42	25.2	36	54.5	46	45.5	22	50.0
Ohio	22	42.7	24	42.8	2	90.2	1	100.0	4	83.3
Oklahoma	35	33.7	39	34.5	32	56.1	16	85.6	45	0.0
Oregon	8	55.7	2	69.0	41	48.0	1	100.0	4	83.3
Pennsylvania	16	46.2	16	47.9	2	90.2	29	74.2	37	16.7
Rhode Island	19	44.4	9	54.8	43	43.9	35	72.0	12	66.7
South Carolina	46	22.5	49	16.4	27	64.2	37	66.7	45	0.0
South Dakota	43	26.1	41	26.0	12	80.5	17	84.8	45	0.0
Tennessee	34	34.5	28	41.0	32	56.1	27	78.0	12	66.7
Texas	13	48.7	5	59.2	18	75.6	11	90.2	4	83.3
Utah	6	56.4	11	54.6	27	64.2	20	81.8	4	83.3
Vermont	14	47.0	15	50.8	12	80.5	20	81.8	45	0.0
Virginia	7	55.9	14	51.9	2	90.2	33	72.7	4	83.3
Washington	2	60.4	8	55.3	1	100.0	24	80.3	22	50.0
West Virginia	49	19.2	44	24.6	21	70.7	29	74.2	22	50.0
Wisconsin	25	41.4	35	37.5	44	39.8	6	95.5	12	66.7
Wyoming	45	25.7	47	21.9	27	64.2	44	59.1	37	16.7

	E-Prescribing		Health-Care Price Transparency		Energy Usage Data		Building Energy Efficiency Data		Public Access to Government Info	
State	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Alabama	44	1.4	8	0	42	0.0	38	14.9	26	54.8
Alaska	33	4.1	8	0	42	0.0	44	10.1	2	95.2
Arizona	21	9.0	8	0	35	8.1	25	30.0	20	62.9
Arkansas	49	0.0	7	25	40	0.0	47	8.9	23	58.1
California	4	32.9	8	0	6	80.9	7	64.2	4	93.5
Colorado	27	6.3	1	100	16	59.4	2	90.7	40	45.2
Connecticut	31	4.7	8	0	4	94.8	40	14.2	13	69.4
Delaware	3	40.6	8	0	14	67.2	1	100.0	36	46.8
Florida	41	1.9	8	0	36	5.6	36	18.0	19	64.5
Georgia	40	2.0	8	0	42	0.0	17	40.2	15	67.7
Hawaii	42	1.8	8	0	3	95.3	46	9.7	1	100.0
Idaho	30	4.9	8	0	42	0.0	24	32.9	36	46.8
Illinois	15	13.9	8	0	32	10.4	15	46.5	2	95.2
Indiana	13	16.3	8	0	7	79.4	18	38.2	43	43.5
Iowa	16	13.8	8	0	28	15.0	4	86.0	5	91.9
Kansas	34	3.7	8	0	42	0.0	39	14.4	36	46.8
Kentucky	28	5.9	8	0	34	8.5	12	50.8	12	71.0
Louisiana	19	11.2	8	0	31	11.3	50	0.0	34	50.0
Maine	39	2.2	1	100	11	74.6	49	4.3	30	53.2
Maryland	12	16.9	8	0	13	68.9	13	48.4	46	37.1
Massachusetts	8	21.7	8	0	1	100.0	8	61.2	26	54.8
Michigan	6	28.4	8	0	38	2.8	29	25.5	48	19.4
Minnesota	14	15.6	8	0	17	49.5	6	80.4	11	77.4
Mississippi	46	0.5	8	0	20	42.7	48	8.4	13	69.4
Missouri	36	3.1	8	0	42	0.0	34	21.1	7	80.6
Montana	45	0.8	8	0	42	0.0	31	23.9	26	54.8
Nebraska	2	71.5	8	0	37	3.2	37	17.1	7	80.6
Nevada	49	0.0	8	0	25	25.9	23	33.9	31	51.6
New Hampshire	18	11.5	1	100	42	0.0	35	19.7	36	46.8
New Jersey	25	7.1	8	0	8	79.3	22	34.2	31	51.6
New Mexico	35	3.5	8	0	29	13.8	11	59.4	48	19.4
New York	1	100.0	8	0	30	12.6	14	48.3	22	59.7
North Carolina	22	7.8	8	0	41	0.0	27	27.4	16	66.1
North Dakota	48	0.2	8	0	19	44.6	41	14.1	45	38.7
Ohio	11	17.1	8	0	23	32.7	16	40.9	20	62.9
Oklahoma	29	5.7	8	0	24	30.6	43	10.6	31	51.6
Oregon	9	20.7	4	75	10	78.3	5	81.9	47	21.0
