ONE

The Pivot to a New Government Operating System

The 2016 presidential election ripped away any pretense that citizens are complacent and satisfied with elected and appointed leaders in the United States. Although local and state officials take pride in the fact that trust in local government consistently ranks higher than in the federal government,[1] Americans' faith in government as an institution is shrinking, dropping to 37 percent after the election, even as faith in nongovernment organizations and business increased, according to the highly-respected Edelman Trust Barometer.[2] Moreover, a dangerous trust gap between elites and most Americans is growing. Better-educated individuals who sit at the top of the income distribution reported much higher levels of trust in government than those in the "mass population."[3] With public demands for services continuing to exceed the willingness of people to pay for them—at least when delivered by the current system, which seems impersonal, expensive, inefficient, and distant—that gap will grow.

Fortunately, the societal and technological changes that contribute to heightened cynicism can also power the very transformation of government that will turn much of that cynicism into trust. This book proposes a new model, distributed governance, which pivots away from today's measurements of how well public servants stay on task to, instead, rewarding them for reaching goals that improve the city, turning them from rule-bound bureaucrats to data-savvy problem-solvers. This model pivots from a City Hall that grudgingly doles out information to a platform provider that serves as the hub of city departments and outside partners. It pivots from concern for procedures to, instead, constantly addressing the needs of its citizens. At a moment when cities are, in many ways, asked to do more within an increasingly difficult environment, distributed governance offers transformative operational reforms that will produce better public services, which, in a virtuous circle, will create more citizen trust.[4]

To catch a glimpse of the future's distributed system, look to New York City, which took on the creation—almost overnight—of one of its biggest government programs in a generation: a full-blown educational system to serve tens of thousands of four-year-olds before kindergarten. To build it, the city needed help from a broad array of stakeholders, from families to community centers to IT consultants.

In April 2014 Mayor Bill de Blasio held a press conference to say that the city had put together the funding, with state assistance, to allow New York City to establish a universal program called Pre-K for All, which would offer a seat to every child whose family registered for the program. The plan to help all children get off to a healthy start in life was highly complex, a mix of public schools that would be able to add a Pre-K program for the first time and changes to existing Early Education Centers at schools and community-based organizations across the city, requiring the integration of multiple service areas, actors, and approaches into a coherent whole.

City and education officials succeeded, and more than 50,000 students began Pre-K for All six months after the program was first announced. To get there, New York City agencies and nonprofit partners built a universal Pre-K (UPK) system to identify the right schools, teachers, and students and have them each in the right place, ready to

go, by the start of school in September. De Blasio empowered his top aides, including a deputy mayor and a chief technology officer, to work across agencies to reach the goal. The effort involved 500 community-based organizations and other nonprofits, nursery schools, daycare centers, faith-based organizations, and public elementary schools across the city.

Knowing that it was entrusted with the care and education of four-year-old children, the administration assumed the responsibility of being the hub of a capillary system, providing absolute clarity about the basic parameters of the program, such as student academic evaluation. An expedited permitting process ensured without undue delay that each of the sites met health and safety requirements. The Department of Education created a simple and streamlined enrollment process so families could easily apply to programs in district schools or Early Education Centers. To allow parents to make informed decisions on behalf of their children, the city produced information on program quality and created systems to gather data once programs were operational that tracked students, measured progress, and held all providers accountable to basic standards. City administrators knew working parents might need not just a regular school day, but also daycare vouchers, often for a relative to watch their children after the Pre-K day.

With its traditional bureaucratic structure, New York faced mighty challenges stitching together Pre-K for All's disaggregated parts. But the mayor's directive was clear—tight and collaborative organization was essential, and the multiagency working group included such unlikely allies as the Administration for Children's Services (the city's child welfare agency), the Department of Design and Construction, and the Department of Health and Mental Hygiene. Stacey Gillett, the former executive director for strategy and sustainability at the city's Department of Education, remembers:

> It really hit me how well we were working together when there was a press conference and the fire chief stood up and said, "Pre-K for All is my responsibility!" That was amazing and insane at the same time. To know that the Fire Department would do whatever it took to make sure new education providers met safety codes

> was what made the whole program work. Everyone knew that failure was not an option and that we all had to work together.[5]

Collaborations also extended to the data and information needed to start up a new education system. Luckily, New York had begun going down the road of data coordination for agencies involving children during the administration of Mayor Michael Bloomberg. Called HHS-Connect, the fledging system provided a starting point, but much of the necessary information remained scattered among an array of city departments, schools, and community organizations. To accelerate this process, the city paired a dozen city agencies with technologists at an all-day Tech 4 UPK brainstorming session for a new outreach platform.[6]

Throughout the process, the city had a user-centric orientation. This may sound trite, but it meant government functioning in a very new and different way. The customer-first approach was most visible in the way officials reached out to parents who were being asked to enroll their four-year-old children in a brand-new program. For Pre-K for All, New York City went far beyond the standard roll out of a new government program, where a program is promoted and then the assumption is people will take advantage of it. Once Pre-K for All was marketed, the real work began. Led by de Blasio's campaign staff, the outreach team knew, just like with a get-out-the-vote campaign, nothing could be taken for granted.

