CATALYST FOR CHANGE: STATE AND LOCAL IT AFTER THE PANDEMIC

HEARING

BEFORE THE

SUBCOMMITTEE ON GOVERNMENT OPERATIONS

OF THE

COMMITTEE ON OVERSIGHT AND REFORM

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CATALYST FOR CHANGE: STATE AND LOCAL IT AFTER THE PANDEMIC

Wednesday, June 30, 2021

HOUSE OF REPRESENTATIVES
COMMITTEE ON OVERSIGHT AND REFORM
SUBCOMMITTEE ON GOVERNMENT OPERATIONS
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:10 a.m., in room 2154, Rayburn House Office Building, and on Zoom; Hon. Gerald E. Connolly (chairman of the subcommittee) presiding.

Present: Representatives Connolly, Norton, Sarbanes, Lynch, Raskin, Khanna, Porter, Hice, Keller, Biggs, and LaTurner.

Mr. CONNOLLY. The committee will come to order.

Without objection, the chair is authorized to declare a recess of the committee at any time. And I now recognize myself for an opening statement.

Today, more than a year into the pandemic, we're making progress in our effort to emerge from the crisis, which has now claimed, tragically, more than 600,000 American lives. Nearly 50 percent of the population is fully vaccinated. Just last week, my home state of Virginia hit 70 percent of all adults having received at least one vaccine dose. New daily coronavirus cases continue to drop, as do deaths associated with COVID–19. We cannot, however, forget what transpired this past year.

Throughout this global health crisis, millions of Americans looked to the Federal Government for help as they faced illness, unemployment, and food insecurity. Despite urgent congressional action to provide unprecedented levels of economic assistance, medical assistance, many individuals and small businesses nonetheless were denied timely support and assistance, in large part due to severely deficient IT infrastructure at the Federal, state, and local levels.

In other words, Congress mustered the political will to act on a bipartisan basis to prevent the world's most powerful economy from falling off a cliff, but we were nearly thwarted in delivering life-saving assistance due to outdated IT. This should galvanize our IT modernization efforts at all levels of government.

Last July, this subcommittee held a hearing on "Federal IT Modernization: How the Coronavirus Exposed Outdated Systems." At that hearing, we examined the Federal Government's response to the coronavirus pandemic and how legacy Federal IT systems hindered those response efforts.

Emergency relief, however, is not administered solely at the Federal level; in fact, it's usually administered at the local level. As the

pandemic has demonstrated, state and local governments are on the front lines of crisis response, often administering and distributing federally funded relief and benefits.

Unfortunately, many state and local governments' IT infrastructures are outdated, causing severe gaps in access to digital services and undermining Federal public health and economic relief efforts that were designed to be rapid response and timely.

Further, cyber attacks on state and local governments are on the rise and continue to cause significant disruptions and waste taxpayer dollars across the country. This hearing examines the role of Congress and the Federal Government in accelerating IT modernization initiatives for states and localities as they fortify and improve how government at all levels deliver critical services to our citizens.

According to research conducted by the Cyberspace Solarium Commission, state and local governments often struggle to fund basic services for their populations, and, as a result, they regularly defer IT modernization and digitization in pursuit of shorter term funding priorities.

Throughout the country, surges in demand for government assistance programs during the pandemic, like unemployment insurance, public and mental health services, screenings, local food and housing assistance, and other benefits prompted government websites to crash, contact centers to be overwhelmed, and, in many cases, delayed relief to those most in need.

Further, the pandemic abruptly revealed how ill-prepared many of our state and local governments are to deliver vital public services securely and remotely. Criminals took advantage of overwhelmed public IT systems, generating a significant uptick in cyber crime during this pandemic.

In 2019, for example, it was reported that 966 U.S.-based government entities, healthcare facilities, and schools were affected by ransomware attacks. In 2020, that number jumped to 2,300, including 113 ransomware attacks on Federal, state, and municipal governments and agencies.

As the number of cyber attacks rose, so did the amount of ransom demanded by criminals. The overall cost associated with the spike is unknown, but some estimates suggest that just 113 attacks on government entities in 2020 cost $915 million. The pandemic laid bare the consequences of decades of deferred investment in government information technology, and we must not let the lessons learned during the crisis go to waste.

When done right, state and local governments can provide public benefits and services that help people in their most desperate time of need. For example, Congress created the Pandemic Electronic Benefit Transfer Program in March of last year as part of the Families First Coronavirus Response Act.

The program provides nutrition assistance to families who lost access to breakfasts and lunches as a result of school closures. To get the program up and running as quickly as possible, many state governments created online mobile-friendly applications to collect data from parents and guardians in order to identify the children most in need.

This state-led program reduced food hardship experienced by low-income families with children and lifted 2.7 to 3.9 million children out of hunger. It was, in fact, a success story. Over the past year, the pandemic forced state and local governments to modernize IT systems quickly and to embrace digital services. Yet aging and inadequate IT systems, not a lack of political consensus or will, continued to hinder access to critical government services.

The Federal Government can serve as a resource to provide guidance and best practices on IT modernization as it also swallows that medicine itself. The Federal Government can share technical acumen and lessons learned. That's why I intend to introduce the House companion of the state and Local Digital Services Act. This important piece of legislation, led by Senators Wyden and Murray in the Senate, provides guidance and funding for state and local governments to form digital service teams focused on delivering fair and effective public services.

Further, this past year demonstrated how important intergovernmental activities are in addressing national crises. Currently, no formal Federal forum exists in which Federal, state, local, tribal, and territorial government representatives can convene to discuss issues of import that require collaboration among the various levels of government.

As a former county supervisor and chairman of one of the largest counties in the United States, I understand that state and local governments need a platform to talk meaningfully about legislative process, the impacts of Federal legislation on localities, administrative solutions, and the impact on relationships between localities, states, and the Federal Government.

This Congress I intend to reintroduce my bipartisan Restore the Partnership Act, which would recreate the Advisory Committee on Intergovernmental Relations, which operated from 1959 through 1996. The forum will help state and local governments navigate the Nation's most pressing intergovernmental issues and advance innovative solutions that can leverage IT funding and expertise in the Federal Government.

I hope to work with my friends across the aisle to move this legislation, which has historically been bipartisan and grows out of years of work with my friend, former Representative Rob Bishop of Utah, and the task force formed by former Speaker Paul Ryan on intergovernmental affairs.

This pandemic catalyzed a rapid response and shift in culture for how state and local governments deliver services to the public. As we emerge from the pandemic and begin recovery, we have an opportunity to examine lessons learned and to identify best practices to grow our digital capabilities and strengthen how government serves the people.

With that, I recognize the distinguished ranking member for his opening statement.

Mr. HICE. Thank you very much, Chairman Connolly, and thank you for holding this hearing today.

I think it's important to understand the situation of state and local information technology systems, especially given the role that they play in distributing Federal assistance and services; that cer-

tainly has become more in play and more highlighted the importance that we have in this hearing today.

And as we saw in the early stages of the pandemic response, some systems simply couldn't keep up with the demand. We need to understand what has been done in the interim to address that situation. But let me be clear, as we look for next steps, it is my firm conviction that Federal funding, additional Federal funding should not be the default answer.

States, localities, territories, and Tribes have received half a trillion dollars so far in COVID relief. State tax receipts did not take the nosedive that many people said would happen. In fact, about half of the states throughout the country actually saw revenues increase. The American Rescue Plan included $2 billion for unemployment insurance system modernization.

So, look, there's plenty of funding out there. What needs to happen is for states to properly emphasize information technology and cybersecurity in their own budgets. And, more importantly, they need to take steps to reduce fraud. There is an estimated as much as $400 billion that was lost to unemployment fraud. That's a staggering amount of money: $400 billion. That's half of all unemployment funds.

And those funds were stolen, likely stolen by criminal actors, who knows, China, Nigeria, Russia. Who knows who, but that's $400 billion that's gone. Who needs to bother with corporate espionage and intellectual property thief when, at the end of the day, we can just take cash right out of Americans' pockets?

So, there's no excuse for, from my perspective, why this committee hasn't held one hearing on the massive waste, fraud, and abuse that has risen to the point of a national security issue. I appreciate greatly our witnesses for being here today. I'm certainly eager to hear from you, but this committee needs to do its job and focus specifically on finding out how much money was lost and who took it.

Earlier, I mentioned systems that weren't able to keep up with the demand when Americans needed help. I can only imagine the extreme frustration of trying to apply for benefits only to be unable to access the system. And then, just speaking briefly with the chairman beforehand, this is a common problem. I don't know that there's not any Member of Congress who has not heard from constituents about this type of frustration.

But I also, and I'm, again, confident that many others have also heard from constituents who are unable to get help from government workers simply because they were not at work. And now we have the Biden administration making telework and remote work one of their top priorities for the so-called return-to-work program. And so we're going to so-called return to work by not returning to work. This is problematic.

And before we look at any permanent policy of this nature, we owe it to the American people to fully understand the impact that this type of policy would have on the American people. And I know we have reached out to inspectors general across Federal agencies for an assessment of what can be anticipated with this kind of policy, and we need to know. Those are serious questions. In order to make good policy, we have to have good information from all sides

of an issue. So,that's yet another hearing that I believe we desperately need to have.

So, in closing, again, I appreciate our witnesses for being here today. I hope indeed that we learn something about one facet of the post-pandemic situation, but certainly there are many others that demand our attention, and I think they can no longer be ignored. But I'm grateful for you being here. Looking forward to our time together this morning.

And, with that, Mr. Chairman, I yield back.

Mr. CONNOLLY. I thank the ranking member.

And I think I agree with him that—and I'll be interested to see if our panelists agree—I don't think the issue right now is money. I think there is a lot of resources available both at the state and local government in part because of our action but also in part because many states—not all—and many localities—not all—have actually performed pretty well financially during the pandemic.

And that means there are resources to invest, and they—we need to try to better understand that decision-making process and to the extent we can bring influence to bear to strongly encourage state and localities to make the investments we're trying to urge here in the subcommittee that the Federal Government make as well.

So thank you, Mr. Hice.