Pennsylvania	22	7.8	8	0	22	36.6	10	59.6	10	79.0
Rhode Island	10	18.8	8	0	2	96.8	30	25.1	7	80.6
South Carolina	47	0.4	8	0	42	0.0	42	13.5	40	45.2
South Dakota	17	11.7	8	0	26	23.0	21	34.4	43	43.5
Tennessee	38	2.8	8	0	39	1.5	32	23.6	16	66.1
Texas	5	32.1	8	0	5	88.4	33	22.7	26	54.8
Utah	32	4.4	8	0	9	78.4	20	34.7	23	58.1
Vermont	20	9.7	5	50	15	65.0	26	29.7	16	66.1
Virginia	37	3.0	5	50	12	72.4	9	60.4	25	56.5
Washington	26	6.9	8	0	27	17.5	3	90.0	6	87.1
West Virginia	43	1.4	8	0	33	8.7	45	9.9	40	45.2
Wisconsin	7	27.9	8	0	18	46.8	19	35.1	34	50.0
Wyoming	24	7.7	8	0	21	42.3	28	26.0	50	0.0

	Anti-SLAPP Laws		Enabling Key Technology Platforms		Broadband		Smart Meters		Transit Information Systems	
State	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Alabama	32	0	44	34.7	47	24.0	8	80.2	25	40
Alaska	32	0	28	47.7	22	64.1	40	13.1	3	80
Arizona	1	100	25	49.3	37	46.3	7	81.4	9	60
Arkansas	1	100	41	38.6	49	12.3	22	32.3	36	20
California	1	100	6	62.9	17	70.4	4	90.3	9	60
Colorado	1	100	22	52.1	18	69.5	34	19.3	25	40
Connecticut	32	0	19	54.5	13	79.6	39	13.8	9	60
Delaware	1	100	15	56.0	8	86.8	12	72.9	9	60
Florida	1	100	13	56.2	33	50.9	14	64.0	3	80
Georgia	1	100	16	55.5	29	54.2	2	95.9	25	40
Hawaii	1	100	42	37.6	32	51.4	43	6.8	36	20
Idaho	32	0	27	48.3	25	58.2	10	78.6	46	0
Illinois	1	100	9	59.8	14	75.5	19	41.8	25	40
Indiana	1	100	20	53.3	24	58.7	33	19.4	25	40
Iowa	32	0	36	42.8	26	57.5	41	11.4	36	20
Kansas	1	100	43	36.2	35	47.7	17	53.6	25	40
Kentucky	32	0	34	43.8	44	32.5	24	29.0	9	60
Louisiana	1	100	49	20.1	45	30.6	36	17.4	36	20
Maine	1	100	21	52.3	30	53.9	1	100.0	46	0
Maryland	1	100	1	75.4	3	94.1	11	75.7	3	80
Massachusetts	1	100	10	59.2	4	93.3	46	2.9	9	60
Michigan	1	100	5	64.7	23	60.0	13	71.9	9	60
Minnesota	1	100	18	54.8	9	83.8	38	14.9	9	60
Mississippi	32	0	48	26.7	50	0.0	21	34.5	36	20
Missouri	1	100	30	46.7	31	52.4	30	23.1	25	40
Montana	32	0	45	32.9	34	48.0	35	18.2	36	20
Nebraska	1	100	35	42.9	20	66.8	37	17.2	36	20
Nevada	1	100	8	60.0	16	71.8	3	93.2	9	60
New Hampshire	32	0	24	49.4	2	94.7	28	24.0	46	0
New Jersey	32	0	37	40.5	7	89.2	47	1.0	3	80
New Mexico	1	100	47	26.9	46	24.1	42	10.4	36	20
New York	1	100	29	46.9	19	68.3	49	0.4	3	80
North Carolina	32	0	33	44.7	39	40.5	23	30.1	25	40
North Dakota	32	0	26	48.9	27	56.4	27	26.2	25	40
Ohio	32	0	17	54.8	40	39.4	32	20.2	1	100
Oklahoma	1	100	23	51.1	42	34.3	6	83.3	25	40
Oregon	1	100	4	66.8	12	82.2	16	61.4	3	80
Pennsylvania	1	100	31	46.5	28	54.9	15	62.1	9	60
Rhode Island	1	100	40	39.3	6	90.2	50	0.0	9	60
South Carolina	32	0	46	30.6	41	36.4	29	23.2	25	40
South Dakota	32	0	39	39.6	36	47.1	20	41.7	36	20