"We just had to go knock on doors," Gillett recalls. She went on to say:

> What made it work were all these 20-something de Blasio and ex-Obama campaign staff working together with us education department bureaucrats. One weekend we needed to canvass citywide and no one knew how we would cover so much ground. Well, one of the young staffers stayed up late, used Google Maps and came in early the next morning with personalized walking routes for everyone. The administrators were [stunned], but it worked.

The same kind of customer-focused attention was paid to the small nonprofit providers. New York City had the daunting challenge of con-

verting hundreds of small mom-and-pop nonprofits and childcare providers into fully certified Pre-K schools. This meant every time there was an issue with filling out an application for fire code safety or to meet specific health standards the onus had to be on government, not the applicant. Administrators—many for the first time—would go back and personally help applicants address any snafus. When many unsafe and unfit providers were eliminated, it was because they truly were not up to snuff, not just because bureaucracy got in the way.

This rapidly built Pre-K system was far from a slapdash effort. Overall, in the first year of operation, 92 percent of families surveyed rated their program as excellent or good, and the entire system continues to enroll tens of thousands of new children every school year. The implementation did bring some controversy; critics charged that the city unfairly required a counterproductive level of process detail from out-of-favor charter school providers, making it impossible for them to participate.[7] Yet on the whole, Pre-K for All has worked better than most traditional service systems.

How did this overnight system come together so well? Because in the rush to tackle a major issue at scale, the city was forced to develop a distributed system that is customer-focused, has the speed and flexibility to find partners who could advance the effort, and gives those partners significant downstream autonomy, with nearly complete data sharing driving the entire system. And at the center, the city provides standards and guides teachers, curriculum, and overall systems operation with clear directives.

DISTRIBUTED, INNOVATIVE, AND OPEN

The hallmark of distributed governance is openness that supports deep and real communications, coordination, and connections across City Hall and a broad range of third parties, including residents, contractors, community organizations, local institutions, and nonprofit and for-profit organizations. In this model, the city serves as a hub for the civic work of these entities and its own agencies, leaving behind the strict rules and tight control of information that retards innovation and collaboration. By

turning outward, cities can raise their trust and legitimacy in the eyes of residents, augment their data with more and better information to make smarter decisions, find new partners to deliver specific services in more efficient ways, and hear about and collaborate on exciting and new approaches to addressing urban challenges.

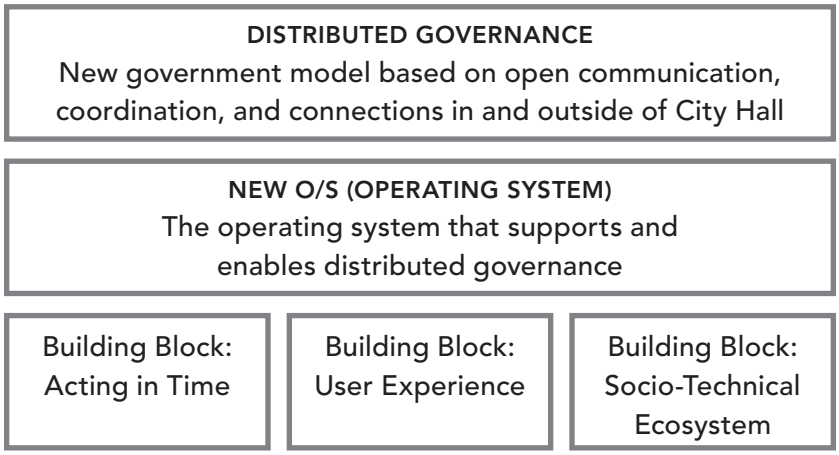
Establishing distributed governance will require a new operating system (O/S) at City Hall: a major reframing of public sector operations. For a smartphone or laptop, the O/S is the platform that supports the device's basic functions and allows different applications to run, regardless of whether they were created by the company's software engineers or an outside vendor. It is the underlying system that becomes noticeable to the user only when it isn't doing its job well.

The hardware, software, and cultural infrastructure of the new city O/S will allow multiple parties to concurrently speak, listen, and learn about matters important to the quality of life in a community. Local government, in this new model, engages residents, employees, and external partners dynamically through a connected web that produces knowledge while enabling all the nodes in the system to be more effective on behalf of the common civic agenda.

What distinguishes disorganization or even a loosely connected ad hoc network from distributed governance is a socio-technical ecosystem that organizes information, its role illustrated in figure 1-1. The "technical" aspect of this ecosystem mines and integrates data from a wide range of sources then analyzes and presents the information in a way that is suited to support outcomes, share information, and serve administrative systems that support those who do the public's work. The "socio" aspect is the new relationships, protocols, and expectations that create a collaborative, problem-solving approach. The new O/S is dedicated to constantly designing better user experiences for both the public and the employees tasked with supporting them and to "acting in time"—working at a speed that allows for preemptive problem-solving, concurrent processing, and a culture that values the time of residents.