Now, I want to introduce our witnesses, and we're so grateful to have them today and their expertise. Our first witness is Mr. Doug Robinson, executive director for the National Association of State Chief Information Officers.

Welcome.

Then we'll hear from Amanda Renteria, chief executive officer for Code for America.

Third, we'll hear from Teri Takai, vice president for the digital—for the Center for Digital Government.

And, finally, we'll hear from Alan Shark, the executive director for the Public Technology Institute.

Witnesses will be unmuted. So, if the two witnesses who are here in person would mind standing and raising your right hand, and if our virtual witnesses could also raise their right hand, it is the custom of this committee and subcommittees to swear in witnesses.

Do you swear or affirm that the testimony you're about to give is the truth, the whole truth, and nothing but the truth so help you God?

Let the record show that all four of our witnesses have answered in the affirmative.

Please be seated.

Without objection, your written statements will be made a full part of the record, and so we would ask you to summarize your testimony in five minutes.

And, with that, Mr. Robinson, you are recognized. Welcome.

STATEMENT OF DOUG ROBINSON, EXECUTIVE DIRECTOR, NATIONAL ASSOCIATION OF STATE CHIEF INFORMATION OFFICERS

Mr. ROBINSON. Thank you, Chairman Connolly, Ranking Member Hice, and distinguished members of the subcommittee for inviting

me here today to speak on the numerous information technology challenges facing——

Mr. CONNOLLY. Mr. Robinson, I may ask you, if you wouldn't mind, bring that microphone a little closer so we can hear you a little bit better.

Mr. ROBINSON. Certainly.

Mr. CONNOLLY. Thank you so much.

Mr. ROBINSON. You've already mentioned some of the challenges, so I'm going to amplify those challenges that occurred during the COVID–19 pandemic and its aftermath.

NASCIO, as you mentioned, is the national association representing state chief information officers, state information security officers, and IT executives from the states, territories, and the District of Columbia. As executive director since 2004, I am certainly humbled to represent our members here today as well as provide you data from our recent and in-progress national surveys.

I'm going to also add that certainly it is a pleasure to be joined by two of my colleagues who are longtime friends, and we're going to cover three major topics today starting with cybersecurity.

State governments remain at risk certainly based on our 2020 Deloitte-NASCIO cybersecurity study. States experienced elevated cybersecurity threats during the pandemic. That's already been mentioned here this morning. This is not surprising given the need to protect an enormous load on our systems, networks, and also the distribution to remote work that happened in almost every state.

For state CIOs, cybersecurity has been their top-ranked priority for the previous eight years, and I suspect it will be in 2021. We've been tracking data, and for the last decade, we've seen three consistent themes: One is inadequate cybersecurity funding in terms of the level of the threat (it's not commensurate to the level of threats, and that certainly is the case with ransomware today); the increasing sophistication of the threats; and the challenge of recruiting and retaining cybersecurity professionals.

So, what have the states learned from COVID–19? And there's no doubt that the pandemic was a forcing mechanism to really accelerate the states and have them rapidly invest in short-term technology improvements and automation to make sure they were serving their citizens in a largely remote and distributed environment.

We asked our state CIOs to identify the top issues for their priorities in a post-COVID world, and while certainly improving digital services and legacy modernization are part of that, there are others. So, I will provide you with a rank order of those and details in my written testimony.

No. 1, increased attention on digital government services and the citizen experience. Preliminary data from our ongoing survey finds that 94 percent of our CIOs report the demand for digital services has both increased and accelerated in terms of its speed.

No. 2, not surprisingly, expanded work from home and those options will continue. At the outset of the pandemic, state CIOs faced enormous challenges to ensure widespread remote work was manageable and secure while literally sending tens of thousands of state employees home to work with their technology devices.

Expanded use of collaboration platforms, No. 3, were evidenced here today as we continue to use virtual meeting technology, and we believe that will continue and so do the state CIOs.

Investments in broadband expansion and adoption, No. 4. Again, I don't think this is a surprise. Broadband services were certainly strained during the pandemic and found to be inadequate. The data we have today says 81 percent of our survey state CIOs said that their states will now accelerate the implementation of their broadband strategies because of the demand. They've seen the inadequacy of their statewide infrastructure for serving their citizens.

And, finally, a key topic of our testimony here today, increased investments in legacy modernization. The overwhelming demand for citizen services during the pandemic exposed the fragility of these aging systems. Many of the most significant and critical services were hampered by technology platforms that were not flexible, not scalable, and not adaptable to the need. Based on our preliminary data again, half of the states have noted that they will accelerate modernization initiatives with a greater focus on digital online services.

So, if we look at the state government environment today, it's clear that we have a lot of work to do. There are many complex systems delivering state services that are funded by the Federal Government. The chairman mentioned this. This point cannot be stressed enough, as states are charged with the Federal Government to be the primary agents to deliver critical programs and services to citizens across the country. Many of these IT platforms were built upon legacy and outdated technology that needs remediation, and they remain susceptible to cyber attacks and the overall inability to ensure reliable delivery of services in a timely and secure manner. This is critical.

All state CIOs aspire to have a modern IT environment. States maintain and operate a large and complex array of IT systems that are—have challenges that are similar across all government entities, Federal, state, and local, and these proprietary platforms can no longer support the necessary business needs of state agencies.

So, along with this technical debt, states also face financial and organizational impediments. State CIOs and their agency partners are often unable to get sustained funding from their states for modernization for a necessary multiyear time horizon. Any modernization initiative requires a strong partnership, and NASCIO, in our view, requires that collaboration.

Three recommendations from NASCIO related to IT modernization initiatives to consider today. There are nearly 18.5 million Americans who lack basic access to broadband. As Congress and the Biden administration debate infrastructure legislation, NASCIO strongly urges improvements to this critical part of our digital infrastructure. Accessible broadband is the most fundamentally important tenet of any IT modernization strategy.

No. 2, state and local modernization grant program. In the 116th Congress, NASCIO endorsed the State and Local IT Modernization and Cybersecurity Act, a bipartisan bill introduced by Congressmen Langevin and Gallagher. Importantly, this legislation aimed at creating a modernizing information technology program to sup-

port legacy systems to new secure platforms in line with IT modernization strategies outlined by CISA. We think this is critically important, particularly in urging state governments to migrate to cloud services.

And, finally, harmonization of Federal cybersecurity regulations, a long-term advocacy agenda of NASCIO. As state governments continue to implement strategies to improve their IT systems, they are simultaneously looking to achieve cost savings. One area of opportunity for the Federal Government to assist state governments is the further harmonization of Federal cybersecurity regulations.

NASCIO appreciates the bipartisan work of numerous members of this subcommittee who tasked GAO in 2018 to study this issue and issue corresponding recommendations. In fact, in May 2020, GAO did issue this report: "Selected Federal Agencies Need to Coordinate on Requirements and Assessments of States." They found between 49 and 79 percent of Federal agency cybersecurity requirements had conflicting parameters and urged the Federal agencies to collaborate on cybersecurity.

Mr. CONNOLLY. Mr. Robinson, I'm going to have to ask you to end there. We'll explore this further.

Mr. ROBINSON [continuing]. My closing remark, Mr. Chairman. And thank you and Ranking Member Hice for the opportunity to testify today. I know we have lots of questions, so looking forward to answering those.

Mr. CONNOLLY. Thank you so much.

Ms. Renteria. Renteria. Am I pronouncing that right?

Ms. RENTERIA. You got it right. Renteria.

Mr. CONNOLLY. All right. I'm so sorry for that mispronunciation——

Ms. RENTERIA. You're good.

Mr. CONNOLLY [continuing]. The first time. Welcome. You're recognized for your five-minute opening statement.

STATEMENT OF AMANDA RENTERIA, CHIEF EXECUTIVE OFFICER, CODE FOR AMERICA

Ms. RENTERIA. Great. Thank you.

And, Chairman Connolly, Ranking Member Hice, members of the subcommittee, and all the staff who helped out to get this conversation together, I really appreciate it, and we at Code for America appreciate being part of this discussion.

Partly——

Mr. CONNOLLY. I'm going to ask you the same thing if I can, please, Amanda, if you wouldn't mind speaking up.

Ms. RENTERIA. Oh, OK.

Mr. CONNOLLY. You're a little soft.

Ms. RENTERIA. All right. Great. We are honored to be here to be part of such an important conversation around empowering state and local governments to be responsive, supportive, and fully serve constituents, especially in moments of crisis.

Let me tell you a bit about Code for America, since I know not everyone here is familiar with that. We are a nonprofit organization that started more than a decade ago with the simple notion of a government by the people, for the people in the digital age.

We believe government services should be as good as those services we are accustomed to in the private sector and that people-centered technology can help government improve outcomes, reduce costs, and treat everyone with respect and dignity. We work shoulder to shoulder with government to build digital tools and services, change policies and inform policies, and improve programs.

I could give you dozens of examples of how we've partnered with states and local governments over the years with human-centered technology, best practices, and service delivery across the country, but in our brief time together, I want to focus on one particular body of work from just about a year ago.

Last spring, when schools closed essentially overnight, 30 million kids who relied on school lunch programs were immediately cutoff all across the country. As part of the Families First Coronavirus Response Act, as Chairman Connolly mentioned, the government launched a new federally funded pandemic EBT program to help get resources to students and grocery money for their families, but it was up to states to actually implement that.

In theory, states would take that data they would have about students, they'd load it on to debit cards commonly used to distribute food assistance, and they'd mail it to the guardian's address on record. But many states ran into serious challenges with their pandemic EBT programs because of a variety of tech complexities, particularly around data matching.

The local school districts held the data on who was eligible for the lunch programs, while state agencies held the data on parents' or guardians' eligibility in public benefits programs. So, it was very difficult to get a single source of truth on each student, and many ended up in this what we called unidentifiable category due to this data gap.

Plus, you had the unusual challenges around data quality, formatting, and out-of-date contact information that we just heard about from the last witness, and not to mention that there was a lot of work included in this period of time that needed to happen, coordinating with tech vendors. And, of course, everything happened remotely, which is an entirely new system.

