

# The Innovative State

*Beth Simone Noveck*

**D**uring the COVID-19 pandemic, I have had the privilege to lead a team of engineers, designers, and policy professionals in the New Jersey Office of Innovation, a recently created administrative unit in the state's government. When the pandemic hit, the Innovation Office team used technology and data, and unprecedented levels of collaboration across agencies and with the private sector, to respond to the crisis.

Working with the nonprofit Federation of American Scientists, for example, we built a website and accompanying (Amazon) Alexa skill to enable the public to pose questions about the virus to more than six hundred participating scientists and receive rapid, well-researched responses.<sup>1</sup>

A private sector company lent us the tech and the talent to create a website, [covid19.nj.gov](https://covid19.nj.gov), in three days. In the last year, the site has been visited more than seventy-five million times since its launch in March of 2020.

Even more challenging to create than the technology was the content. Therefore, the Innovation Office collaborated with Princeton, Rutgers, Montclair, Rowan, and the state's other universities to create an editorial team to translate legalese from government agencies into plain English and to knit together disparate sources of information in a single website.

A professor of data science at New York University assembled a team to produce predictive analytics about the spread of the virus. This data enabled the governor and other senior leaders to make better decisions about the response. When

the data science team could not determine the number of deaths on the basis of race because the testing labs were not providing that information, the Department of Human Services and the Department of Health shared key administrative data with one another that enabled us to answer this question faster. Such sharing would normally be accomplished in a year (or never); we did it in a day.

In three days, the team also produced the nation's first state jobs site to list available positions in essential businesses and thereby mitigate the crisis of unemployment. We posted over fifty thousand jobs in a broad range of businesses and salary levels. We launched a site that was far from perfect and improved it as we went along, knowing it was more important to risk failure than not to act quickly. Our team also worked with the federal government's Digital Service, a unit within the Executive Office of the President, to fix the state's process of certifying for unemployment.<sup>2</sup> We also worked with the nonprofit Code for America to digitize the application process for food benefits, whose paper-based rules previously required coming into a government office to demonstrate income level.

By working more collaboratively and taking advantage of new technologies of information collection, analysis, and visualization, we were able to demonstrate how a bureaucracy can be nimble and effective, rather than lumbering and unresponsive.

Changing how we work in government is imperative. The COVID-19 crisis has revealed how ill-equipped the administrative state is at dealing with novel challenges. From delivering adequate testing and personal protective equipment (PPE) to expanding online education equitably, in too many areas the state has struggled to respond.

Perhaps it is telling that, in the face of the unprecedented COVID crisis, many public leaders chose to hire the management consultancy McKinsey and outsource critical state responses despite the high costs.<sup>3</sup> In the first four months of the pandemic alone, public institutions in the United States contracted with McKinsey to the tune of \$100 million, reflecting, at best, a perceived lack of confidence in the skills of bureaucracies and, at worst, a hollowing out of competence in the administrative state.<sup>4</sup> Either way, there is an urgent need for new approaches to how government operates in response to the crises hiding in plain sight, from the public health emergency to an unprecedented economic depression. In the

since the 1970s, while the average pretax income of the top 10 percent of American earners has doubled since 1980, and that of the top 0.001 percent rose sevenfold.<sup>6</sup> Whereas life expectancy in the United States continuously increased for most of the past sixty years, it has been decreasing since 2014.<sup>7</sup> For the poor, life expectancy is dramatically lower.<sup>8</sup> Rich American men now live fifteen years longer than their poorer compatriots.<sup>9</sup> Life expectancy for Black men is far below every other demographic.<sup>10</sup> On top of these and countless other challenges, there is the looming and existential threat of climate change.

It is no wonder that most Americans today have lost confidence in government, especially the federal government. According to Pew Research Center, only 2 percent of Americans today say they can trust the government in Washington to do what is right “just about always,” while 18 percent trust the federal government “most of the time.”<sup>11</sup> Political scientist Paul Light has asserted that “federal failures have become so common that they are less of a shock to the public than an expectation. The question is no longer if government will fail every few months, but where. And the answer is ‘anywhere at all.’”<sup>12</sup>

**I**f embraced, the right technologies can create new opportunities for improving the efficacy and agility— and, when used well, the legitimacy— of the administrative state. The technologies of big data as well as those engagement tools that enable individual and group communication and collaboration across a distance— what we might call the technologies of collective intelligence— could enable government agencies to understand problems with greater precision and in conversation with those most affected.