Even the scale of New York City's UPK success—with so many innovative elements working in concert—is still all too uncommon. Decades into the computer age, cities simply haven't modernized enough. Although this book is not about technology, it recognizes that technologi-

FIGURE 1-1 *Elements of Distributed Governance*



cal changes force, enable, and power the transformation to distributed governance and a new O/S. Amazing tools now provide promise to frustrated citizens and civil servants; mobile and cloud computing, GPS, data mining, digital platforms, and more could be harnessed to create radical new ways of delivering municipal services and running city government, if only we would let them.

These technologies have revolutionized the private sector, even for "old economy" firms like Caterpillar (CAT), a company that has been manufacturing heavy-duty equipment for a century. Today Caterpillar embeds sensors in its equipment to monitor fuel efficiency, idle times, engine performance, and location. Through a partnership with the sophisticated data scientists at Uptake, a Chicago-based analytics company, Caterpillar transforms massive amounts of daily data from those sensors into insights that optimize fleet operations with predictive analytics that allow operators to repair equipment before it breaks, reducing downtime and improving results.

The current design of government originated in the same era as industrial companies like Caterpillar, and a few principles from the company's transformation can serve as signposts for cities. CAT had been accruing large amounts of data from its assets. The company was able to make the most of a network system when that data savvy group

worked with CAT to design tools that helped improve its employees' capacity to do their jobs. According to Caterpillar executives, its workforce moved from a system based on responding to failure to one based on anticipating and solving problems. Data analytics and a new way of operating unlocked the industrial giant's capacity to have more informed mechanics, a new mission for its work, and more satisfied customers.

There are many examples of cities across the United States applying new innovative technologies. In Minneapolis, sensors on bridges now tell the city when the structure needs attention, and in South Bend, water pipes send a message to authorities when a change in water pressure signifies a problem. By mining social media messages, food inspectors in Chicago change their schedules and resolve problems more quickly. In New Orleans, data helps fire department officials determine which dwellings are most at risk and should receive a free smoke alarm. Los Angeles residents can use open data maps to see how the response times for basic city service requests in their neighborhood compare to other parts of the city, and agencies use the information to coordinate street cuts and repairs.

We know these changes and more are happening because we've seen them. We have crisscrossed the country, evaluating and writing about new urban practices in partnership with Living Cities, and a number of philanthropic organizations, including Bloomberg Philanthropies, Annie E. Casey, Kresge, Ewing Marion Kauffman, and Laura and John Arnold Foundations. The insights and quotes from experts involved with case studies and examples throughout the book are culled from our notes and interviews from this work.

What we haven't seen in local government, however, is the kind of change that happened at Caterpillar. Rather than spreading across departments, these inventive urban efforts typically remain lightning in a bottle. Hundreds of exciting new programs and initiatives dot cities across the country, but no one city has found a way to mainstream these approaches fully into day-to-day activity. Obsolete laws and rules and a culture dominated by red tape and narrow discretion stand in the way of a system that rewards collaboration and results.

The O/S we envision includes crucial new information from new hardware such as sensors and mobile devices, analysis of this information and data from other sources, and wider availability of solutions from cloud-based software. Just as important, it also includes revising the internal code of laws, rules, and structures that makes public services tick. It values employees who solve problems over those who follow a routine, who collaborate with rather than manage residents, and who work across sectors and departments rather than labor in shuttered silos.

Note that this book has a focus on city government, but often uses the phrase *local government* in its place. The concept of distributed, open governance is not solely meant for cities—its capacity is just as applicable at the county level and for other units of local, and in many instances state and federal, government. We believe that forces of customization, collaboration, and speed that have proven transformative in the private sector can energize public sector workers once these rules change.

THE PROS AND CONS OF MUNICIPAL BUREAUCRACY

The current operating system of American cities is more than one hundred years old. The bureaucratic model today is the same as was championed by a powerful political movement designed to reform corrupt urban political machines, as epitomized by New York's Tammany Hall, that incorporated favoritism, nepotism, and wildly unaccountable spending. There is no exact date for the establishment of the current municipal operating system, but many scholars associate it with what was dubbed the Progressive Movement, which took hold in the United States before 1920. One of the first Progressive governments dates to 1900, when Galveston, Texas, recovering from a terrible hurricane, created a "commission" form of government, with appointed professional administrators empowered over an elected mayor. Hundreds of other cities followed with similar commission governments, and New York City famously implemented the nation's first large-scale civil service system in 1913, headed by Robert Moses before he took on the mantle of master builder.[8]

Led by business and citizen groups, the Progressives created an entirely new professional model that incorporated formal civil service exams, job classification systems, and procurement rules that were eventually codified into many state and city charters and laws. No more hiring your cousin for the construction job. Procurement would be centralized and operated within a heavy set of regulations. To reduce bribes and other abuses of building inspector discretion, cities created hierarchical supervision that ensured adherence to rules and uniformity of practice.