We are really fortunate to have had the relationships that we've built across the state with—in our 10-year history and really the experiences of helping states and cities during regional disasters. We were able to step in in that critical moment, our team of data scientists, engineers, researchers, product managers, and client experts, and in record time, we actually consulted on digital services in California, Colorado, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, Utah, Virginia, and Washington. In just a—in a few months, we helped them connect the data, build coordinated processes, and distributed food assistance to families who were hungry.

I can't stress enough how much of an unusual, really multi-state effort there was going on in order to reach kids where they were. And through that what we saw is really what is possible when you put technology and government together to provide lifesaving services to people who need help.

To make this possibility a reality, I want to leave you with three things that we think the government needs to do, and very much

you're going to hear a consistent theme, I suspect. But No. 1 is minimize administrative burden and complexity; No. 2, we've got to vastly improve data operations; and No. 3 is empower state and local governments to invest in technology, talent, and capabilities.

I want to remind everybody, because it's still on my mind as we think at Code for America how we can help, but it was just a handful of months ago when all of us saw record breaking numbers of people who were out of work lining up in parking lots in need of food and basic assistance and completely unable to access government services.

For us, the pandemic was a window though into what we have seen for a long time. When crises happen, government systems consistently fail. Too often in these moments they go completely dark. We simply can't allow that to happen in this country. Our government systems must be prepared for a more volatile future and ensure that government really does meet everyone's basic needs, especially in a moment of crisis.

We've always said this at Code for America, so I'll end with this, which is we know that government and technology are the two best levers we have to change people's lives at scale. And as the country right now resets in this post-pandemic environment, we have a once-in-a-generation opportunity to truly transform our systems and build a resilient government that effectively and equitably serves all Americans.

So, I just want to say, I welcome this discussion, and we really look forward to doing what we can in all corners of this country to really help in this effort to modernize, to upgrade, and make sure our systems are ready for whether it's the next crisis or the next disaster or really just functioning every single day. So, thank you very much for having us a part of this conversation.

Mr. CONNOLLY. Thank you so much, and I can't help editorialize your last point. The irony of the subject matter is it's not considered very sexy, and yet every penny this Congress appropriated, which was the unprecedented amount of money—I mean, never in history have we appropriated cumulatively as much money to respond to something as we did in this pandemic, $5.5 trillion with a T, every penny of its dependent for delivery in IT.

And yet the interest from the press and Members is very limited, and which I think tells us about the scope of the problem we face, Mr. Hice and I, in our evangelical mission in trying to educate and make more aware our colleagues about the importance of the subject matter.

Forgive that editorial comment, but you inspired me, Amanda. Thank you.

Teri Takai, you are recognized for your five minutes.

STATEMENT OF TERI M. TAKAI, VICE PRESIDENT, CENTER FOR DIGITAL GOVERNMENT

Ms. TAKAI. Well, thank you Chairman Connolly, Ranking Member Hice, and the distinguished members of the subcommittee for inviting me today to speak on the challenges the state and local governments face in modernizing their IT systems and digitizing critical services.

The current state of technology services, as Mr. Robinson has already talked about, that state and local governments provide was severely tested during the COVID–19 pandemic. The challenges of providing critical citizen services and information highlighted the technical debt the government faces.

In my current role as the vice president for the Center for Digital Government at e.Republic, I work with state and local governments across the country as they drive the technology in their jurisdictions. As a former state and Federal CIO, as well as having extensive experience in the automotive industry, I'm impressed with the work that the CIOs have done to meet the challenges of the pandemic, but I see the extensive work that lies ahead.

I appreciate this opportunity to support their efforts and to meet the increased requirement to meet expanded digital expectations from our citizens. I'd like to highlight a couple of key areas because I think it's really an area where we tend to go to the technical first and the technology first as we think about how to sustain these efforts.

But I think it is important to note that the key to successful technology modernization is the collaboration between the agencies and departments that deliver essential citizen services and the technology organizations that support them.

Technology alone cannot solve the challenges of providing improved citizen services. It must be a whole-of-government of approach across Federal, state, and local government but also between executive, legislative branches, and agencies and departments within the jurisdiction.

Utilization of technology to improve citizen services requires the examination and review of the underlying processes, roles, and responsibilities. And this will be especially true as government moves to embrace new technologies, like artificial intelligence, machine learning, and remote process automation.

The next key point that I want to make is that the relationship between IT modernization, digital citizen services, and cybersecurity is critical. There's a risk that these three technology efforts will be seen separately and that governments will fund only a portion of what is needed.

The driver for IT modernization is the need for greater digital citizen services that are protected from increasing cyber threats. All three are driven by demands for citizens for improved transparency and services. It is impossible to drive digital transformation without focusing on an overall enterprise approach.

In closing, beyond current relief funds through the continuation of the CARES Act and the American Rescue Plan, there's a need to ensure that the realization of the importance of technology in the operation of government remains a high funding and budget priority for state and local governments.

Moving forward, both the agencies and departments who are dependent on technology and the executive and legislative branches of government must continue to see technology as the infrastructure that runs government as much as roads support transportation. And more than pure infrastructure, technology can be the catalyst to reach citizens where they are and to build trust that all levels of government are truly there to service their needs.

I have a number of specifics that I included in my written testimony. I'm happy to speak about any of those today. I really appreciate this opportunity to testify, and I look forward to answering any questions you may have and continuing the discussion. Thank you.

Mr. CONNOLLY. Thank you, Ms. Takai, and I like your whole-of-government approach. I know we're going to want to explore that along with your recommendations.

Last, but by no means least, we're going to hear from Dr. Shark. Dr. Shark, you're recognized for your five minutes.

Mr. SHARK. Thank you, Mr. Chairman. Is my mic on? Yes. Thank you, Mr. Chairman, and thank you, Ranking Member Hice.

Mr. CONNOLLY. You just need to pull that closer to you.

STATEMENT OF ALAN R. SHARK, EXECUTIVE DIRECTOR, PUBLIC TECHNOLOGY INSTITUTE (A DIVISION OF COMPTIA).

Mr. SHARK. I want to thank you for the opportunity to have a conversation with you today. I look forward to the questions, and my formal remarks have been submitted for the record.

I would like to explain the lens in which I see things, which I think is very, very important. I am the executive director of the Public Technology Institute, and what we do is help local governments understand, embrace technology through research, professional development, and leading practices.

We were actually formed in 1976 by the National League of Cities, the National Association of Counties, and the International City County Managers Association. In 2019, we emerged with CompTIA, the Computing Industry Technology Association, and that has been a perfect marriage as they are the ones who are the leading—and now us together—we are the ones who are a leading voice in terms of professional development, certifications, research, and technology across the globe.

My main experience is with local governments. As a professor, as one who heads the technology leadership panel for the National Academy for Public Administration, I have many views, so much of what I'm going to share are those of my own, and, where noted, they're ones that have been endorsed by the organizations of which I represent.

I see some amazing change that is occurring, and I use the word "occurring" because it hasn't stopped. And so, while there's been a lot of frustration with technology where it has failed, where it has not worked, I'm also here to say that there's a lot of good things happening out there.

We witnessed what I call the great pivot. Most of the people I represent are CIOs from cities, counties, townships across the country, and they work 14, 18 hours a day remotely. And they learn things they never thought they would have to ever contemplate like teaching staff, public employees how to use computers, how to compute remotely, things like that, and to make it possible for the business of government to continue for construction, permitting, social services, and information, the ability to schedule things online, to talk to people and maybe even see people online.

This was a technological revolution that came about because there was a major pandemic. We all saw it, and we all reacted appropriately. So, I see a lot of good things. But as pointed out in the opening remarks, it also exposed an awful lot of deficiencies that should be alarming.

This hearing is about what have we learned and what can we do today so that if something like this happened again—by all means, why wouldn't it?—that we are better prepared and that we have taken steps to learn, including some of the issues of funding, totally legit.

And I'm hoping incidentally that some of the technologies that we're seeing coming into the fore will help us, the use of artificial intelligence, the ability to go through these data bases and look for the anomalies, looking for where fraud may occur and do a much better job. This is where technology could really help us.

So, in my comments, I have five areas that I address: IT modernization, the need, also the need for greater agility and resiliency, and I also am a strong believer of intergovernmental cooperation. We need to communicate in a more formal manner between state, local, and Federal agencies.

I am worried about the significant cyber threat that we fall under and the enormous cost to us in terms of loss of business, loss of confidence among our citizens. This is huge. There's an abundant need, and I want to address the last two on the human side. It's not just about technology. Like a mechanic, they have to depend upon the tools of the trade. In today's world, technologists have to depend upon the new tools that are quite different.

We need a lot of help in two areas: abundant need for professional development and certifications aimed at existing staff so they're better able to defend and protect our infrastructure; and, No. 2, actively address manpower shortages requiring more creative approaches to recruitment and retention in IT-related positions. Hence, I'm a strong advocate, as is CompTIA and PTI, of the whole issue of apprenticeships to get people these high-paying jobs where there's high demand.

Mr. Chairman, Mr. Ranking Member, thank you so much. I wanted to stay on time. Mission accomplished.

Mr. CONNOLLY. Thank you, Doctor.

Mr. SHARK. Look forward to the conversation.

Mr. CONNOLLY. You did great. You had three seconds more, so thank you.

We're now going to move to questions.

And, Mr. Lynch, are you there?

Mr. LYNCH. I am. Thank you. Thank you.

Mr. CONNOLLY. So, the gentleman from Massachusetts is recognized for his five minutes of questioning.

Mr. LYNCH. Thank you, Mr. Chairman. This is a great topic and one that I think, as everybody recognizes, the pandemic has really put a spotlight on.

You know, the GAO did a report back in May 2020, and they illustrated in their study that about half to three quarters of the cyber regulations that the Federal Government agencies, such as Social Security, the IRS, the FBI, and I forget one other, but 50 percent to 75 percent of the regulations that the Federal agencies

give to the states were in conflict with themselves. So, IRS was in conflict with Social Security and so forth.