Thanks to the ubiquitous presence of data-gathering sensors in our lives, the technologies of big data make it possible for bureaucrats to gather more: more real-time and more granular information. Instead of speculating about the cause of accidents, for example, a city now has exact information generated by the sensors on traffic lights, road cameras, and even sensors built into the pavement revealing exactly what kind of accidents are happening, when they occur, and which vehicles they involve. Data-analytical tools like machine learning make it possible for machines to ingest and make sense of large quantities of data. They can help the administrative state analyze the new glut of information.

Agencies have the opportunity to get smarter from people— their experiences and expertise— as well as from sensors and to obtain more diverse and equitable perspectives and insights. These combinations of quantitative and qualitative approaches tell agency officials more about why a problem is occurring and offer a broader audience to provide solutions.

The administrative agencies of government at every level have always had far greater access to information than other branches of government.<sup>13</sup> This is why legal scholar Adrian Vermeule refers to the administrative state as the “sensory

organ” of government. Its agencies and large staffs are designed to “gather, examine and cull information” and make greater sense of on-the-ground conditions.<sup>14</sup> Technology in every era has enabled administrative agencies to engage in “seeing like a state,” in the famous phrase of political scientist James Scott (and his eponymous book). Whereas Scott was concerned about the tendency of those who govern toward reductive simplification due, in large part, to simplistic measurement tools, entrepreneurial bureaucrats today have the opportunity to use big data . . . human insight to understand a problem as ordinary people experience it, and to design collaboratively more-effective solutions tailored to achieving the public’s desired outcomes.

If we embrace these diverse sources of external knowledge, the epistemic capacity of the state has the potential to increase dramatically. In fact, in 2018, Congress passed the Foundations for Evidence-Based Policymaking Act, requiring agencies to make better use of their data to measure and improve their performance and policy-making.<sup>15</sup> But, on the whole, too many administrative agencies are still falling behind in their use of new technologies and innovative ways of working. There is an ongoing information asymmetry in that regulators lack access to the data, information, and insight they need to safeguard the public interest, deliver services, identify violations, and enforce the law efficiently, especially vis-à-vis those seeking to evade liability. They also lack the practices for solving problems collaboratively. For agencies to engage in transformative policy-making, they need to exploit the tools available for creating a “smarter” and more equitable state.

**B**ig data refers to extremely large data sets that are too big to be stored or processed using traditional means. Today, new collection, storage, transmission, visualization, and analytic techniques have triggered a massive proliferation of data sets collected by public and private entities about everything from health and wellness to phone and purchase records. Such data are powerful raw materials for problem-solving.

Take a recent example from New Orleans, which has one of the highest murder rates of any city in the nation. Determined to change this dismal fact, then Mayor Mitch Landrieu in 2012 created a unit in city government called the Innovation Team, or i-Team. Using more than fifty years of data grouped by neighborhood and by rates of murder, crime, educational attainment, unemployment, and recidivism, the team uncovered a significant correlation between unemployment and violent crime (and thus recidivism). The data showed that a small and identifiable set of people in a few neighborhoods committed a majority of murders, usually as the result of petty disputes.<sup>16</sup>

That knowledge produced significant change. Municipal agencies instituted programs to train and hire ex-offenders in an effort to reduce the likelihood of re-

offending among those who had been incarcerated.<sup>17</sup> Strategies in the NOLA for Life program included social services and job opportunities as well as threats of prosecution, using data to determine which approach was appropriate for which individual. In the i-Teams' first year, the New Orleans' murder rate dropped 19 percent. Two years in, the rate had dropped over 25 percent from the 2012 high. New Orleans' murder rates in 2018 and 2019, though still among the highest in the

lating data variety. Data come in many formats, including numbers, text, images, voice, and video. Some data are organized in traditional databases with predefined fields such as phone numbers, zip codes, and credit card numbers. However, more and more data are unstructured: they do not come preorganized in traditional spreadsheet-style formats but helter-skelter as Twitter postings, videos, coordi-

