**Public Sector Future WWPS Podcast**

**Detail: Future of Infrastructure podcast**

**Episode: 10**

**Host: Jeremy Goldberg**

**Guest: Denice Ross (U.S. Chief Data Scientist in the White House Office of Science and Technology Policy)**

[Music.]

**JEREMY GOLDBERG:** Welcome to the future of infrastructure, a part of Microsoft’s Public Sector Future series.

I’m Jeremy Goldberg, worldwide director of critical infrastructure at Microsoft. And I’m on a journey to learn more about how infrastructure is being built around the world, by talking with public servants, philanthropist, artists and place-makers, who have spent their lives working in the public interest. This is a series to help us build things and plan for the future, while putting people first.

Today, I’m joined by Denice Ross, Chief Data Scientist of the United States, in the White House Office of Science and Technology Policy, to present a tech vision and talk about equity and data. For a discussion on the role of data and building the next generation of infrastructure.

Denice, welcome to the Future of Infrastructure.

**DENICE ROSS:** Thank you. It’s great to be here.

**JEREMY GOLDBERG:** So first off, please do briefly introduce yourself for our audience, which is a global audience, and if you could share why you got into public service, beyond the general desire to improve things and to help people.

**DENICE ROSS:** So I worked for nearly a decade at a local nonprofit data intermediary in New Orleans, I fell in love with the city and moved there to publish data organized into neighborhoods to democratize it. So instead of decisions being made about communities behind closed doors by people in power, make easy access to that information, so communities could chart their own destinies using data for advocacy.

But midway in my tenure there, the federal levee failure flooded 80% of the city during Katrina. And not only were all of the federal statistics that we used to rely on, they were rendered instantly historical, but we also found that we didn’t have enough data transparency from local government in order to be able to align public and private sector efforts and to chart a path toward an equitable recovery. So I became, out of necessity, what I’d now call an advocate for open government and open data.

And then a few years after Katrina, President Obama’s Open Government Directive came out and it was mind-blowing. We – we saw the transformation happening at the federal level, and we realized locally that we shouldn’t have to beg our own local government for data on things like building permits, or like playground contamination, or recovery investments, and that – and that publishing that data should just be a part of being a modern local government.

So we pitched then candidate for Mayor Mitch Landrieu on the idea of this new idea of open government, and, of course, within a year, I was in City Hall working in the basement to release data from the inside.

**JEREMY GOLDBERG:** And I’ve been in that city hall and in the basement as well. New Orleans is one of my favorite cities.

**DENICE ROSS:** Yeah. Yeah, it was – I don’t know why IT people always end up in the basement.

**JEREMY GOLDBERG:** I don’t know.

**DENICE ROSS:** But we do. (Laughter.)

**JEREMY GOLDBERG:** Great. So would you say, you know, I mean, you’ve highlighted Katrina, and when the levees broke, and this moment for you in the public service realm. Was that the kind of catapulting moment for you, or prior to that, was there a moment that motivated your choice, you know, in this direction?

**DENICE ROSS:** So there’s one specific moment that really stands out for me that sharpened my sense of professional purpose, and that was after I got into City Hall. When Mayor Landrieu took office in 2010, he had committed to reducing the number of blighted storm damaged properties by 10,000. And you can imagine data management was critical at every step of that process.

And code enforcement officers were collecting inspection findings on sites throughout the city, and they were doing so with yellow pads of paper, and like they each had a different process, and they’d take photos and then stuffed the photos into envelopes and put them with their yellow pads of paper.

And we had to turn that into a centralized electronic system, and then also had to integrate timely, geographically accurate data from demolition crews, and the courts, and the state recovery offices.

And there had to be easy ways for citizens to report on problem properties. And like, what was really important to them is to check on the status of the remediation because these properties were really getting in the way of neighborhood recovery at the block-by-block level.

**JEREMY GOLDBERG:** Incredible. And it’s no doubt, you know, clear with Mitch Landrieu’s, Mayor Landrieu’s leadership, and the work that you’ve done in New Orleans, that you’ve now taken, you know, your talents and your work to Washington again, and during – in the Biden administration, to think about this from a federal and nationwide effort as it relates to data and transparency and equity and all these rebuilding efforts.

So a lot of great things come out of New Orleans, of course, and so we’re happy that you’re already starting to share a bit of the insight from your Katrina in New Orleans experience.