Progressives built their systems for government in line with the era's foremost management philosophy, referred to variously as scientific management, Taylorism, and, most aptly, Fordism, after the assembly lines for Model Ts created by industrial pioneer Henry Ford. They believed government, like automobile manufacturing, worked best through relentless dedication to mechanization and efficiency. The sociologist Max Weber described the bureaucratic model as built around "fixed and jurisdictional areas which are generally ordered by rules" supported by "trained experts" who have the authority to give the required commands.[9]

The operating system designed to support that approach professionalized municipal service and reduced risk, both to the municipality and to its employees, by enforcing uniformity. Reforms in the Progressive era worked in many ways, stamping out most patronage and leading to greater fiscal integrity and reliable city services such as routine trash pickup and street maintenance. The movement even indirectly led to the creation of the two schools of administration where we teach—the John F. Kennedy School of Government at Harvard and New York University's Robert F. Wagner Graduate School of Public Service—each of which opened during the Depression to train the new managers called to fulfill the Progressives' vision.

For many reasons this then-effective model of yesteryear no longer works so well. The public expects government to do far more today under much more complex and interconnected circumstances than was expected a century or even fifty years ago. Cities today have taken on a large measure of responsibility, from job growth and economic mobility to environmental sustainability and drug abuse issues, that a may-

oral administration was not expected to have an answer for in 1927. As urban responsibilities grew, cities' systems added more departments and job titles, becoming more fragmented along the way. A child living in public housing will not have the full opportunity he deserves, even if the family receives multiple services, when the teachers, caseworkers, and counselors in his life do not work in an integrated way, with shared information and coordinated interventions. As well, unlike a half-century ago, third parties—nonprofit and for-profit contractors—today provide a broad range of services that exercise the will of the state outside of the government's informational or personnel systems.

It's not just the system that is too siloed; professional officials' peripheral vision can be limited, as well. Promotion up today's public-sector organizational ladder requires employees to develop specialized technical skills; the resulting professional culture and training can be so insular that public servants develop blind spots to other, better, ways to address a problem. Take law enforcement. Have the training and metrics we use to prepare and evaluate police officers made them too narrowly focused on arrests? Has that played a part in soured relations with residents in some minority or low-income communities? And, in the end, do these issues help or hinder the ultimate goals of less crime and increased public safety on the streets?

Certainly, creating programs and operating a city in today's complicated world in no way resembles building a car nearly a century ago. After generations of adding new limitations on workers, the very rules designed to frustrate graft and waste now also frustrate employees who "are continuously monitored and investigated by auditors, judges, budget examiners, performance evaluators, legislative committees, public watchdog groups, clientele associations, citizen bodies, and media organizations eager for a good scandal."[10]

Absent an outcome-based orientation, city departments now promote fidelity to work rules and risk avoidance over measurable accomplishments. Current operating systems devote great amounts of energy to monitoring rule compliance while largely ignoring the cost in time and money of doing so—and often ignoring the actual results of the activities, as well. Compliance is an easy activity to measure, but it comes at a price. When employees are evaluated on how carefully they follow

rigid rules, they can infuriate citizens with clearly inapplicable questions or approaches, misapplying the city's time and effort. The number of structures that have been inspected may seem like a logical item to track, but each building does not represent an equal fire risk, just as all restaurants do not pose the same health hazard. It certainly is challenging to define specific outcomes and even more difficult to address how to achieve them—particularly with the analog approach of years past—but without it, city bureaucracy is limited in its capacity to truly serve the public.

Finally, the Progressive structure cannot easily deal with today's distributed nature of information itself. Nearly thirty years ago, Francis Rourke of John Hopkins University wrote, "The specialized knowledge that Max Weber once saw as the comparative advantage that bureaucrats would always enjoy in debates on national policy is now much more widely distributed through American society."[11] Government systems developed when bureaucrats owned and controlled data. Every day residents now use apps and social media to solve problems and monitor public decisions, often by accessing publicly available data. They shop for products that have been customized exactly as they want, using online systems with a minimum of transactional friction. These voters/consumers know that the size of an enterprise is no longer an excuse for red tape, long lines, delayed processing, or lack of responsiveness.

Add it up, and what does the Progressive model typically look like in the twenty-first century? Take the solid waste division in Memphis, responsible for solid waste collection, recycling, composting, and dead animal collection services across the city. We use this example in part because, in chapter 5, we will explore how they successfully addressed the troubles outlined here. Before those innovative solutions, however, the division was facing big trouble. The system, with a staff of 454 and a $58 million annual budget, had gotten to a point where it did not reward employee performance, operations expenses exceeded private sector benchmarks by a large margin, and the department's weak retirement system induced older workers to stay on the payrolls even when ailing. Fleet services charged the department internal expenses that unnecessarily raised costs and weren't clearly presented to or understood by the city council or department leaders. As finances worsened, the depart-

ment fell further and further behind in adapting new technologies that could improve services. A lack of data and performance reporting had gotten to the point where no one even knew the number of vehicles in the fleet or how much the staff cost.

With all these problems coming to a head, city and union officials faced off in a lose-lose contest of wills. According to management expert Skip Stitt, who consulted with Memphis on the issue:

> The union leadership discharged its responsibilities of fighting for its members while the managers did theirs by fighting on behalf of the mayor and council to get more productivity out of the workers. In a system where only a few people had access to information, neither "side" really trusted the other. In fact, the top-down process, by both the union and management, caused them to miss the bigger picture, that archaic routes and bad fleet repair practices harmed everyone.