So, in the midst of trying to keep people's information as secure as possible—and all those agencies have sensitive information going back and forth with the states, I'm just curious if our panelists, and we have an all-star panel here, do you have any recommendations on how we might harmonize the regulatory protocol so that we assist you in protecting that state-to-Federal dialog and exchange of information that is respectful of the privacy and security of that data that belongs to the people that we all represent?

Mr. Shark, I think you probably have some insight into this. All of you should, but why don't we start with you.

Mr. SHARK. Well, as my colleagues have stated, cybersecurity is our No. 1 concern. It comes up through every survey that we do, and it will continue for years to come; in fact, it's been No. 1 for the last 10 years. One of the problems that we see is, again, the lack of support and understanding from more senior public managers in recognizing the need for better modernization of some of the cybersecurity best practices.

We did a survey last year—we do an annual survey of local government cybersecurity programs. And I was surprised, when we asked, "How engaged are your elected officials with regards to cybersecurity efforts?" almost 54 percent said "not engaged." And the next category was "somewhat engaged," which was like 24 percent, even with "very engaged." That is a small portion.

And to me, what we see for the professionals that are on the forefront of protecting our infrastructure, our digital infrastructure, we're often lacking the support from those that these people report to. So, there's a real governance issue. There's a communications issue. It may not even be a funding issue as much. If this money is out there, there seems to be a gap in communicating the importance, the need, and where to go for help.

Mr. LYNCH. Well, thank you.

Ms. Renteria, do you have any thoughts?

Ms. RENTERIA. I do. I actually want to validate exactly what you're saying about making sure that we're protecting the data that we get. This is particularly important in low-income communities. So, we launched a program last year, GetYourRefund.org, and what it did is it's a very—it's a simple mobile app to help people through the process of VIP payments, of EITC, of filling out your tax formats.

One of the big barriers to actually people submitting tax forms is their concern about what happens with their data. As a nonprofit, we actually do not, and we're very clear about we do not sell data. We use it for moving over to government partners in order to actually fill out tax forms.

I think one of the things we should be thinking about here is how do we make it very clear to clients, to the customers what we are doing with their data as we move it through. And that's important, particularly as we start to reach out to low-income communities and make sure to bring them into a system that not only welcomes them but treats them with dignity and respect as we take them through the process.

Because that trust-building exercise from day—from that first conversation on your app really matters, and making sure that we actually express what we are doing to protect their data is particularly important for low-income, rural communities who feel often forgotten by our programs. So, we do that very explicitly and think more organizations should.

Mr. LYNCH. Thank you.

Ms. Takai, I think you have 20 seconds.

Ms. TAKAI. All right. Let me just give you then some key points. First of all, I totally agree with you. I think it's essential that there's a harmonization because it is a burden, particularly on state but more so on local government, to ensure compliance. That can certainly be any government agency and perhaps DHS in the role that they play.

Second, I think it's important to recognize that the public comment process doesn't actually harmonize. It simply provides a public comment on a particular agency approach.

The third is that it does really require state government and local government input that is heard and recognized.

And I think that, fourth, again, I would repeat, the compliance efforts that state and local government go through are significantly challenging right now.

And the last, I think, I would encourage us to think not just about cybersecurity as cybersecurity but that we also think about data privacy, not only data privacy legislation that's coming out at the Federal Government level but also at the state government level, because there will be a need to harmonize that piece of cybersecurity as well.

Mr. CONNOLLY. Thank you, Ms. Takai.

The gentleman——

Mr. LYNCH. Thank you, Mr. Chairman. I yield back. Thank you for your courtesy.

Mr. CONNOLLY. Well, Mr. Lynch, just before you yield back, I do want to give Mr. Robinson an opportunity to respond if he wishes to your question, and then we'll turn to Mr. Hice.

Mr. LYNCH. Absolutely. Thank you, Mr. Chairman.

Mr. CONNOLLY. Thank you, Mr. Lynch.

Mr. ROBINSON. Thank you, Mr. Chairman.

And thank you, Mr. Lynch, for the question.

It has been a longstanding advocacy opportunity for NASCIO, and we have specific recommendations and work exhaustively with GAO. We applaud their work. They spent over two years in this review and assessment, interviewed 50 state chief information security officers, and also looked at over 600—600—NIS controls that are used by the FBI, IRS, CMS, and Social Security Administration. Those are the four agencies that they looked at.

And what they found, again, as Representative Lynch mentioned, vast duplication and overreaching in terms of the cybersecurity regulations that are imposed upon the states. States agree that these are necessary. They're very prudent to protect the private information of individuals. But, again, they're at the cost of both the overreaching cybersecurity regulations and also the long assessments and audits are[inaudible] of the states. Our recommendation is that

Congress empower OMB. OMB is probably the only group that can look at this across all the agencies.

And I certainly concur with the chairman about the need for intergovernmental cooperation. This is a great example of the need for more intergovernmental cooperation and collaboration on examining cybersecurity regulations, harmonizing them, streamlining them, and reducing the cost and burden on the states, which, in fact, would, we believe, result in stronger cybersecurity protection than the mismatch that we have today.

Mr. CONNOLLY. Great point. Thank you.

Mr. Hice, you are recognized for your question.

Mr. HICE. Thank you, Mr. Chairman.

I have probably two primary concerns with state and local information technology systems and then an underlying third concern, if you will, with both of those. First, is their ability or lack thereof to keep up with citizens' demand; second, is their role in preventing or facilitating fraud and fraudulent claims; and then underlying all of that, of course, is the cybersecurity issue, how secure are these systems.

So, Ms. Takai, let me begin with you. Given states, localities, territories, tribal governments, and so forth received some $500 billion in direct aid during the pandemic at taxpayers' expense, there have been reports of much of those funds being misdirected or directed in places like investing in state parks, for example. Given all that, how appropriate do you think it would be for the Federal Government to offer even more funding for state IT systems at this point?

Ms. TAKAI. I think it's important to not differentiate the current issues around fraud from the cybersecurity issues. I think that now is a time where those two issues have actually come together. It increased the risk for state and local government at all levels, and fraud is one component of that. That's No. 1.

No. 2, I think it's important then that we continue that focus on cybersecurity to ensure that we're actually protecting from some of the challenges that we have had from a fraud perspective.

And, third, clearly, this is on the minds of all state and local CIOs. And for the local CIOs, large jurisdictions have many of the same responsibilities that the state CIOs have, and they are clearly looking at that not only from the standpoint of modernization but also from the standpoint of their overall cybersecurity plan.

Mr. HICE. OK. Thank you. You know, I agree with you. Obviously, we've got to make cybersecurity a huge priority, but, at the same time, we have got to hold states accountable to not wasting taxpayer money. And where it's fraudulently being used or misdirected, not in the ways it should be, I think we have the responsibility to have oversight over that and to call their hand on it.

Mr. Robinson, let me go to you now. Last spring, we saw that many mission-critical IT systems were woefully out of date and incapable of meeting the spike and the demand during the COVID. So, my question is, how confident can we be that states are taking aggressive action now to modernize their systems? Are they doing so?

Mr. HICE. Well, I think we could be confident that it's certainly receiving greater attention. I think the challenge is the magnitude of the change that is going to take place and certainly the nec-

essary business process, improvements, or business process rede-signs.

So, it's not about the availability of the technology to solve the problem. It's the necessary business process reengineering that has to take place as well as creating more citizen-centric opportunities, and I think that's where there clearly was a gap. The states had not prepared for that kind of magnitude of demand, and they have not scaled their systems.

And I think two things are going to happen in the next couple of years: One is we're going to see the broader adoption and the migration to cloud services so that states can scale and be more flexible with their services; and the second thing is more collaboration with the private sector counterparts that have a number of solutions [inaudible].

That's been the—I think the recipe for success in the number of states that were able to move very quickly was using those resources because the states didn't have the requisite capabilities and disciplines in-house to do that. So, I think we're going to see more of that move to private sector support.

Mr. HICE. Well, we don't want them dragging their feet on all of this, and to some extent there have been. Would you say that states, generally speaking, and I know we've got to be general here, but are they prioritizing IT investments in their budget? Is this something that really is a priority?

Mr. ROBINSON. In certain states, they are, sir, yes. But, again, I think——

Mr. HICE. Can you give an estimate? Like how many state—I mean—and I know it's a rough estimate.

Mr. ROBINSON. Well, yes. Now, based on—I'll speak for our state CIOs, and I prepared that data in my written comments, but, you know, 81 percent of them said that they increased their prioritization on modernization. So, that will give you a good handle on that. That does not mean that the entire state executive, legislative, and judicial branches are in concert with that thinking.

But the state CIOs have the lead on that in the states, and they clearly understand the nature of the problem. And there's no doubt that many of them would note that they lagged those investments, and that's a complex discussion probably for another day about the——

Mr. HICE. Sure.

Mr. ROBINSON [continuing]. Challenges of getting the information technology investments they need.

Mr. HICE. So, steps in the right direction, but we've got a long ways to go. We do.

Mr. ROBINSON. We do, sir.

Mr. HICE. Thank you, Mr. Chairman. I yield.

Mr. CONNOLLY. Do you wish more time? OK. Sure.

The chair now recognizes the gentleman from Maryland, Mr. Raskin, for his questioning.

Jamie, you're on mute. There you go.

Mr. RASKIN. Thank you, Mr. Chairman, and thanks to the witnesses.

You know, even before the pandemic hit, state and local governments were struggling hard to find IT and cybersecurity talent. Ac-

cording to the National Association of state CIOs' 2020 annual survey, recruiting and training qualified staff was a main challenge and main priority through this year.

Mr. Robinson, what are the critical competency gaps in the existing state and local IT work force?

Mr. ROBINSON. Yes. Thank you for the question. If we look at the current data, there are at least four. One is, as you already noted, cybersecurity, particularly advanced skills in cybersecurity analytics, predictive analytics, behavioral analytics. It gets to Representative Hice's question around fraud. We believe that that's going to be a critical competency in the future is having those skills. Application development is one, being able to develop and write programs. Cloud maintenance and cloud migration is an area where the states have certainly some challenges.

And then, finally, I would note just user design or citizen-experience design, being able to have capabilities to develop citizen-centric or user-centric websites and capabilities on online services. So, those are probably four of the five top issues to states——

Mr. RASKIN. Well, I appreciate that.