**DENICE ROSS:** Yeah.

**JEREMY GOLDBERG:** So, you know, we do, we want to dive deeper into the topics of data and equity as it relates to IIJA. Now, not everyone listening to the podcast is as familiar with the IIJA as we are, but so please provide a short overview of what it is and then your work with the Bipartisan Infrastructure Law at the White House.

**DENICE ROSS:** Yeah, well, and you know what, I’d love to do so. And I keep going back to Katrina.

**JEREMY GOLDBERG:** Keep going back. Yeah, let’s keep going back.

**DENICE ROSS:** You know, there were so many lessons there that I use every day. And one of those huge successes we did have in New Orleans was figuring out how to use data to mobilize a whole of community approach to tackle these big challenges.

If you think about the infrastructure, the pandemic climate crises, all of these compounding challenges and opportunities that we have, all of these are bigger than government conflicts alone.

And so, one of my big learnings in New Orleans was how powerful a common base of shared information can be for aligning those efforts. I talked a little bit about, you know, what a – what a heap of data we had about the blight problem. And we did, we brought in Code for America. They helped us organize all those data on blighted properties into a single source of truth, where anybody could enter in a website, an address and see where it was in the process of being fixed.

And my real transformative moment was being in a public meeting after we released this tool. And City Council was holding a hearing on the blight problem, and it was standing room only.

And a woman walked up to the podium for her three minutes to speak. And she was like, “I’m, you know, I’m at 123 Main Street.” She talked about the house next door to her. It was threatening to literally fall over on her house. And there was vermin and criminal activity.

And then when she gave that address, she pulled out a piece of paper, and it was a printout from this new website. And then the city’s blight czar was over in the corner over here, and he’s looking up the address on his iPad. I could see the city council staffers behind the city council members pulling it up on their laptops. And for the first time since the storm, everyone had access to the same information at the same time. It was transformative.

**JEREMY GOLDBERG:** It is transformative, and it brings it to that – that human dimension, right, to the whole dimension of it all. And I think that’s where Mayor Landrieu would talk about, you know, linking and leveraging right, the asset.

**DENICE ROSS:** Yes.

**JEREMY GOLDBERG:** The resources of people. There’s a third L in there, I think, too. I can’t remember exactly what it’s about, how do you make all those connections, ultimately, that are the transformative experience to help improve someone’s quality of life, in the time most need? Right? And bringing in groups, like you mentioned, Code for America and Jen Pahlka, and others, and from a public interest perspective, I think, is, you know, really prolific.

**DENICE ROSS:** Yep. And what ended up happening is that, instead of arguing about what the facts were, the conversation shifted to what the solution should be, which is still a really hard conversation to happen, but it’s so much more productive when we’ve got common ground.

**JEREMY GOLDBERG:** So let’s dive into a bit of the work, the IIJA Bipartisan Infrastructure Law, what it is, and specifically like how data and your work and role is helping to advance equity in the implementation of the infrastructure law.

**DENICE ROSS:** Yeah. So shortly after I took this role as chief data scientist, the president signed the infrastructure bill into law and brought in my former boss, Mayor Mitch Landrieu, to serve as the White House coordinator.

It is worth noting, this Bipartisan Infrastructure Law is vast. It’s $550 billion in new funding over five years. There’s more than 375 distinct programs that range from high-speed internet to creating reliable public transit to replacing lead pipes.

And my team in particular is collaborating closely with the implementation of this law. And one simple thing that we do is every month, our team at the White House updates a spreadsheet that covers all of these programs for easy sorting, and that spreadsheet informs this handy document on open programs that you can apply for today, as well as a larger guidebook for communities. And this is all at the Build.gov website. That’s B-u-i-l-d.gov.

And one thing that we’re finding from a data perspective is just the lift when you’ve got this scale of 375 distinct programs. Like, that itself is a data challenge, wrangling all that into a format that’s easy, for especially jurisdictions that are lower capacity and might not have, you know, access to high-paid consultants to do their grant writing, make it really easy for them to access, access this information.

And what makes me really excited about this infrastructure law is not just how much money it is, or the drumbeat of all of these great funding opportunities coming online, but that these investments are being rolled out with equity as a top priority.

And that’s ensuring that underserved communities have fair access to these resources. And that’s been a theme throughout, you know, since day one in this administration. And so, my job is to figure out how to make that happen with data.