For too many city managers, employees, and citizens, the situation Memphis faced sounds all too familiar. The processes and programs that were the pride of the Progressive era now often choke innovation and efficiency from our cities.

It is important to note that the new O/S does not ignore or glide over the troubles that launched those Progressive reforms. Corruption, patronage, and waste still lurk. The open governance and increased employee autonomy that are hallmarks of the new O/S can produce better results for these ills, too, compared to closely held information and tight, managed hierarchies. The tradeoff between discretion and accountability for civil servants, which underlies most current public-sector management, can be replaced with a better balance, as well as accountability defined more in terms of outcomes.

This is possible, in large part, because new digital tools provide much better capacity to truly manage those who spend the public's resources or utilize public authority. With GPS, managers can know where their field employees are working and how long it takes to do the job. Resident engagement tools and photos from the workers themselves on their mobile devices could let managers see if a project is complete

and done well. To comb for evidence of bias, machines have the capacity to read field notes and documents written by officials who work directly with the public. Data analytics can identify outliers from restaurant or building inspectors who write too many or too few violations or spend too little or too much time at an establishment.

In other words, the goals of the Progressive system stand tall. But the method of getting there is now more than obsolete—it's become counterproductive and should be replaced with a new, engaged public employee armed with better information, but also better managed, trained, rewarded and, indeed, where necessary, better disciplined.[12]

TODAY'S BEST PRACTICES ARE NECESSARY BUT NOT SUFFICIENT

A few years ago, while deputy mayor in New York City, Goldsmith held a breakfast meeting with a dozen neighborhood leaders and local small business owners in a modest, three-story walk-up office building across the street from a small park. Quickly the conversation turned to the torn-up park, barricaded from use due to construction that had been started and then seemingly abandoned. Time and time again the breakfast partners pointed out the window and complained that the park had been unusable for almost a year.

Later, when pressed for an explanation, city officials confirmed the story but defended their actions as compliant with the laws. Twice they selected the lowest bidder for general contractor services, even though these bidders presented bare minimum qualifications. Both times the contractor's incompetence became clear after the contract was awarded, leading to termination. The procurement shop had accomplished its goal. By following the process to find the lowest bid to the letter, they avoided getting sued but produced a truly awful result: a park hidden for months and months behind construction fencing instead of filled with children playing and parents talking about the fun and challenges of raising kids.

Now imagine a collaborative and open governing model where neighbors play a central role in the park's redevelopment. As parks officials scope out ideas they present them on easily used, interactive online tools

where children, neighbors, and leaders can not only add comments but work with the display software itself to produce examples of alternative or improved ideas. The city, conscious of the cultural and financial circumstances that can limit the use of online communication tools for some of its residents, has designed a community feedback system that builds participation that fairly reflects the entire neighborhood at this and each stage of the project's development.

Once a crowd-sourced, expert-reviewed plan is ready, the city mines data to rate the quality and timeliness of bidders for the work, reviewing past projects that those bidders have done to understand every aspect of their capacity and performance. When the plans are developed and the construction award made, neighbors armed with smartphones and SMS texts report to city and community websites every day about the conditions they observe—the city learns when there are issues that need its attention without relying on or awaiting a visit from a city inspector. Resident documentation of shoddy work becomes part of the record should the contractor bid on other public projects. The city's cameras stream pictures of the work site, and neighbors supplement the video with their uploaded pictures. Every aspect of the renovation is open, enhanced at each stage by a collaborative process and involved residents.

Because residents were involved with initiating the design and connected to the construction, many of them become interested in volunteering for programs in the new park and to help with the gardening, as well. New vibration sensors installed by the city tell officials when equipment needs maintenance before it hurts someone, and sensors in trash cans report when it is time for pickup. The wireless infrastructure provides citizens in the park with free, high-speed Wifi services. The park, for many reasons, now truly belongs to the community.

This is a hypothetical scenario, but there are slivers of this new O/S right now taking shape in many cities across America, as some highly effective mayors, supported by philanthropy and driven by new technologies and involved citizens, produce breakthroughs. Ted Smith embodied this new and inventive approach when he was the innovation director in Louisville, Kentucky, for five years, beginning in 2011 with the election of Mayor Greg Fischer. Smith is a high-energy, fast-talking

official whom you might mistake for a corporate consultant (which he formerly was). He likes to say that he created his innovation list by looking for shortcomings in Louisville. "Everyone has their 'best of' lists. So, the chamber of commerce will tell you about job growth and how we are home to the Kentucky Derby. Well, I'm the guy who looks for the 'worst of' list," he says.

With that line of thought, it didn't take Smith long to realize that in Louisville, worst includes air quality. Nestled in the Ohio River Valley, the city often fills with hot and humid air, trapping pollution. By any measure, the region ranked near the bottom of environmental assessments, always making the top ten lists for worst particle pollution and receiving failing grades from the American Lung Association.[13] At the time, Louisville's asthma rates were far higher than most cities, and the city's corporate recruiters struggled to explain the terrible air conditions to businesses thinking of relocating.