Tennessee	1	100	38	40.1	43	34.0	18	50.7	36	20
Texas	1	100	12	58.1	38	44.9	9	79.1	9	60
Utah	1	100	2	71.2	1	100.0	45	4.8	9	60
Vermont	1	100	11	58.9	10	83.5	5	86.7	9	60
Virginia	32	0	7	62.8	11	82.7	31	21.0	9	60
Washington	1	100	3	70.5	5	91.4	44	5.8	1	100
West Virginia	32	0	50	17.3	48	23.4	48	0.8	46	0
Wisconsin	32	0	14	56.1	15	75.2	26	26.2	9	60
Wyoming	32	0	32	45.4	21	65.9	25	28.4	46	0

	Electronic Health Records		Internet of Things: Consumer Devices		Open-Data Portals		E-Government		Developing Human and Business Capital	
State	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Alabama	35	47.4	48	2.4	43	0.0	43	28.6	39	17.2
Alaska	34	49.6	5	72.0	43	0.0	47	14.3	40	16.3
Arizona	41	35.0	31	37.6	30	14.3	21	57.1	16	37.6
Arkansas	8	83.6	25	47.7	30	14.3	21	57.1	47	10.7
California	29	53.7	27	46.0	11	42.9	11	71.4	2	61.8
Colorado	6	87.4	26	46.3	17	28.6	11	71.4	12	41.6
Connecticut	36	45.9	23	49.1	7	85.7	11	71.4	14	39.2
Delaware	42	31.7	24	48.9	17	28.6	35	42.9	7	47.7
Florida	18	63.6	33	36.2	30	14.3	11	71.4	31	23.5
Georgia	40	37.4	18	55.4	30	14.3	6	85.7	22	32.6
Hawaii	47	12.9	17	55.7	1	100.0	21	57.1	44	13.3
Idaho	27	54.4	12	62.9	30	14.3	21	57.1	36	19.9
Illinois	32	50.9	11	64.7	1	100.0	11	71.4	11	41.8
Indiana	5	87.6	16	56.8	17	28.6	6	85.7	24	31.6
Iowa	25	57.5	8	67.6	17	28.6	21	57.1	23	31.6
Kansas	38	44.5	37	31.2	43	0.0	50	0.0	29	28.7
Kentucky	16	65.2	30	40.7	30	14.3	21	57.1	38	19.1
Louisiana	48	7.5	38	31.0	43	0.0	43	28.6	49	7.8
Maine	33	50.6	10	66.5	17	28.6	21	57.1	34	20.5
Maryland	14	66.6	15	57.4	1	100.0	21	57.1	6	48.1
Massachusetts	1	100.0	7	70.1	43	0.0	21	57.1	1	73.9
Michigan	12	72.7	21	52.3	11	42.9	1	100.0	21	32.8
Minnesota	4	87.8	36	32.1	17	28.6	11	71.4	13	41.5
Mississippi	13	70.0	50	0.0	30	14.3	21	57.1	50	5.8
Missouri	21	62.4	39	30.9	11	42.9	1	100.0	17	37.1
Montana	37	45.6	40	29.8	17	28.6	35	42.9	37	19.3
Nebraska	24	57.8	19	52.9	17	28.6	21	57.1	19	33.9
Nevada	22	62.1	14	58.8	43	0.0	43	28.6	41	15.9
New Hampshire	28	53.8	9	66.7	9	71.4	35	42.9	20	33.7
New Jersey	50	0.0	32	37.2	11	42.9	43	28.6	9	43.6
New Mexico	10	76.6	49	1.6	30	14.3	35	42.9	32	23.1
New York	39	43.2	46	11.2	1	100.0	21	57.1	4	54.1
North Carolina	7	84.9	44	22.6	17	28.6	11	71.4	18	36.5
North Dakota	9	78.2	28	42.8	30	14.3	6	85.7	45	12.9
Ohio	30	53.5	22	51.6	17	28.6	1	100.0	28	30.3
Oklahoma	23	59.0	45	18.7	1	100.0	35	42.9	42	15.6
Oregon	26	56.4	6	70.6	11	42.9	21	57.1	25	31.3
Pennsylvania	43	31.1	42	27.9	30	14.3	11	71.4	8	44.4
Rhode Island	49	6.8	34	36.1	9	71.4	47	14.3	15	39.0
South Carolina	45	26.5	41	28.8	30	14.3	35	42.9	35	20.5
South Dakota	11	75.3	35	32.1	43	0.0	35	42.9	46	12.7
Tennessee	15	66.1	43	27.0	30	14.3	11	71.4	33	22.3