**JEREMY GOLDBERG:** So maybe this is a mundane question. However, the topic is so vast, right, and the size that we’re talking about of the infrastructure, law, 550 billion, hundreds of – hundreds of different projects. Let’s talk about that from a business intelligence standpoint, I guess. So let’s say that spreadsheet that you’re talking about, as you mentioned like yellow notepads, right, a moment ago in the New Orleans discussion.

This is essentially happening from the ground up, right? You’re building the capability and capacity within this office to be able to track, monitor and implement.

So maybe from a nuts-and-bolts perspective, like how do you in your role bring this together, right, and kind of a peek behind the curtain, if you will, how you actually do that. Because I think it’s a common problem and challenges, from across a lot of different government agencies and entities, is to coordinate on something like this, even if it is, quote, “only a spreadsheet,” right?

**DENICE ROSS:** Right. Absolutely. And one of the most important things is, you know, for maintaining high-quality data is to get it being used immediately, so that – that folks see the value in contributing to the data.

And so, there are a few concrete ways that we’re ensuring equitable distribution of these infrastructure dollars and using data to make that happen, and – and one is by using the – using data to make sure that we’re reaching the communities that need those investments the most.

For example, if it looks like a webinar series didn’t have much participation from persistent poverty counties in the south, we’ll double our efforts to reach those communities. Or we’re using evidence to inform the design of technical assistance programming.

I talked a little bit about the lower capacity jurisdictions, and you know, we want to reduce as many barriers as possible to them accessing this information. Sometimes that means giving them an extra hand. And so, we’ve identified over $700 million in dedicated support across more than 65 technical assistance programs and made that, you know, easy for folks to access on Build.gov.

And then one of my favorite ways that we operationalize this is to make sure that the equity considerations are part of the funding opportunity announcements for these programs.

So this is like super in-the-weeds government work, right, the notices of funding opportunities and what language gets put into those, that then cities are responding to when they apply for the funding. And that language often is inspiring local jurisdictions to conduct their own equity assessments as they pull together their applications. So we’re priming the pump so that when local jurisdictions are applying, they’re thinking about equity as well.

So one thing also that is worth noting with these infrastructure dollars, and in fact, any federal programming that comes down the pike, whether it’s American Rescue Plan dollars, or the new – the new Inflation Reduction Act money that’ll be hitting cities soon, and that is that programs often won’t specifically say that you can carve out some of the money to cover data capacity, whether that’s staffing and no technical infrastructure, so that you can deliver these resources more equitably, and make sure that you’re serving the communities that need them, need this funding the most.

So it’s not often explicitly mentioned in the funding opportunities, but if it’s not explicitly prohibited, then you should just like carve out, you know, half of a percent, so that you’ve got the data capacity to make sure that you’re able to make midcourse corrections as you’re rolling out your infrastructure projects to – so that you’re not leaving any important communities behind who really need this support.

**JEREMY GOLDBERG:** Do you see that same type of opportunity? Are you pursuing it in terms of data capacity with inside of the federal government, too, in terms of your colleagues and opportunity to enrich that?

**DENICE ROSS:** Yeah, I’m so glad you asked about that, because we are hiring lots of federal positions to make this infrastructure law work. And so, if you go to **USAjobs.gov**, you’ll see a whole bunch of roles, including many that are data focused, that are helping agencies implement these programs in a way that’s really equitable, and making, you know, the best use of taxpayer dollars.

**JEREMY GOLDBERG:** So in these efforts, you know, we’ve talked about equity, we talked about, like, looking at the data to inform the way that you approach a program, an effort and initiative, in terms of evaluation of success. And this is something our audience cares a lot about is looking at measures and perhaps an example of an existing project in terms of measurement. How are you and the team looking to that? If there’s a particular project right now that you could reference, that would even be better.

**DENICE ROSS:** This time around, one thing that’s different about the way that this law is being implemented is that, where feasible, according to a management memo that came out of OMB a few months ago, we are also collecting data on projects after the – the funding is awarded on the location of the project and its status, so that we have better visibility on what communities are benefiting.

So once you have location level data of where the shovels are in the ground, or what communities are benefiting, then you can link that up with census data, for example, and do an equity assessment to see like, okay, well, here’s where the infrastructure – structure projects are, but over here is the community that needed that investment the most. So let’s steer this work more toward where it’s going to be most needed.