How can the state and local governments find the thousands of IT professionals with the right skills and competencies that are needed?

Mr. ROBINSON. Well, I think certainly from the state perspective, a lot of that has to do with location and the availability of the work force within their jurisdiction. The other has to do with seeking those individuals that have a strong desire to serve in the public. And one of the—we are here talking about a kind of a post-pandemic world. One of the areas that we're seeing some advantages is the states are opening up—they're recruiting outside of their state boundaries. So, that may be a small part of the answer to your question is states being able to actually recruit and then employ individuals in the expertise that don't necessarily live in their state, and so we might find that as a post-COVID–19 benefit is a remote work force.

Mr. RASKIN. Ms. Renteria, but what kind of skills and qualifications are states and local governments looking for when they recruit professionals to deliver digital services to the public?

Ms. RENTERIA. So, one of the things we're really starting to see now is program areas, recognizing that they too need IT. So, largely in state and local governments, what we've seen is people think about IT in sort of the IT help desk or in a department unto itself. We have seen now a different conversation happening in program areas where people are saying, OK, WIC was put online in 2020 for the first time ever, and now there's an encouragement you can go online. That really changes the way program officers and the programs think about IT that is a partner from the very beginning in order to deliver services.

But I do want to say, within the civic tech ecosystem, there has been a number of different groups that have now formed. U.S. of Tech, Tech Talent Project, 18F, and USDS now has a number of different incredible fellows, incredible people who have been in the administration now for two administrations and are out there looking and ready to join and have the kind of experience where they've

been in government, they've been out of government, they've been in the private sector.

I also wanted to mention that at GSA they're forming a digital corps, again, another really very good connection because you have tech folks coming in to get real world experience about how government works. We're also beginning to see a real movement within the civic tech space to make sure lived experience is a part of thinking about tech talent. So, in many of the apprenticeships and fellowships now, not only do you bring in somebody that has the tech tools but somebody that's actually experienced what it is like to apply for food assistance or not have housing. And what we have seen from that is when you combine lived experience with tech talent, it is really bringing state and local government up to a whole new level. But we can't do it fast enough, and that is really the point here is we need tech talent of all sorts in all different areas to bring that kind of up-leveling.

So, if I could just say one last thing, if you think about just Federal employees, six percent of Federal employees are 30 or under. If you think of a new digital native world, we need to make sure that we are really reaching out——

Mr. RASKIN. Along those lines, I noted in the NASCIO report—I don't know if that's how you pronounce the acronym, but, in any event, that report that I looked at—that there was an emphasis in this trying to recruit and training a new generation also on diversity and equity and inclusion. And is that going to be part of the solution?

Ms. RENTERIA. Absolutely, it must be. If you are trying to serve a more diverse environment, what we've seen in a lot of our programs is a lot of these low-income programs particularly have left out certain communities, Black, Latino, indigenous, rural communities, and we've got to start bringing in the lived experience to be able to reach those communities, and those are the perspectives that really get to how to access, right, how to help people access the benefits that are there for them.

Mr. RASKIN. Thank you.

I yield back, Mr. Chairman.

Mr. CONNOLLY. Well, before you yield back, I want to give the other members of the panel who have not responded to your query an opportunity to do so if they wish.

Ms. Takai?

Ms. TAKAI. Thank you.

I think that they've covered it. The one thing that I would add is that the demand that government is seeing is part of a national demand for more science technology education programs, particularly amongst those that are and would be considered in the diversity areas. I know that I participate, I'm sure Amanda does, in a lot of women-in-technology programs.

So, I think that, you know, we have to look at the context of government in the context of needing more technology skills across the board and also making sure that, as we're doing that, you know, we're considering the diversity and inclusion and equity part of making sure that they're a part of that skill set.

Mr. CONNOLLY. I'm going to give Mr. Shark, Dr. Shark, the opportunity to respond. And, Mr. Keller, certainly extend the same courtesy to you if you wish it.

Dr. SHARK.

Mr. SHARK. Thank you, Mr. Chairman.

I just want to add a few things. Everything that has been said I agree with. I mean, the skill sets we're aware of, but as Teri said, the shortage of technology professionals is really a problem across the Nation in all sectors. In particular, though, with government and even local government, it's even more stressful in the sense that we can't compete with the private sector. So, very often we're losing some very, very good people, and we have to find better ways to provide incentives to keep those good people, let alone bring in new people.

So it's kind of, like, two parts of that. Now, we have, at CompTIA, have devoted a whole area, a whole division with women in tech, bringing in more apprenticeships, bringing in more inclusion, diversity, developing some more outreach and philanthropic kind of activities, and I think that has to continue.

Let me go a step further. We need to incentivize people in government. We have to make folks feel good, and that's why I think perhaps having kind of a digital service corps within local governments could be a help and a jump start, and I think that's reflected in current legislation that's being proposed. I would welcome that. We need a jump start. We have a problem. We have to address it fairly quickly, and then we have to worry about keeping people up to date.

This is changing so rapidly. Imagine flying an airplane, getting your tax prepared by someone who is not certified or recertified. So, having training is terrific. Being constantly retrained—and this is where certifications are important. They're not required. You are required if you're a CPA. You're required if you're a pilot or a lawyer. You're not required if you're a technology individual, and yet you have all of this personal information; you have so much sensitive information at stake. I'm a strong proponent in continuing education.

Mr. CONNOLLY. Great point. Thank you so much.

Mr. Keller.

Mr. KELLER. Thank you, Mr. Chairman.

Now that the United States has started to fully reopen, we need to start examining institutions that have been changed forever by the COVID–19 pandemic. Moving to a post-pandemic environment, one of these issues is the security of our IT infrastructure and the relationship between the private sector, state, local, and Federal authorities.

A study by the National Association of State Chief Information Officers shows that most States allocate less than three percent of their budget to cybersecurity, while financial services companies allocate almost 11 percent. As a result, states' IT infrastructure is often susceptible to waste, fraud, and abuse.

A question for Mr. Robinson. Based on your organization's report and your experience, have you noticed a disparity between public and private sector cybersecurity readiness?

Mr. ROBINSON. Mr. Keller, I have certainly noticed a discrepancy in the amount of funding and the amount of executive attention on the topic of cybersecurity. Our message is that cybersecurity is a business risk to the continuity of government. I think where we see the great disparity between the public and private sector institutions is that many private companies, their executive officers and their board and leadership has now recognized that cybersecurity is a business risk to the continuity of their business.

I don't think we've gotten that message through to the leadership at state and local governments and in a general way. There are certainly individuals that have championed that, but, quite frankly, I think we have a long way to go to get that message in terms of the need to understand that. And with that would come the commensurate support and funding, so there is a gap.

I believe the states are doing a surprisingly excellent job protecting their systems and their data given the constraints that they're operating under today, and I think that's evident in some of the numbers that you're seeing in terms of the lack of successful attacks.

So, I think that's the challenge right now is essentially advancing the capabilities and disciplines of the states, but it's not just about additional funding. There's a lot more that has to happen.

Mr. KELLER. You just answered the question I was going to ask. Is it all funding or does it really come to the culture in which the emphasis is put on it?

Mr. ROBINSON. No. It's the culture. I think states—you know we recognize that there might be actually requisite funding embedded in the state agencies that could be used at an enterprise level, and that's been one of our messages is let's make sure that we have a very strong assessment of the posture of state governments before we spend additional dollars.

Mr. KELLER. OK. Because, you know, I go into that and say how can Congress best work with states and localities to invest in cybersecurity infrastructure, to prevent more waste and fraud in the future, and I think some of that probably comes back to what you were saying as far as, would you say some of that is the leadership?

Mr. ROBINSON. Right. We have advocated for additional dedicated cybersecurity grant program for state and local governments because we believe it's a collaboration. Local governments have less resources. Part of that is simply because of the symbiotic relationship between the states and their Federal counterparts. The state agencies are delivering services on behalf of the Federal Government. And that's why we believe that funding should assist them, and it hasn't come to fruition for the past several years. So, we will continue to advocate for that type of cybersecurity funding grant program.

Mr. KELLER. I appreciate that.

And since 2003, the GAO reported that the Federal Government has made over $1.9 trillion in improper payments. This estimate does not include the reported $1.6 trillion in Fiscal Year 2020 budget expenditures. Agencies prior to COVID–19 had difficulties identifying where they were making improper payments. For example, the Department of Defense Office of Inspector General reported

in May 2020 that the DOD did not publish reliable improper payment estimates for five of its eight programs and did not meet its improper payment reduction targets.

So, again, Mr. Robinson, I guess what I would say is, what do you believe are the most significant challenges to identifying these kinds of losses? And what can Congress do to ensure more transparency from the agencies?

Mr. ROBINSON. Two things, Representative Keller.

One, states only in recent months have they invested in advanced analytics and automated fraud detection services. So, I think they would all recognize that they had not prepared for something as extreme as the pandemic when it came to the magnitude of, you know, basically the volume and velocity of those requests coming in, and they didn't have the capabilities upfront to do predictive analytics to stop the fraud.

And the second part of that I think is critical, which really aligns with digital government services, is a stronger digital identity program across the states. So, we have about 14 states today that have embarked on citizen digital identity programs. We need to have all of the states. That's probably, if you look at their cybersecurity agenda, one of their top issues is how do we create a secure digital identity program for our constituents so we will know who's on the other side of that request when it's an online service, unemployment, all the things you mentioned in terms of fraud. Again, that doesn't exist in the majority of states today, so—but they are—they have a plan on their agenda.

So, we think that's an important part of two acts: reducing fraud and also improving the citizen service experience.

Mr. KELLER. Thank you. I appreciate that.

And I yield back.

Mr. CONNOLLY. Thank you, Mr. Keller. And let me just say to you improper payments is something that has long had my attention, and our subcommittee has a long history of trying to address it. I certainly would welcome the opportunity to collaborate on a legislative strategy at trying to reduce that number. A good chunk of it is Medicare fraud, but some of it is our IT systems just—you know, someone is getting something who is ineligible but they show up as eligible, because we're not getting it right in the IT identification or whatever it might be.