Given air quality's impact on quality-of-life and economic development, Smith had the full support of the mayor to devise a solution. But when he called the local health department, it wasn't interested. The agency, while well run, had its own priorities, like the spread of opioids. There was also a commonly held belief that not much could be done: the city was in a valley, for better or worse. Smith tried something different. He called David Van Sickle, previously a researcher at the Centers for Disease Control, whom he knew from his days working in the Obama administration. Van Sickle had come up with the ingenious idea of using tiny GPS devices affixed to pocket-sized asthma inhalers and started a company (Propeller Health) to commercialize it. When a sufferer needed to use the inhaler, it sent a signal to the main database. With the collected data, researchers could better understand localized air quality and its link to health.

Smith took the idea and went to three local philanthropies to fund a pilot project with several hundred residents, which led, two years later, to a major grant from the Robert Wood Johnson Foundation to cover the costs of buying and distributing more than 1,000 inhalers throughout Louisville. The results were stunning. After reviewing and geocoding the data, Smith and his team could pinpoint the worst locations for pollution, as well as the worst time of day and part of the year. They

were surprised to find that some of the most asthma-burdened parts of the city were not near factories (as most suspected) but a few miles downwind. Now the city is using these insights to mitigate the damage, with such measures as planting more "biofilters" (tree and shrub combinations) in highly polluted zones and, especially, near congested roadways by schools. The entire process was relatively cheap, too, as technology costs have tumbled. For far less than even a typical environmental review, the city has been mapped for air pollution impact in real time.

This book's quest for a new operating system features many innovations like what Mayor Fischer, Smith, and his team accomplished in Louisville with a potent recipe of data, public and private partners, and a focus on creativity and outcomes. Yet this book is not about simply innovating. On the contrary, completing a specific innovation through a dedicated group can mask the fact that enduring, rigid systems continue to undergird municipal governance. In fact, many exciting innovations have succeeded only because private foundation funding and special initiatives allow cities to avoid existing government processes and systems.

Maybe the biggest lesson from Louisville's innovation was that it was all done as a "work around" of existing government structures. Since the public health department remained a bystander, Smith set up an independent nonprofit, the Institute for Healthy Air, Water, and Soil, to give the project a home. "We had a remarkable innovation on asthma and public health issues, but we had to create an entirely new nonprofit to get it done," Smith says. "So, for about two years I had my government job *and* I was executive director of this new nonprofit."

Innovations are flourishing in many cities and counties, driven by an innovation delivery team or by piloting a creative new technology. This book puts most of these new urban innovations in the category of "project innovation"—advances in addressing a problem but without much impact on larger government systems. In a sense, these current innovations occur in a parallel universe while the traditional government enterprise continues to hum along virtually undisturbed. These advances often succeed because they avoid entanglements with government agency rules and processes rather than reforming them.

In our work, one of the most common accomplishments we hear about involves getting around an entrenched bureaucracy. One local official told us, "The moment I move my innovative project to HR or the budget office, it's over." Much of this has to do with a phrase Anthony Downs coined, the "law of increasing conservatism," which "posits that bureaucrats will clinch on to rules to minimize risk and punishment for errors."[14] From a purely technical point of view, bureaucratic government can attain a high level of efficiency[15] yet still seem unresponsive and frustrating to its citizens. As David Beetham at the University of Leeds wrote in the book *Bureaucracy,* "An organization whose operations are highly routinized may be very cost-efficient, but for that very reason be incapable of responding quickly to some sudden and unexpected change in the environment."[16]

BUILDING BLOCKS OF THE NEW O/S

The key to understanding and then implementing distributed governance is one word: *open*. Government organization and approaches need to fully recognize the change from closed, professionally directed systems to open, participatory ones. Most cities in the United States today adopt open data approaches. But true open governance recognizes that valuable information and good ideas originate broadly and need to be shared. When government operates as a *platform*, to use a term originally referenced by Tim O'Reilly[17]—with information pouring in from citizens, Internet of Things (IoT) sensors, official observations, government partners, and other sources—it can no longer run using the tightly closed set of procedures of the Progressive era.

The movement from closed to open sweeps across all aspects of governance. Previously, planning was the exclusive domain of professionals. Now it can be done with cloud-based design modeling tools available to communities. It used to be that the mayor announced the budget and angry residents could complain when it went to committee. Now some cities are starting to experiment with open participation in the budget-making process. In the closed system government gathered performance information on paper and eventually compiled the results

FIGURE 1-2 *The New O/S Pivots City Government*

INTERNAL SYSTEMS PIVOT:

- From daily activities defined and limited by agency rules to openness to new opportunities and cross-agency collaboration
- From compliance measures to impact measures
- From a top-down enterprise to one that empowers public employees as problem-solvers, armed with data, deserving of discretion, and with the capacity to make decisions

EXTERNAL SYSTEMS PIVOT:

- From vertical governance where City Hall is a monopolist of information and responses to a platform provider of networked solutions
- From government organized for its own convenience to one that puts the citizen front and center
- From the central producer of public value to an integrator of contributions from a wide swath of external entities

to show what happened the previous year. Now sensors and residents' smartphones pulse information in and out of government every second of the day. In an open-asset model, government and its citizens can not only know where their garbage trucks are at all times, they might be able to convince the city to share the trucks for a community cleanup.

