Transcript

Audio file: SEED2Cut3.mp3

00:00:00

(Intro music plays)

00:00:10 – Jim Ogsbury

(Intro music plays in background)

Hello! And welcome to *Out West*, the official podcast of the Western Governors' Association, a bipartisan organization representing the governors of the 22 westernmost states and territories. I'm Jim Ogsbury, Executive Director of WGA.

The use of technology has become increasingly integral to today's jobs, from online applications to everyday workplace functions. To ensure that workers and communities aren't left behind, Western Governors have been committed to closing the digital divide, particularly by expanding broadband to rural and underserved communities.

But the digital divide does not end with an internet connection. If technologies are not created with every worker in mind, the disabled community faces even greater barriers to employment, further widening the employment divide. This episode of *Out West* highlights technological advancements and universal design principles that will help us build fully accessible and inclusive workplaces for workers of all abilities and explores the ways in which states can leverage policy to accelerate the adoption of accessible technology.

Today, WGA Policy Associate Lauren Cloward will dive into these issues with Dr. Aaron Bangor, Director of Compliance at AT&T and Chair of the Texas Governor's Committee on People with Disabilities.

00:01:40 – Lauren Cloward

(Intro music ends)

Thanks for joining us today, Aaron. Let's start off with your professional experience. You co-founded AT&T's Corporate Accessibility Technology Office – tell me how that's helped AT&T design and build technology that's accessible for people with disabilities.

00:01:58 – Aaron Bangor

Sure, and thanks, Lauren, for having me today. You know, AT&T has a long history of creating assistive technologies, really, almost going back to its founding the telephone. It was an offshoot of research Alexander Graham Bell was doing related to how to visualize speech

communications, and AT&T and its, you know, various companies helped develop early hearing aids and tactile switchboards, so that people who are blind could be operators. One of the original video phones that they demonstrated at the, I think it was at the 1964 World Fair.

But you know, it's one thing to come up with a specific solution for the needs of people with disabilities, so that's what I'll generally call assistive technology – technology that's meant to address those needs, but yeah, accessible technology is also important. How do we make sure that general product and service offerings are usable by people with disabilities? And that's what I'll call accessible technology. And one of the things that we were looking to do with creating the Corporate Accessibility Technology Office is how do we systematically, throughout a company of over 200,000 employees that had lines of business in not only traditional wired telephone service but wireless services, TV services, entertainment services, business services, quite a wide variety of things – how do you make all those offerings accessible?

So, we really started with the philosophy of universal design, which wasn't new. We publicly adopted our universal design promise back in 1998. And here, you know, universal design specifically is not a single thing. It's not, there isn't a product that is universal design or not. Universe design is really a philosophy. It's a process of when you're thinking about building technology, are you thinking of the widest number of users possible, in terms of who will use it, where they'll use it, how they'll use it?

And we build on that. And so, once we got the philosophy right, the governance process right across the company in the various business units and got their buy in, then we needed to work on the capability. It's one thing to say we want to do the right thing; we want to make our products as widely available as possible. There's obviously profit motive there too, but you have the capabilities in your organization to do it, and so we spent a long time – years – moving from a hey, there's a handful of people that are accessibility engineers and know how to create products and services and websites and mobile apps and things like that that are accessible, to making sure that that 200,000+ people in the company, who are never going to be accessibility experts, but do they have the right resources? Do they have the proper training, the right standards, the right tools to really empower them to know what their role is in building accessible technology and then the ability to actually execute on it?

So, you know, really, that that's what the Accessible Technology Office was about: transforming across the company – not only having the right focus on it, but then the ability to follow through on that and produce results.

00:05:51 – Lauren Cloward

Thanks, Aaron. And I'm sure that there are any number of career paths that you could have pursued when you were younger, but what led you to specifically choose a career that helps people with disabilities through technology?