So, I do think that's something certainly we could help reduce, and I think the subcommittee has done some groundbreaking work in identifying the problem. Now, hopefully, we can try and address it. So, I would be glad to collaborate with you and Mr. Hice trying to find——

Mr. KELLER. I would welcome that because we talk about improper payments. That would ensure that the help gets to the people who need it the most.

Mr. CONNOLLY. Exactly, exactly. Thank you so much.

The gentleman from California, Mr. Khanna, welcome.

Mr. KHANNA. Thank you, Mr. Chair. Thank you for your leadership in convening yet another important hearing.

One of the things that I find perplexing is our Federal Government basically invented the internet. I mean, at DARPA you had, Vint Cerf there who came up with the TCP and IP protocols that

allowed for communication to and from computers basically as a military application that then goes on to become the internet that we use in the United States and around the world.

And despite this sort of history of having government be the facilitator of the internet, we have seen the public sector, both the Federal Government and the state government, lag the private sector in actually the application of IT today. Obviously, there are a large number of issues in the Federal Government, but, Mr. Robinson, I wanted to get your perspective on why do you think that states with their enormous budgets—maybe it's a budgetary issue, but they do have more budgets than most private companies. Why is it that they lag what an above-average private sector company does in terms of IT services?

Mr. ROBINSON. A complex question, Representative, and lots of dimensions to that.

The technology exists to make that happen. I believe there's a number of issues: One is certainly the organizational and cultural resistance to change in some cases. The lack of project oversight and governance, the lack of an enterprise roadmap, it's often done individually by agencies, and I think that's a problem. So, having strong leadership at the executive branch to kind of drive an enterprise approach, common standards, common approaches, and so, you know, the resources may be there, but I think being organized to succeed is a challenge at the state and local level when it comes to delivering those online services.

We have a number of states that have been recognized I think for their excellent service delivery to their citizens, and I think if you look at what are the common patterns of success among those, a lot of it has to do with leadership, governance, project oversight, the imposition of standards across the agencies.

So, we have examined those over a number of years and find some fairly common patterns. But, again, there isn't a lack of technology that prevents state and local governments from delivering on the promise of widespread digital government to their citizens.

Mr. KHANNA. I have one more question, but did any other panelists—I saw some folks shaking their heads or gesturing. Did anyone else want to comment on that?

OK. Then I'll ask my next question.

One of the challenges I have noticed is the lack of thought on design. You know, I represent Silicon Valley, and I think people don't appreciate that a lot of the successful companies put so much emphasis on design, more than technical competence. In fact, Steve Jobs famously talked about how a graphic design class was the most important class that he took, and Airbnb's success was largely a success not simply of engineering but of design.

If you go to some of these websites—and, you know, this was the case in the Federal website when COVID started—you know, there are 50 different links, and people are totally confused about how to actually navigate the things for their own convenience.

Is there a focus, Mr. Robinson, and then if anyone else wants to weigh in, on the design aspect in making sure that these things are first and foremost with the customer in mind?

Mr. ROBINSON. I'll speak very quickly on behalf of the states. Yes, based on our recent evidence, particularly during COVID, that

came to light as the lack of the design of citizen-centric or a strong user experience. Many states are creating digital services teams and bringing those teams to bear on those issues. But, you're right, there has been challenges in that space across states and local governments, and so certainly my colleagues can respond to that from their perspective.

Ms. RENTERIA. I would love to jump in.

And thank you so much for that question because it's exactly what we have focused on at Code for America and our food assistance program. In fact, it started with seeing lines outside Social Services on Mission Street and recognizing what is going on; there's something not quite right with that process. And so we do with our—with the clients we work with, with the governments we work with, we actually take them on a journey, walk the shoes, right, try and apply yourself, go into a Social Services, see the experience, feel the experience, and it's easy once you do that to see that there's something wrong in the system, that we actually haven't designed it around the people we are serving.

Part of my example at the very beginning around pandemic EBT is that the crisis actually made it very clear what we were all trying to do, and that was to reach kids. If we can design all of our services—and this is what we believe in at Code for America—if we can design all of our services starting with that client experience, walking in their shoes, then you build the program from there, and it makes an entire difference. In California, as an example, there is now a human-centric design. In Pennsylvania, Congressman Keller was just talking, we are working with them on the data analytics to really understand that user experience and address it.

So, thank you so much for that, and we need to do more on that.

Mr. CONNOLLY. Thank you so.

And before I call on Mr. Biggs—we'll give you time too—does anyone else have a wish to respond?

Dr. SHARK.

We're being a little easy today, Mr. Biggs, today, so we will give you extra time if you wish it as well.

Thank you.

Dr. SHARK.

Mr. SHARK. Thank you. I'll be very brief.

There is a lag here. I think that's the point made. I mean, all of a sudden we're talking about customer experience, which is a relatively new thing in the government realm. This was something that was embraced by the private sector because they were trying to attract and maintain customers. I have seen an attitude that's luckily and happily changing where we've had many senior public managers say: We have a captive audience. We don't have to worry about that. We're not fighting to get people away from Coca-Cola to Pepsi-Cola or anything like that. They're here. They're going to be here no matter what we do.

That is changing.

We have even begun a program on digital service professionals that's a certification program, and we see more awards programs that are recognizing, Center for Digital Government and ours, we're recognizing best practices and the word gets out. So, as I once taught a class and I talked about the CX experience, I had

to first remind people we're not talking about a railroad. Now, CX—we have CX officers.

So, yes, we've been slow to the gate, but it's starting to happen. I think there's going to be much more innovation about the user experience in our websites.

Mr. CONNOLLY. Ms. Takai, briefly if you wish to comment.

Ms. TAKAI. Just a couple of comments. Thank you.

One is just in answer to the question around what's happening out there to drive a different behavior, just one of the things that we do at the Center for Digital Government is actually a set of government experience awards. In fact, we're just in the process now, and those awards are totally based on a different citizen experience and driving a different citizen experience, not only on how you interact on the web but also utilization of mobile devices and utilization of the new technologies that are out there.

The second comment that I think is so important to make as we think about being citizen centric is, to your comment, in the past, each individual agency or department within a jurisdiction, be that state or local, tended to think of pushing their information out and pushing it out based on their identity, if you will, in the services they provide.

What's changing now is the concept, as the other speakers have said, of not thinking about how government is organized as a way of putting information out, but rather what the citizen needs and what are the services that the citizen needs. And that's a very big change. We're seeing a lot of progress. For instance, it was mentioned before in the state of Pennsylvania where the Governor has actually come out and specifically put out an executive order around how the services of Pennsylvania would be provided.

But it really means that complete look, both from not just the technology but also from the agencies and departments, that they take the attitude of not what does the citizen need from me, but what does the citizen need across government and what do they need in terms of what's coming completely from my jurisdiction, not just one part of that jurisdiction.

Mr. CONNOLLY. Great point. Thank you so much.

Mr. Biggs, thank you for your courtesy. You are recognized.

Mr. BIGGS. Thank you, Mr. Chairman. I appreciate the opportunity to be here today, and you could—if you need more time, I'm happy to yield it to you, Mr. Chairman.

To me, I have been reflecting on this since I received the notice of this hearing, and having served a long time in the state legislature of my home state, it seems to me like so much of what I'm going to say revolves around what I would call an almost tautological circle of the relationship between the Federal Government and the state and local governments.

So, when Mr. Robinson says that—or excuse me, the previous member who was asking questions when my friend from California was talking about big state budgets, they're big state budgets all right. Prior to the COVID relief that came into Arizona, I had a pretty good idea what that number would be from the state revenues as well as the Federal money coming in. But the 2020 study by the National Association of State Chief Information Officers found 22 percent of States allocated between one and two percent

of their total budget to cybersecurity and 20 percent allocated three to five percent of their total budget to cybersecurity.

So why do I say "tautological"? In Arizona, we spent most of our time in the legislature responding to Federal mandates, how do we comply, how do we fund, et cetera. And then, when Federal money came in, I would encourage my colleagues, let's not take the money maybe because mandates are going to be coming in for sure, and we could give dozens and dozens of examples where we got a mandate, we received some money, but it was never enough.

So, there's a squeeze on to the states on how do you supply all of the needs that your citizens expect you to supply. Whether they're constitutional or not, they expect you to supply those.

So, the reason that I bring this up is I think in some ways this isn't the right venue for the states and local jurisdictions. That's their business. I remember thinking when I was the Senate President for years, we would really like the Feds to get out of our business. We think we could hire the best people to do the best job we possibly could, but we have mandates upon us, and then you have state procurement statutes which also impact how you do all of these things.

So, for me, when the Feds get involved, it makes things usually even more difficult for states and local jurisdictions to respond and not—we don't facilitate stuff. We get in the way. And so that's part of my problem in looking and analyzing this hearing today and reading——

Mr. CONNOLLY. Can I interrupt, Mr. Biggs?

Mr. BIGGS. Only if you're going to agree, Mr. Chairman.

Mr. CONNOLLY. I am agreeing with you.

I want you to take a look at my Partnership Act that Rod Bishop of Utah had been the original cosponsor of because we try to address this very issue of, well, what should be the right balance and how do we create a platform for states and localities to bring up exactly the point you just brought up, the helpfulness of the Federal Government, which isn't always helpful.

Mr. BIGGS. Yes. I mean, Mr. Chairman, not to digress, I know I promised the ranking member I would yield to him, and I will, but I can just give you examples within the education playground. I mean, we were—there was no way we could comply. If you went to our Department of Education, something like 85 percent of employees were responding to Federal mandates as opposed to state-driven policies. So, it's something worth considering and looking at.

Mr. CONNOLLY. Absolutely. And I really urge you to look at this bill because at least it would create a mechanism for addressing it. And, by the way, it might surprise you, I agree with you. No Child Left Behind is a great example of a Federal unfunded mandate, good intentions going awry, and whoever wrote it clearly never ran a school district.

Mr. BIGGS. Exactly. Thank you.

Mr. CONNOLLY. I thank my friend for yielding.