Big data also creates the opportunity for regulators to spot mistakes, outliers,

mortgage rate checker tool: when under-resourced public agencies build worse websites than Silicon Valley, consumers suffer. At the same time, outsourcing the development of these tools to the private sector has its own problems. The IRS contracted with Intuit to provide a free version of TurboTax to low-income residents for their tax preparation, but the company has allegedly made that version as bad as possible to pressure people to buy its expensive products.<sup>29</sup>

**M**achine learning (a subset of artificial intelligence, or AI) describes a set of analytical techniques for . . . big data to make sense of and predict future occurrences and could radically transform the ability of agencies to deliver services and make informed policies.<sup>30</sup>



sity, Chicago's city government used its data on restaurant inspections and a wide variety of other data to create an algorithm to predict food-safety violations. This project increased the effectiveness of its inspections by 25 percent. Chile's Labor Inspectorate is applying machine learning to analyze past accidents and thereby anticipate workplace safety violations to make inspections more efficient and targeted. The Department of Education is exploring how machine learning and other technologies could be used to bring down the cost and improve the quality of creating learning assessments by automating the process of creating questions, scoring responses, and obtaining insights.<sup>33</sup>

By making it possible to sort the extraneous chaff from the informational wheat, machine learning could enable agencies to deliver both new and better services to the public. But it can also enable agencies to engage a broader public in decision-making by helping agencies to make public engagement more efficient. The public has long had a right to comment on any proposed agency regulatory rulemaking thanks to the Administrative Procedure Act of 1946. Although many of the three or four thousand rulemaking agencies publish annually receive only a handful of comments, thanks to the ease of digital commenting, some receive voluminous responses. In 2017, when the Federal Communications Commission sought to repeal an earlier Obama-era "net neutrality" rule requiring Internet service providers to transmit all content at the same speeds and not discriminate in favor of one content provider or another, the agency received twenty-two million comments.<sup>34</sup> In 2007, the Fish and Wildlife Service received more than 640,000 email comments on whether to list the polar bear as a threatened species.<sup>35</sup>

While, in principle, it is good for democracy when more people participate in rulemaking, the reality is that the large volume of comments—many of which are "written" by software algorithms or are the result of electronic mass comment campaigns—also makes it hard for agencies to read or use the material and renders the public's engagement mere "democracy theater." But if agencies used machine learning to summarize and analyze comments, they could better understand public participation and increase the epistemic value of engagement. Tools already exist for rapid de-duplication of identical comments and summarization of unique comments.<sup>36</sup> Journalists took advantage of such tools, for example, when they needed to sift rapidly through the 13.4 million documents that made up the Paradise Papers.<sup>37</sup> Both Google and Microsoft announced in 2019 that they had built systems that could summarize articles.<sup>38</sup>

While not yet in widespread use in federal agencies, data-analytical techniques have begun to be used to make sense of citizen input in some contexts. A recent State Department project offers a simple illustration for how agencies could take a more effective approach to making sense of rulemaking comments using a combination of artificial intelligence from machines and collective intelligence (CI) from humans. In 2016, the State Department sought to improve its passport appli-

cation and renewal process in anticipation of an increase in the number of passport application and renewal forms. The Department ran an online public engagement process to ask people what improvements they wanted. It received almost one thousand comments and engaged an Israeli-American software company to help it make rapid sense of the submissions.<sup>39</sup>

First, commenters were asked to highlight the key points of their answers. For users who declined to do so, the platform encouraged other users to highlight what they felt to be the other users' core ideas. Then the company applied a text-mining algorithm that scanned the highlighted text for responses containing similar keywords in order to create summaries, or what the company calls "highlights." Not surprisingly, the public was clamoring for a more convenient application process.