Texas	31	51.4	29	42.0	7	85.7	21	57.1	30	28.7
Utah	19	62.6	1	100.0	1	100.0	1	100.0	10	43.3
Vermont	46	20.2	13	60.3	11	42.9	35	42.9	26	31.2
Virginia	19	62.6	2	86.5	17	28.6	1	100.0	5	53.1
Washington	3	92.5	3	76.1	17	28.6	6	85.7	3	55.4
West Virginia	44	29.1	47	7.9	30	14.3	11	71.4	43	15.6
Wisconsin	17	64.9	20	52.8	17	28.6	6	85.7	27	30.7
Wyoming	2	98.6	4	72.0	43	0.0	47	14.3	48	9.9

	Computer Science and Statistics AP Tests		STEM Degrees		Software Service Jobs		Statistics Jobs		Data Science Job Listings	
State	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Alabama	45	20.2	30	32.1	27	28.5	22	35.0	37	8.4
Alaska	20	66.5	48	10.8	45	9.3	42	18.8	15	22.9
Arizona	38	39.8	6	54.9	12	45.5	5	66.8	26	15.5
Arkansas	46	14.8	49	8.7	33	17.7	40	19.3	33	10.3
California	21	65.9	28	32.9	5	64.0	15	44.8	5	53.1
Colorado	29	55.0	12	46.2	6	62.8	20	37.0	11	27.9
Connecticut	4	88.6	7	53.4	9	49.8	6	58.9	14	25.3
Delaware	8	80.7	10	49.6	18	36.2	3	86.2	8	35.0
Florida	43	30.8	38	21.9	30	24.0	17	41.8	32	11.2
Georgia	25	58.0	43	18.2	11	45.7	16	43.8	19	19.1
Hawaii	39	39.5	39	20.9	44	9.3	43	16.8	31	11.5
Idaho	37	41.0	36	24.3	49	1.5	33	25.7	20	18.0
Illinois	36	44.4	23	36.3	20	35.1	7	58.6	9	29.6
Indiana	30	52.5	16	41.3	34	17.6	29	29.0	41	5.2
Iowa	18	72.2	2	65.7	28	26.5	31	27.2	40	6.4
Kansas	24	63.8	25	33.9	29	25.3	9	51.8	27	14.9
Kentucky	34	46.0	45	14.9	39	15.0	30	27.5	47	1.9
Louisiana	49	4.3	42	19.0	47	4.3	44	15.4	48	1.8
Maine	12	75.8	41	20.0	36	17.1	37	24.5	42	4.5
Maryland	15	73.8	8	50.4	7	53.7	1	100.0	2	64.8
Massachusetts	1	100.0	1	100.0	2	78.1	4	77.1	3	60.7
Michigan	10	79.0	17	40.7	24	30.8	34	25.7	21	17.6
Minnesota	7	81.5	4	58.4	10	47.1	12	49.6	18	20.2
Mississippi	48	8.1	47	13.4	48	3.4	46	13.6	50	0.0
Missouri	22	65.6	26	33.0	19	35.3	21	35.5	23	16.3
Montana	9	80.2	31	29.0	41	13.3	45	15.3	49	0.8
Nebraska	26	57.7	18	39.7	17	37.7	13	47.8	25	15.7
Nevada	40	36.8	50	0.0	42	11.3	47	12.7	35	9.5
New Hampshire	3	92.7	13	45.4	8	50.8	36	25.3	34	10.1
New Jersey	2	98.9	34	26.1	4	69.3	24	32.9	7	44.1
New Mexico	50	0.0	33	26.7	35	17.2	39	21.9	10	28.3
New York	27	56.6	9	50.2	16	38.4	19	40.1	6	44.7
North Carolina	14	74.1	27	32.9	14	39.0	25	32.8	17	21.2
North Dakota	47	10.0	14	44.2	40	13.5	48	11.6	44	2.5
Ohio	11	77.5	21	37.4	25	29.4	18	40.7	28	13.9
Oklahoma	44	27.2	37	23.4	32	18.7	38	23.8	38	8.3
Oregon	23	64.1	29	32.4	15	38.8	26	31.4	12	26.1
Pennsylvania	5	85.8	11	48.9	23	30.9	11	50.5	13	26.0
Rhode Island	32	48.0	3	62.5	21	35.1	8	56.0	22	17.2
South Carolina	31	52.4	44	15.7	38	16.3	35	25.6	46	2.1
South Dakota	28	56.1	22	36.3	43	11.2	50	0.0	44	2.5
Tennessee	33	47.0	46	14.9	37	16.5	32	27.0	39	7.2