Open systems require not just better government but better governance, where City Hall sets rules that protect its citizens while facilitating solutions that involve nonprofit, for-profit, and community partners. Alexandru Roman of California State University San Bernardino nicely summarizes open systems theory when he notes that "all organizational dimensions are interrelated and interdependent, which means that shifts along any one aspect will echo throughout the system."[18]

An open environment requires governance to protect public values even while expressing less concern about who owns the assets or

responsibilities associated with delivering a solution. Government, of course, has responsibility for privacy and security protections, but information generated from thousands of different sources "is no longer defined or contained as a discrete entity of a well-defined system but becomes more flexible and mobile as it is processed in and across a variety of systems and applications."[19] Trust, integrity, and accountability all depend on how easily information can be digested and utilized.

The Flint water contamination disaster, for instance, was borne of multiple government blind spots and poor decisions over the course of years. Alex Salkever, in *TechCrunch*, asks if it would have been prevented if the State of Michigan and federal government had requirements that all data be open and machine readable, writing, "We cannot and should not rely on the government to always keep us safe. This is not an indictment. Governments are fallible, just as any other large organization is fallible. But 100 years ago, there was no way to easily access, analyze, and monitor government activities. Today, there is no excuse not to do so."[20]

In distributed governance, *open* goes even further than outsiders monitoring government—it is about these entities participating and partnering with it. Solutions to issues confronting cities are knit together across an open system that has seamless borders between sectors. Today's government bureaucracy trains professionals in a discipline and then provides them with information available only to City Hall to make policies and design operations—lower-level employees are asked to mechanistically and uniformly implement the assignment under tight supervision. Distributed governance redefines professionalism as being prepared for open information and open boundaries, ready to develop knowledge and plans socially from many sources through sharing data and proposals, and then implementing a multi-sector solution.

To reach this distributed governance, cities need a new O/S, an entirely new system, that deeply incorporates shared information, trusted social networks, and structural changes that give them the capacity to set roles and rules for conduct, quality, equity, and privacy for participating partners (see figure 1-2). Public officials will need the personal and technical skills to allow them to concurrently listen to and create

information in a system where legitimacy and authority will often be mashed up across partners.

The Progressive era model for governance is based on mechanization and uniformity; it achieves this with a bureaucracy's tight supervision that respects hierarchies and a culture of following rules. The model of distributed governance is based on openness and collaboration; it achieves these goals through a new O/S that is built from three core building blocks, each of which is shaped—and, indeed, even made possible—by the last decade's massive changes in technology and the new expectations and capacities those changes have wrought. The building blocks work in concert, each providing support and greater capacity to the others. Below we highlight these building blocks for a new O/S, which we will explore in depth in the chapters that follow.

UX: Government Designed with the User in Mind

In the tech world, UX stands for user experience design—making a product or process easier to use, access, and enjoy through how one interacts with it. As a building block of the new O/S, UX controls how government interacts with residents and with those who deliver public services to them. City departments have, in large part, designed their systems for their own convenience, usually from the top-down specifications of a senior official or because government approaches its responsibilities with an agency-driven, vertical orientation. But that has it exactly backward. Systems, services, and programs should be designed around the convenience of the key users. A human-centered approach uses well-visualized and contextualized information to redesign physical and virtual experiences.

City Government That Acts in Time

The new O/S needs to support speed: in operations, service delivery, regulations, and planning. *Acting in time* in this model is more than a minor goal of tightening response times to resident requests. Cities can make velocity a priority and fundamentally change how they operate with predictive analytics to identify and intervene in situations before

problems occur. Machine learning can free up employees from mindless, routine paper shuffling, and facilitate synchronous processes which allow public sector workers to organize and deliver coordinated solutions quickly. Cities can use data and social media to identify and mitigate true risk while freeing up business owners with good track records to build their houses or open their restaurants more quickly and at less cost.

The human and technical skills exist to deliver much more responsive services to residents, which, in turn, will improve our cities and strengthen our communities. Government can go from being methodical to rapid, from reactive to predictive. City departments can change from being oriented around agencies' needs to an orientation toward citizens' convenience supported by systems and policies that will have the most impact, with performance measured by outcomes rather than activities accomplished. City staff can stop working in vertical silos and become collaborative and flexible.

A Socio-Technical Ecosystem for City Hall and Beyond

To create distributed governance, where citizens, their public servants, and significant external partners work together to establish better outcomes for the community, City Hall must build a socio-technical ecosystem that includes both administrative changes and enhanced digital platforms. Data mining tools allow officials to take information from many sources: from multiple departments within City Hall, from organizations working with the city, and from residents posting on social media or participating in structured outreach sponsored by the city. The city and other partners can then integrate, analyze, and present that information, now more valuable from its breadth of scope, its context with other data, and from being examined by algorithms that offer new answers and opportunities.