While machine learning can make it easier to process large quantities of comments, there are also challenges inherent in using machine learning precisely because of the way it creates generalizable rules. If a machine learning algorithm is "fed" with bad or incomplete data, it will encode bias into the model.<sup>40</sup> For example, large companies use machine learning tools (sometimes known as "automated employment decision tools" or "algorithmic hiring tools") to conduct and score video-based applicant interviews. This reduces the costs of screening potential employees. But if machine learning is used to compare applicant responses with interview answers provided by current employees, and if current employees are mostly White and American-born, applicants who are Black or foreign-born will score poorly.<sup>41</sup> Nonetheless, if applied to foster democratic engagement, these tools can help agencies get "smarter," faster, from new, more diverse audiences.

**T**he late nineteenth and early twentieth centuries saw the rise of the professions— medicine, law, engineering, and social sciences— and of the civil service. To overcome the cronyism of the past, under the Pendleton Reform Act of 1883, professional civil servants had to qualify based on an examination. Rules and procedures were put in place to create a culture of independence and the tradition of working behind closed doors emerged. Governing, especially in expert agencies, was meant to be at arm's length from the people.<sup>42</sup> Institutions and bureaucracies were designed to be hierarchical and rules-based, in order to support the new vision of the public servant as an impartial mandarin shielded from undue influence. This culture of isolation persists today. Mike Bracken, former head of the UK Government Digital Service, writes about the British civil service: "Whitehall was described to me when I started as a warring band of tribal bureaucrats held together by a common pension scheme."<sup>43</sup>

As we saw with public 311 data about rats, thanks to the technologies of collective intelligence— those Internet-based tools that connect networks of people to one another for deliberation, data-gathering, collaborative work, shared decision-making, and collective action— the public is capable of playing an increasingly



sight into the issues of greatest concern. Over three weeks in February 2020, more than four thousand workers used the tool to engage about the impact of technology on the future of work and share their concerns, such as “unnecessary degree requirements for jobs have a bigger impact on low-income populations” or “costs of living— including medical, housing, and education costs— have risen over the last few decades.” In April 2021, the New Jersey Department of Education used the same technology to ask parents, students, and teachers about their priorities for schools. More than seventeen thousand participated in three weeks, resulting in greater understanding for policy-makers and the public of the priorities of students, teachers, and caregivers, and how they diverge.<sup>48</sup>

The wiki survey method of showing people two ideas and having them choose between them or submit a new idea has several practical benefits. It makes it harder to manipulate or game results. Respondents cannot manipulate which answer options they will see. In addition, because respondents must select one of two discrete answer choices from each pair (or add their own), this reduces the impulse to add new ideas unless there is something new to be said. New submissions can also be reviewed prior to posting to reduce duplication. Also, the need to pick one of two submissions helps with prioritizing ideas. This feature is particularly valuable in policy contexts in which finite resources make it helpful for agency offi-

lic sector than the private. . . .  
explains that the ability to innovate is not innate, but a learned set of practices that can and must be taught if businesses are to thrive.<sup>51</sup> Yet for all the talk about investing in private sector training, we are not doing so nearly enough in the public sector. By failing to invest in teaching public servants how to use data

equity are drawing the most attention and resources, even though training people to work differently could help advance these important political goals. While the United States is not focusing on training, forward-thinking countries are investing heavily in training public servants in new skills. Argentina's Innovation Academy offers programs on human-centered design that reach thirty-six thousand public servants. Germany has launched the new *„Digital Skills“* with government-wide courses in new ways of working and digital competencies. Cana-

tative and quantitative techniques, new technologies, and data-driven research in how they work. Only by learning what people can do can government facilitate a

erated by deliberative polling before their discussions. This is exactly what they do in Belgium, where random samples of ordinary citizens serve on legislative committees. Thanks to new technology, it is becoming cheaper and easier to connect with ever-larger quantities of people who can bring their expertise to bear.

**F**rom Toby Ord to Bill Gates to Stephen Hawking, the



... e ... M ...

Beth Simone Noveck

... e ... M ...

... e ... j ...

... e ...

... e ...

... e ...

WEO ... j ...

... e ...

... e ...

USA ... e ...