So that’s sort of the general premise of this work is having data early and often to inform continued – you know, a continued iteration moving toward more equitable investments.

And the most important thing about this – this approach is that we collect the data in such a way that we can slice and dice it by different characteristics. So certainly location is important to that, but also being able to bump that up against demographics, so we know the race and ethnicity of the neighborhoods and the income levels and disability statuses and whatnot. And then ideally, right, using those equity assessments to drive changes in policies or programs. And then ultimately, we want more equitable outcomes to come out of it.

**JEREMY GOLDBERG:** One of the areas that we talk about it, we talk about demographics and ethnicity and socioeconomic status. One of the other areas that we’re talking a lot about, I’ve been discussing with colleagues is around people living with disabilities, whether they’re visible or nonvisible.

And I’m wondering like, as you look at this work, and as we think about planning for like the city, like the cities of our future, the accessibility components to all this, and insights that you have, that you’re gleaning right now as it relates to that from a policy perspective, or a planning perspective. Anything to share in that area.

**DENICE ROSS:** I’m so glad you asked about that because disability is one of the more complicated categories because there’s so many different types of disabilities, and how they manifest and how people get around or use the infrastructure that we’re putting into place.

And that’s something so similar to how inspirational the Open Government movement was, you know, over a decade ago, we are doing similar work now at the federal level on equitable data, and wrestling with these big challenges of, you know, how do we responsibly add more categories, for example, on race and ethnicity.

And so, the OMB currently has public engagement about modernizing the race and ethnicity categories. We have a Request For Information out right now on sexual orientation and gender identity data, and how we responsibly collect that data on forms or surveys in a way that’s going to be actionable and useful for informing federal policies and programs and also protect the communities that we’re measuring.

And disability status is another one of those challenging areas that we’ll be working on at the federal level, and we’ll be seeking input from experts in the public arena, so that we can figure this out.

We don’t have that solved yet, but cities are the laboratory often for this type of work. And so, we know that many cities are far ahead of the federal government in terms of disaggregating data into meaningful categories, because you’re just so much closer to the people. And so, that’s why it’s so important for us in this equitable data work at the federal level to keep the flow of information going both ways.

**JEREMY GOLDBERG:** Well, I know, Denice, we’ll have a data catalog of our own to share with our audience after this in terms of links and resources and things to go to in reference. You’ve already provided a set of those.

I think the one area where maybe there isn’t necessarily a blueprint on it, but it’s really informative and helpful as a former government person myself, it’s there are many operational challenges to implementation of any project, but especially one that crosses jurisdictions, crosses multiple agencies. Let’s talk a bit about some of the operational challenges to the work that you’re doing, if you could, and how you face those, and – and how you overcome them.

**DENICE ROSS:** So many operational challenges.

**JEREMY GOLDBERG:** Let’s just pick one.

**DENICE ROSS:** You know, one constant tension that we have is just in what does equitable investment mean, and then what’s the right framework for doing that work, and what’s the difference between equal and equitable?

**JEREMY GOLDBERG:** You have the policy wonks’ ears perking up right now.

**DENICE ROSS:** I know, but I’ll give you –

**JEREMY GOLDBERG:** It’s very important. Very important.

**DENICE ROSS:** I’ll give you an example – I’ll give you an example of how this manifests, and I think it’s manifesting across all of the programs in different ways at both at the federal, state, and at the local level.

So let’s say you’ve got funding to replace the lead pipes in your city, so that everyone has clean drinking water, but lead pipes have been in the ground a long time, before we kept digital records. And so, how do you know, as the mayor, with any confidence on which streets to dig up, or the state as you’re trying to prioritize, like which communities should get the state revolving funds to do the lead pipe replacement?

So one way to do this equally, right, is to just divide it up, like you might with your kids, like everybody gets a lollipop, right? So the city council might suggest that digs for lead pipes be equally distributed across council districts. And that might give you a hit rate of 15%, meaning that 15% of the time that you dig into the street, you find a lead pipe and replace it.

Or you could use data science to predict where the lead pipes are. Your models would include small, disaggregated data on things like housing age, or income levels and other factors. And using that approach, you might increase your hit rate to closer to 70%.

And this data on hit rates for different methods can allow you to tune your lead pipe program, so that it focuses on where residents are currently being poisoned, and you have more rapid and equitable outcomes.