Yet a deep embrace of open governance is not solely about software and hardware, as important as these elements are to its success. The administrative systems supporting the current bureaucratic system are relatively straightforward—procurement, human resources, IT, and the like that supposedly help government discharge its responsibilities in an ac-

countable way. The administrative structure of distributive governance needs to change how it supports the public employee as a knowledge worker. The new O/S values public servants who use data to inspire new questions about how the city operates. This culture of innovation requires the right people with the right training, which means changes in HR and procurement departments, whose procedures and approaches often impede getting the right person or contractor engaged.

This socio-technical ecosystem has profound impacts for both public servants and external partners, explored in depth in chapters 5 and 6, respectively. The system redesign acknowledges that most civil servants will enjoy the workday much more when they can avoid counterproductive rules and nonresponsive internal administrators and concentrate, instead, on making their city a better place to live. At the same time, the new O/S offers unprecedented avenues to listen to citizens, organizations that contract with the city, and local institutions to incorporate their ideas into creating a better city.

WHY NOW?

People have been complaining about how hard it is to get someone at City Hall to listen to their problem—let alone do something about it—for a long, long time. So why is now the time for a new O/S? There is more than one answer.

We have no choice. The challenges facing America demand action now. Frustration and distrust threaten community cohesiveness, at times spilling into violence and protest. Social media tools and around-the-clock news flashes amplify grievances. Society, communications, private companies, and individuals have all changed their behavior. For the most part the structure of government has not. Increasing complexity in the delivery of services and the interconnectedness of public problems demand new, integrated approaches that involve a bureaucracy that listens and responds more broadly and effectively.

The digital revolution sweeping through society and the private sector provides new opportunity. New technologies can change every aspect of City Hall—the capacities of public employees and how they

are hired, trained, and managed; procurement; performance evaluations; and more. New analytic platforms allow government to vastly increase not only efficiency but customization and citizen engagement in ways not conceivable even a few years ago.

Pervasive open data broadly empowers society. Residents can freely access and interact with open data from their cities, communicating with the government and others interested in similar causes. If their government isn't keeping up, it seems even less relevant or trustworthy. But if utilized correctly in solving problems and communicating results, this very openness becomes a key asset. An operating system that continuously delivers high-quality and responsive services, where residents, workers, and managers easily interact with their government, observing what is working and what is being accomplished, can help develop the necessary levels of trust that support democratic governance.

Recent innovative breakthroughs produced by local leaders across America have created momentum for change. Despite the structural obstacles they face, creative public leaders have been producing innovations that prove that government can unlock a new era of excellence. Weaving together the new tools and a range of project innovations and combining them with a new approach to governance will allow not just project innovations but enterprise-wide responsiveness.

Universities and foundations are becoming increasingly relevant resources to drive insights and changes in local governance. New ideas for public policy and data-oriented efforts are being developed at universities throughout the country. At the same time, local and national philanthropies have become increasingly committed to supporting local government improvements. Until a few years ago, even foundations that invested in U.S. cities in large part limited their grants to 501(c)3 nonprofits that addressed urban issues. Now there is a growing recognition that much of our future prosperity will be dependent on solving the formidable challenges that cities face.

Major changes in governance rest at our fingertips. Government now has access to the same technology that has pried open so many previously closed systems, instantly knitted together massive amounts of information, and allowed individuals to communicate with friends on their own terms and to shop for almost anything under the sun

from their bedroom. Yes, much work is required. The implementation guide in the appendix lists ten notable challenges to establishing a new O/S, as well as actionable recommendations for overcoming those hurdles. But a new era of distributed governance will allow public officials to mobilize new resources, surface ideas from unconventional sources, and arm employees with the information they need to become pre-emptive problem solvers. Today's public-sector leaders have a better opportunity to make dramatic advances in the quality of the services they deliver than at any time in the last century.

Chapter 1 THE BOTTOM LINE

Key Points

- A hundred-year-old operating model for local government impedes broad-based reforms. The surge of urban innovation around the country usually requires a "work around" of obsolete laws, layers of regulation, and a compliance-at-all-costs culture.
- The new O/S pivots from a closed and professionally directed system to an open, participatory one that takes data from many sources, including sensors, residents, and partner organizations, and organizes it in a way that enhances the user's experience. The new system is not just about hardware and software, but also involves reworking the internal code of government rules, laws, and structures that make cities run.
- While not a technology fix, the new O/S is informed and fueled by technological advances, including customization, collaboration, and speed.

Pitfalls

- While it is common to believe that all current municipal reform is rooted in technological advances, that is only part of what can and must be done to build a new operating system.
- Do not assume that citizens' trust in government can be won back solely with a few notable reforms.

Recommendations

- Do not underestimate the challenges of moving to distributed governance, as this is about systemic and systematic reform: rewriting the code of government.
- Look for clues to the new O/S in current innovations.

Examples

- With an urgent and ambitious goal of establishing a new service for 50,000 preschoolers, New York City established a governance structure for a distributed system: clear safety regulations set by the city, standardized curricula, parental input and choice, and multiple educational providers from government and nonprofit institutions—all connected with a digital backbone and defined by speed, flexibility, and customer service.

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