Mr. BIGGS. Thank you.

And I yield to the ranking member. Thank you.

Mr. HICE. I thank both of you.

You know, I've heard it over and over from states and individuals. Some of the most frightful words people ever here is, "I'm

from the government, and I'm here to help you." And that certainly applies to states as well.

But let me just capitalize on what Mr. Biggs said. With 1, 2, 3 percent of the enormous amounts of money the Federal Government has given states, only 1, 2, or 3 percent go into cybersecurity. What percentage, what role, what influence, Mr. Robinson, do you think that has had on the astronomical estimates of fraud that we've had when we've gotten no security, no cybersecurity? How has that contributed to the fraud, the $400 of billions and billions, 400——

Mr. ROBINSON. Representative Hice, I'm not sure there's any way for us to determine that. Certainly our members in our association haven't looked at that direct relationship between that. However, I can tell you that, in many cases, fraud is outside of the general oversight of the cybersecurity programs and would include generally under what would be termed program integrity within each of those programs, so within unemployment insurance, within Medicaid, and other programs delivered by the state that up until recently have not been under the purview of the overarching cybersecurity umbrella within the executive branch of most states. So, cybersecurity was really looking at infrastructure, looking at networks, or looking at users, looking at servers, mainframes, et cetera, and only recently have they really begun to look at this as part of a holistic whole-of-state cybersecurity framework, which is very important to your point.

So, I suspect that very little across the states, I'll speculate that very little of their cybersecurity spending in recent years has been spent on fraud, fraud analytics, fraud detection, fraud prevention.

Mr. HICE. And I understand what you're saying.

And, Mr. Chairman, I will yield back, and I appreciate the gentleman yielding.

Mr. CONNOLLY. If you need more time, Mr. Hice, please, because I took up some of his time.

Mr. HICE. Yes, you took my yield time.

Mr. CONNOLLY. Yes. Please continue.

Mr. HICE. But this is an important issue. I mean, the fraud, when we're talking the $400 billion, that's off the backs of taxpayers, and, I mean, you're saying, "Well, we don't have any way that we're really looking at this." I mean, that's—this is something that has to be looked at. This is not something that we can just say, "Ah, well, we're not responsible for that," or, be it cybersecurity, part of it, I don't know where the best eyes should be to look at this issue of massive amounts of fraud that's taking place. But I'm here to say we have a responsibility to look after the taxpayers' dollars, Mr. Chairman, and we are—we need a hearing to address this problem and to address it right on and find out who are the ones taking the money, where is it going, what's the channel, and be it the cybersecurity aspect of this or somewhere else, we've got to get to the bottom of this.

And, with that, I'll yield back.

Mr. CONNOLLY. I would say to my friend, I agree with him, and I think we do need to have the subcommittee's attention on the subject. I think he and I might want to collaborate on getting some empirical data in front of us from GAO and others so that we can

have a meaningful hearing. But I agree. I mean, when you're talking about the sums that we're talking about, inevitably, there's going to be waste, fraud, and abuse, and we need to identify that on behalf of the people we represent, no question about it.

And I thank my friend.

Mr. Clyde, you are recognized for your questioning.

Is Mr. Clyde—oh, he is not with us.

Mr. LaTurner?

What's that? OK. Then it leaves me.

And, Dr. Shark, I got my master's in public administration, and the method was the case study method. So, let me give you two case studies, and this will be my only question that I'll ask all of the panel to maybe comment upon.

So, one case study is Federal, the Small Business Administration. Now, the Small Business Administration generally has an annual budget of $20 billion. In April of a year ago, we gave it $600 billion and told it move that out in a month, 30 times its annual budget, but do it in one month, not 12. We also expanded eligibility, who qualifies for those loans, and we also said under certain circumstances, under a very innovative approach, the PPP, the Payroll Protection Program, we might be willing and would be willing to transform that grant into a loan—I'm sorry, the other way around—that loan into a grant. The object: save mom-and-pops on Main Street.

We also expanded financial institutions that could manage those portfolios way beyond the traditional SBA portfolio list. And we minimized paperwork and eligibility requirements, again, worried about the economy going off the cliff. This came out of the CARES Act, which had a huge bipartisan vote here in the House and the Senate. And what happened? The E-Tran system, their IT system, crashed. They couldn't handle—they had trouble programming the changes that were mandated by Federal law. They had trouble with the demand that overwhelmed them. I mean, even they couldn't foresee how many people needed relief or wanted relief, and there was a huge backlog that gets created and people who were eligible that we were targeting, we wanted to get relief, in fact, didn't because by the time we got—you know, SBA got to that part of the queue, it was too late. And that's one case study of, I think, where IT failed us, where we hadn't made the investments or anticipated the investments necessary to keep up with, you know, the need for flexibility and enormous demand under circumstances, granted not foreseeable.

But, second, on a state level, unemployment insurance systems. Now, again, the Federal Government changed eligibility, added $600 a week for every unemployment payment, irrespective of what state you were in. We expanded eligibility to sole proprietors, gig workers who previously had not qualified for unemployment insurance. We extended the number of weeks by 12. So, we changed eligibility and terms and conditions, loosening it up, again in the spirit of save the economy, try to keep people, you know, in their homes, put food on the table, keep families together, and save the economy.

And, again, under unemployment, you have got 50 different IT systems because we don't distribute unemployment; they do. And

my anecdotal observation would be it was not a pretty picture out there. Some states maybe did well, but most did not. And I'll speak for my own state of Virginia, you know, we had problems. We had problems programming it and, frankly, getting that assistance to the people who needed it. And, I don't know about your state, Mr. Hice, but maybe they struggled too.

Now, granted, you know, unprecedented circumstances, but what became clear was they were also paying a price for years of neglect and disinvestment.

So, I give you two case studies, one state, one Federal. What have we learned from that? How do we do better moving forward? What lessons did you all learn from or do you think we should learn from? I'm using those two examples. There could be others and feel free to throw in others if you wish. But I'll give you those two case studies to start with, and then I'll shut up.

Dr. Shark?

Mr. SHARK. Well, you raised some really good issues here. I have a couple of responses, and this cuts across the board with local, state, and Federal Government, and that is often IT is brought to the table kind of late in the game. We hear this at the local level. We hear it at the state level and the Federal level.

So, you have a group of people who have a great idea, great concept with all of the right ideals, and then all of a sudden it's passed, and then suddenly technology is brought into it as almost an afterthought with the idea "they will be able to do it, no problem," and there is a problem at every level of government. I see this at local governments, where local government fire department, police department get a wonderful grant. They say: Go, we just got this new device, a new toy, new software, go implement it.

Well, wait a minute. Have you checked it out? Is it compatible with our existing network?

So, part of the problem is when IT is brought in to at least give feedback as to what this may entail. And, second, I think the pandemic has shown us at every level of government, we have to be more agile. We don't have agility built into our systems. So, we're adding that to legacy systems that plague all of us. Look at the Social Security Administration. I mean, look at all of the different agencies that are dealing with programs that we can't even find programmers to program. It's easier to find someone with hieroglyphics than it is for Cobalt.

So, we have a problem. We've got to modernize with the idea of making all of these systems capable of rapid change, and today they are not.

Mr. CONNOLLY. Ms. Takai, I think maybe you could comment next because you talked about a whole-of-government approach, which to me also implies you've got to view IT as integral to the mission. It's not—you know, it's not something that's an ancillary thought, and that drives investments as well.

Your comment?

Ms. TAKAI. Absolutely. That's exactly where my comments were going.

I think that very often bills and legislation, while it's important to focus on what goes to the citizen, it's important to also focus on the mechanisms and the timeframes in order to make sure that

there's the underlying technology and process infrastructure to be able to support that.

I would give you an example that many of the states' issues weren't just around the technology of getting the dollars out there. It was around things like call centers and people able to answer citizen questions in a meaningful way.

So totally, you know, back to my prior comments, it is important that—and this isn't just crisis funding, but any funding, whether it comes from the Federal Government, down to the states, whether the states allocate it or it's allocated at the local level, there has to be the ability, as Dr. Shark said, to bring the technology people in at the beginning, include the technology cost in the cost of the administration of that program and include the technology and the processes as a part of the timeline that those services are going to be deployed. Because I think, without that, you run the risk of putting in short-term measures, short-term processes and, worse, short-term technology, even if the technology platform is ready, that then leads to the challenges of it not being administered correctly and, in fact, leads to challenges around potentially misappropriation, if you will, of the way that those funds are being distributed.

So, I can't emphasize enough, No. 1, technology has to be a critical part of the administration of these programs, and that has to be done in partnership with the processes that are developed by the organization that is responsible for those funds, and those two together really need to be a part of establishing the timing and the method for distribution of services to citizens.

Mr. CONNOLLY. Thank you.

Mr. ROBINSON. And then, Ms. Renteria, you will have the last word.

Mr. ROBINSON. Thank you, Mr. Chairman.

I certainly concur with my colleagues about some of the challenges and some of the potential remedies.

I think what I would comment on is your two case studies were termed "IT failures," and I think that's a term that we hear often used. If those two projects had been successful, we might called them business successes or program successes. But, in fact, they're often termed IT failures, and it's a much broader discussion than simply IT. Project management, streamlining the process, bringing the technology experts in are all critical to that, and I think there's certainly one word that Alan used, "agility," and that's going to be the hallmark of the future.

My basic comment would be that, in order to address some of these issues, when you look at state governments, a large percentage of their technology budget is the result of complexity and diversity, and that complexity and diversity causes challenges, and that is what we really need to focus on, reducing and streamlining the business process, and, again, we would then be not terming these IT failures. We might be talking about, you know, a failure of leadership, a failure of project governance, a failure of adequate resources. But, again, IT is just one component of these dysfunctions that have occurred. You know, certainly there has been an epiphany within the state governments around the need to scale and around to modernize, and certainly from our association, that's

what we hope we will see in the very near future as state governments address these deficiencies.

Mr. CONNOLLY. Yes. And before I call on Ms. Renteria, one could add, if you're worried about privacy and you're worried about encryption and cybersecurity and you're worried about minimizing fraud and ransomware, modernizing your IT is not incidental to all of those goals.