Texas	35	45.0	40	20.5	22	34.5	14	46.0	24	16.2
Utah	6	83.2	19	39.5	13	44.8	28	30.3	16	22.2
Vermont	13	74.4	5	56.9	31	20.7	27	30.9	29	13.4
Virginia	17	72.3	15	42.2	3	77.9	2	89.2	4	57.2
Washington	19	68.3	35	25.0	1	100.0	10	51.3	1	100.0
West Virginia	42	32.5	24	35.9	46	6.4	41	19.2	30	12.7
Wisconsin	16	72.6	20	38.7	26	28.9	23	34.8	36	8.9
Wyoming	41	34.4	32	28.2	50	0.0	49	10.4	43	4.0

	Open Data 500 Companies		Information and Data-Processing Sector		Federal Funding for Data Science R&D		Data Science Community	
State	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Alabama	37	4.6	46	4.5	41	3.1	27	25.6
Alaska	38	0.0	44	5.6	45	0.8	44	9.9
Arizona	26	9.7	13	37.0	8	32.8	22	27.8
Arkansas	32	6.7	38	9.2	47	0.2	40	13.6
California	3	61.0	1	100.0	12	22.3	2	84.6
Colorado	9	28.2	10	47.1	13	21.9	12	39.9
Connecticut	7	37.4	28	21.8	31	8.6	32	22.2
Delaware	38	0.0	9	50.6	19	17.4	7	53.3
Florida	33	5.5	17	31.7	32	8.0	26	25.9
Georgia	18	13.6	20	28.8	15	19.9	10	42.1
Hawaii	38	0.0	45	5.2	44	2.4	43	10.4
Idaho	38	0.0	24	25.9	33	7.3	35	17.2
Illinois	8	34.2	14	36.7	6	35.7	4	63.3
Indiana	12	21.6	41	7.1	2	75.6	23	27.7
Iowa	34	5.4	18	30.5	22	15.4	42	11.4
Kansas	38	0.0	35	12.4	34	5.6	8	46.2
Kentucky	35	4.9	26	22.3	35	4.7	33	22.0
Louisiana	38	0.0	47	4.2	46	0.7	34	17.9
Maine	13	20.1	36	10.9	48	0.0	41	11.5
Maryland	6	40.1	30	19.8	9	27.2	14	38.3
Massachusetts	1	100.0	7	55.0	4	48.3	3	66.1
Michigan	27	9.7	32	16.3	5	42.0	31	22.2
Minnesota	28	8.5	16	34.9	24	14.1	9	43.1
Mississippi	38	0.0	42	6.1	36	4.4	48	0.0
Missouri	15	16.7	2	61.6	29	10.5	21	28.7
Montana	23	10.5	37	9.5	48	0.0	46	6.5
Nebraska	29	7.9	6	55.2	37	4.2	37	15.4
Nevada	31	6.8	25	25.7	43	2.9	30	23.1
New Hampshire	11	22.0	19	29.5	39	3.8	36	15.6
New Jersey	10	25.9	12	39.5	16	19.1	16	35.1
New Mexico	38	0.0	49	2.1	1	100.0	45	9.7
New York	2	77.2	5	56.4	14	20.5	1	100.0
North Carolina	25	9.9	15	35.7	7	35.1	19	29.3
North Dakota	38	0.0	40	8.5	23	15.3	47	2.3
Ohio	20	12.6	29	19.9	28	11.1	29	24.5
Oklahoma	36	4.6	43	6.1	42	2.9	25	26.2
Oregon	30	7.5	22	26.2	26	12.3	17	34.6
Pennsylvania	16	16.0	27	22.1	3	68.8	13	38.6
Rhode Island	17	14.0	4	59.1	18	18.8	38	15.1
South Carolina	38	0.0	33	15.1	25	12.7	18	31.3
South Dakota	38	0.0	50	0.0	48	0.0	48	0.0
Tennessee	24	10.4	31	18.0	11	26.0	28	24.7
Texas	19	13.6	23	26.1	27	12.0	11	41.5
Utah	22	10.9	3	60.3	10	27.1	15	35.7
Vermont	14	18.5	34	12.8	20	17.1	20	29.1
Virginia	5	49.2	11	43.9	21	15.5	5	54.5
Washington	4	57.0	8	53.7	17	19.1	6	54.0
West Virginia	38	0.0	39	8.9	38	4.0	39	13.7
Wisconsin	21	12.4	21	28.7	30	9.5	24	26.9
Wyoming	38	0.0	48	2.7	40	3.2	48	0.0

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