And so, by doing this, this type of equity analysis early and often, you end up with much better outcomes. You end up with healthier children, fewer torn up streets, and a more efficient use of tax dollars. But it’s not necessarily equal; it’s equitable.

**JEREMY GOLDBERG:** One final question before we close up is, if you knew then what you know now related to this work here at the federal level, because lots of governments and cities across the globe are looking to implement or are at the starting point of implementing infrastructure projects, what’s something that you’d share as they begin on this journey for those other governments and cities across the globe, knowing everyone’s different? No, they’re not one size fits all, no doubt.

**DENICE ROSS:** I’d say this is a lot of money coming in, and whenever that happens in the community, people are going to wonder, well, where did it go and who did it benefit? And all this money came in, and my life isn’t any different. And so, transparency and accountability and engagement from the very beginning are so critical to making this work.

This infrastructure is just so close to people’s lives and their everyday experience in the community, that you have to engage them early on how to prioritize these resources, not just where should the work go in, but how should it be implemented? How do we blend and braid these programs so that we’re creating a complete solution, rather than some physical manifestation of the government funding silos, right?

**JEREMY GOLDBERG:** That’s right.

**DENICE ROSS:** So yeah, so I would say, you know, really lean into that transparency. The money flowing down is it shouldn’t be a secret; it should be something that we like, celebrate and talk about and as a community figure out where and how the money should be spent to deliver the outcomes that a community needs.

**JEREMY GOLDBERG:** That’s right. So one final question. What is one thing you’ve read, watched, or listened to lately that had an impact on how you’re thinking about this moment in infrastructure, and technology and recovery?

**DENICE ROSS:** So that’s an easy one because earlier this year, a series of articles came out in *Grist*, which is a nonprofit independent news outlet. They focus on climate justice. And I always love how they weave data into their stories. So I follow their articles closely.

And this one was about how the number of abandoned oil and gas wells started rising, as soon as the infrastructure law was announced. For example, in Oklahoma, the number of abandoned wells jumped from like 2,800 to nearly 18,000 abandoned wells in in the state of Oklahoma. But it’s obviously not that these abandoned wells suddenly came into being. It’s just that it was finally worth the effort to have an accurate tally, now that there were a federal funds available to plug them.

So two things about this series caught my attention. And one is, it was just so humbling to think about how many other infrastructure needs are totally under counted and underrepresented, and how much effort might it take for jurisdictions to do that counting.

Identifying where cities’ lead pipes are, you know, of course, is another example where it’s really hard to do that count, or stormwater management systems, you know, which systems are ill prepared for future levels of rainfall? How do states and cities figure that out? So, you know, just what’s the scope of where the investments need to go? That’s not necessarily information that we have in America at the local level.

And the second thing that I loved about this series is that it had a particularly savvy perspective on infrastructure through the lens of data. And when you look at the bylines, or like, you know, I always like to look at the names under the data graphics, and it’s no surprise that these articles are a collaboration between a staff writer, who has the subject matter expertise, and a data reporter. And time and time again, when we’re talking about infrastructure, having a data person at the table gives you a more complete perspective.

And so I wanted to close with my advice for state and local leaders, and that is to make sure you’ve got a data practitioner. Your GIS lead, the person who makes sure maps, is often a great pick for this. Make sure they’re at the table for your infrastructure coordination. It will help you design more equitable projects and identify which community stakeholders you need to be engaging with.

**JEREMY GOLDBERG:** And with that, Denice, thank you so much, Denice Ross, chief data scientist of the United States in the White House Office of Science and Technology. Thank you for taking some time out of your busy schedule to share a lot about, you know, your work today and the work that you’ve done previously, and a bit about New Orleans.

Thank you again, and we look forward to following up with you and continuing to see all the impacts that you and the federal government and leadership are making through the infrastructure bill.

**DENICE ROSS:** Thank you. Yeah, and thanks for keeping this conversation going. We’re all figuring it out.

**JEREMY GOLDBERG:** Thanks for listening to this episode, and being a part of the Future of Infrastructure, and for joining me on this journey to meet and learn from the people improving life in their communities.

If you liked today’s episode and want to help other people find it, please take a moment to share, rate, and review the show.

To learn more, visit us at wwwps.microsoft.com, or find me on LinkedIn and Twitter @JeremyMGoldberg.

[Music.]

END

TRT: 26:55