Mr. ROBINSON. Right.

Mr. CONNOLLY. Ms. Renteria—and I misspoke—I said you're going to have the last word, and you're going to have the last word on my round of questioning, but we have been joined by the Congresswoman from the District of Columbia, we're so grateful, so once you finish answering, Ms. Renteria, Ms. Norton will have the final word of this hearing.

Ms. Renteria.

Ms. RENTERIA. Well, thank you. And I never mind waiting for other Members of Congress to have questions or speak as well, so I'm open to more questions if that's the case.

I want to pick up where you left off, which is the way we design our programs is absolutely with cybersecurity and security in mind. As an example, we often talk about cybersecurity as a world that is different than the program implementation. And I have to tell you, when we talk to states all across the country who want to partner, they're No. 1 issue is cybersecurity. It's why we have states who want to integrate nine different safety net programs, make it easier for the user, and also allow them on the back end an ability to actually track what's happening. Instead of having nine different cybersecurity teams for nine different programs, you can have one collective talented team.

In addition, when you do that, when you improve the modernization of it and you can see the data, it allows you to see the spikes. So, if there's a fraud problem, if something is happening—as an example, when we started the pandemic, we were able to see in our food assistance programs in the state of California, we were able to see that spike and actually called California and said: Hey, you will have to be ready for what is coming at you because we are seeing an uptick in applications like we've never seen before, so here is what is coming to you.

So, I don't want to—I want to make sure that those two are married and that we understand by making systems smoother and user friendly, people-centered, you actually are improving the ability to see fraud. It's why Bank of America tells you they see something weird in your activity as a first step of security.

The second or the last point I want to make is I want to end with, again, where I began, with this case study of pandemic EBT. There were two things that were incredibly important in that moment. No. 1, everybody, states all across the country, were very clear on being kid-centered and really oriented that program around that. But the second piece that was really important in that moment is it was iterative.

So, as we were going through it in real-time for six months together, we were talking very closely with USDA. We were talking very closely with state leaders and saying what are the key barriers here and how can we at least temporarily move those so that

we can get to kids better, faster, and we can actually look at the data and see what's going on.

I want to not make sure that this committee, that as we talk about technology going forward, that we don't lose sight of what's been learned in a moment of crisis because I think there are some incredibly positive lessons to be learned where we can change our government to be people-centered, iterative, and the last thing I want to say is proactive.

What we saw in one of our states was that they learned that a government can be proactive, and they learned about notifications, and when the pandemic happened, they actually proactively sent out notifications to food stamp recipients, to food assistance recipients and said: If you are struggling, here is where you can go.

That's the kind of government I think we all want to see is when it shows up at your moment of crisis and says: We know who you are. Here is where we can help you. You've been in our system before.

That allows you to then own the relationship and make sure that not only is it user friendly, but you can see what's happening on the data and when there are problems as well with fraud.

Thank you very much.

Mr. CONNOLLY. Great points. Thank you so much.

And our final member questioning is Congresswoman Norton of the District of Columbia.

Ms. NORTON. I thank you very much, Mr. Chairman. I really thank you for this hearing.

I was out in the district and wanted to get back in time to ask a question because I have been struck by how the pandemic has led to the rise of digital government. I mean, we're using it right now. Before the pandemic, I would have been sitting right there in the hearing room, and here I am in my office, and I think most Members have been, and asking questions. So, the pandemic wasn't good for a great deal, but as with any crisis, it has moved us forward, at least in this way. It certainly led to digital innovations that have become popular because of the pandemic.

For example, many states moved simple interactions or transactions with departments like the Department of Motor Vehicles, like renewing drivers' licenses and vehicle registrations to online. Without the pandemic, I'm not sure we would have moved to that simple innovation. We had the technology right there, but we would never have used it.

Let me ask, Mr. Robinson, could you briefly describe other examples? I have given you the example of the Department of Motor Vehicles going online to renew licenses. Could you give perhaps other examples of states digitizing critical services during the pandemic?

Mr. ROBINSON. Yes, certainly, Congresswoman Norton.

There are a number of examples, and we were very proud of our states, you know, the transformation and the resiliency that they showed during the pandemic and many of them moving very quickly. So, a few quick examples. One was the adoption very quickly of virtual agents or chatbots on their websites. They knew that they could not handle the magnitude, the crush of citizens coming in, particularly in the unemployment space, and so they, within a matter of days, implemented chatbots or virtual agents to help an-

swer those questions; streamlined some of their services through robotic process automation, again, a component of artificial intelligence; deployed voice bots to be able to answer calls in their call centers because, again, they were overwhelmed, and so they were using technology. We saw many, I think after the magnitude of fraud was recognized, moved to automated fraud detection analytics, simply just not enough eyeballs within the state employee ranks to be able to monitor the fraud that was taking place, and they needed to automate that and, again, under an overwhelming demand that we saw.

And I think, finally, one area that has seen a strong level of adoption is low-code/no-code development, and I think that's going to be very, very promising. We see that, kind of an emerging technology that's going to be used across the states, and it provides the ability to be able to, in a Lego block type of fashion, build applications that can be deployed very quickly to serve citizens. So, we see that as another area.

But, again, I think these are all part of the transformation and innovation that we've seen and accelerated adoption. And since we were tracking those with our surveys, we had a baseline in 2019, particularly around things like virtual agents, and we could see the dramatic adoption move from less than a quarter of the states to over 80 percent move very quickly. So, we knew that innovation was taking place at the state government level.

Ms. NORTON. Thank you. Those are interesting examples.

Mr. Robinson mentioned websites. Ms. Renteria, during the pandemic, what have we learned about the importance of making government websites more accessible and user friendly?

Ms. RENTERIA. We learned—I would say we learned how they weren't user friendly and accessible. That was the really hard part throughout this pandemic is governments really had a chance to take a look at what was happening.

The other thing I just want to point this committee to is Code for America did a 50-state-wide study scorecard, if you will, about safety-net benefits, and through that you're able to see what was online, how easy to use is it, and that got a lot more pickup during the pandemic because people were trying to figure out where can I go, which states are working, which states aren't working.

But the other thing I want to also point out is we were part of Get Your Refund, a VITA or EITC, VITA sites, which are Volunteer Income Tax Assistance sites, all had to go from in-person to online, and they did. Many of them figured out that process. And when you think about accessibility to working families, to folks who are eligible for EITC or now the Child Tax Credit, it has been a huge step function for a lot of these volunteer assistance programs to really think of themselves as in-person and now online. And I hope that we take that with us as we go forward as well as a lesson that if you are in person, you can actually even access more people if you can figure out a way to reach them online. And we look forward to talking to this committee about how to continue to do that kind of work.

Ms. NORTON. Dr. Shark, what areas of state and local digital infrastructure are the most critical focus? How has the pandemic

highlighted needed improvements in these areas, state and local digital infrastructure?

Mr. SHARK. Thank you, Ms. Norton.

I would like to—my next book should be "You're on Mute: Lessons Learned from Local Government." I think all of us, all of the panelists here today really are in awe of all of our public managers that we work with every single day at local government.

Now, my focus is mostly local government, but I observe what's going on in the state as well, but they really pivoted and came up with some very inventive workarounds. Now, I don't want to leave here saying there's no work to be done, but I also want to leave here by saying we haven't done a fantastic job up to this point.

At the local level, we spend a lot of time collectively looking at solutions to enable citizens to be able to find places of testing and what are the requirements, and we too adopted chatbots and came up with all sorts of automated workarounds when you have these routine questions over and over again so we could field questions, and they were rated very highly.

And then we went the next step and found ways in which to help people map out and help them plot where they would go for a vaccination, even to the point where they had waiting lines and countdown timers to give people when is the best time to go if you didn't have an exact appointment.

So, between the pandemic, where we had to have the extraordinary allowances for these new kinds of services, we still had to keep business of government going, and we did that because, at the local level, we're doing marriage certificates, death certificates. We're doing birth certificates. We're doing all of these things that have to occur every single day. For construction, all the permitting, all the real estate transactions, it went on without a miss, and that is pretty amazing.

Now, did we take some hits on the cyber end? Yes, because as we moved 60 to 80 percent of our work force to a remote environment, we became even a more attractive target to those criminal elements. So, yes, there's a lot of good stuff happening, and I'm thanking that you're asking this at the close because there is some very, very positive and good news. And, yes, we want to learn from this. There are things that have been exposed that we want to address, but where there's political pressure, there is change. And so a lot of things that we're wrestling with we're seeing definitely a willingness to think differently, to operate differently and, hopefully, to spend differently.

Thank you.

Ms. NORTON. Thank you, Mr. Chairman. This is very enlightening.

Mr. CONNOLLY. Thank you so much, Ms. Norton.

And I will just say, Dr. Shark, in listening to you, I think it is important to note that between the CARES Act and the COVID Relief Bill we passed earlier this year, you're talking very substantial moneys floating to states and localities finally, and I supported it, and I come from local government too. But it would be great if states and localities used some of those resources to set aside for IT investment, which can clearly be justified given the litany you just went through. These are COVID-related activities that had to

be transferred to a technology platform that allowed us to do it remotely. And so it's a perfect time with resources to upgrade those systems and to protect them, and I hope states and localities will use the opportunities to do just that because that will have a long-term return on it. And it's—you know, it can be a one-time investment and not get baked into the baseline of their budgets.

I want to thank our panel for really a thoughtful discussion and wonderful testimony, and you have been great resources, and we're going to call on you for followup because you have provoked some really great thoughts today, and the subcommittee certainly wants to continue down this line in terms of lessons learned from the pandemic and how can we do better and what were best practices that emerged during this pandemic and what were lessons learned that maybe weren't so great so that we're not repeating the cycle.

Without objection, all members will have five legislative days within which to submit additional written questions for our witnesses through the chair, which will be forwarded to the witnesses for their responses, and we would just request that our witnesses do their best to respond as expeditiously as possible to any such questions.

With that, this hearing is adjourned.

[Whereupon, at 12:03 p.m., the subcommittee was adjourned.]

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