00:06:03 – Aaron Bangor

Well, I don't know that it was sort of planned this way, but I think I just started out with it for selfish reasons. I grew up from an early age having multiple disabilities myself. I think my story in some ways is a lot like a lot of people that aspire to be an engineer. We're interested in how things work, the little gadgets and things around us, but I wasn't really one that would classically take apart things and see how they work. I was really interested in *why* things were designed the way they were, and in particular why they weren't designed for people like me.

And so, I wanted to pick apart more, you might say, the psychology of the design. What went into it, why certain choices were made, and that attracted me to a field called human factors engineering, which is the study of how people interact with technology and human made systems and environments.

And my first job at AT&T was in AT&T Labs, in our Human Factors Engineering Research Group, and I literally tested thousands of people in our lab about various products and services and things that we're offering to better understand, how does it work? Is it user friendly? If it's not user friendly, why is that so we can make it better? And it so happens at the same time, that when you're testing with people, people with disabilities are people too. In fact, you know, depending on which statistic you want to use, somewhere between one-eighth and one-quarter of our population. So good design is not just for people without disabilities.

00:07:55 – Lauren Cloward

You talked about having some disabilities yourself. What have you noticed are kind of the three most common accessibility challenges, both for you and then other people with disabilities that you've come across in your work?

00:08:09 – Aaron Bangor

Well, challenges or barriers are going to vary quite widely. Disability is a very broad spectrum. You add in not only the nature of disability being very broad from a human standpoint and all those systems you're interacting with, whether it's your cell phone, or a website, or a nuclear power plant maybe, or the cockpit of a 787.

It can be very complex, and so, the way I'd actually choose to answer that is the three main challenges people with disabilities have are physical barriers, digital barriers, and attitudinal barriers to what's been built and what they have to interact with. We're still, I think, struggling with the digital barriers. And, you know, we're going through kind of a learning curve as a society on how we're going to treat that. And a lot of people with disabilities are asserting their rights, whether it's websites or mobile apps or TV shows to make sure that the digital realm, the online realm, is as accessible as we expect the physical environment.

And then the attitudinal barrier. So even if we can make the physical environment around us accessible, even if we could wave a wand and make the online world accessible, there still are attitudinal barriers. There's conscious and unconscious bias around disability.

I'll give you a couple of examples of where we struggle with this. In our work last year, I was Chair of the Automation Technology Subcommittee of a national task force on the future of workforce, which is convened by the Council of State Governments.

And one of the things we talked about early on, which is just the word disability in the context of work and employment. Disability still strongly means literally you can't work. You go on disability when you can't work.

Well, we want to talk about people with disabilities getting hired. We want to improve the less than 20% employment rate for people with disabilities because it's less than one-third of that of people without disabilities, right? How do we do that when there's this mental block that's immediately when people hear "disability"? Did they think, well, isn't it kind of an oxymoron to say, employment of people with disabilities on disability because it's something that means you can't work?

And then another example from my AT&T realm is to talk about the nature of disability. You know, I talked about some definitions earlier about universal design and assistive and accessible technology. I first tried this with an audience, and I thought they were gonna kind of tune me out 'cause I was talking about definitions of words and I thought, oh my God, they're going to sort of say, oh, I didn't come to read the dictionary. It turned out to be the only thing most of the audience remembered about this talk, and I was talking to them about the notion of disability.

And that the classic definition, the one you'll find generally in, like, the ADA and in the law, is about having an impairment, that physical or mental impairment that substantially limits one or more daily activities. So, you've got in there impairment and limitation, and when you listen to that definition, you can't help but think that the person with a disability is less than somehow. That they have not been fixed yet in some way or that medicine or therapists or whatnot have not made them whole.

And so, when you go into it as a designer with that mindset, you think, oh my job as a designer – of, let's say accessible technology or even assistive technology – my job is to use technology to make the person whole in some way. It is your gift to that person, to say, I'm gonna make you more than you are.

And that really sets a model or a dynamic in that interaction, in most cases very subconsciously, of what that designer's job is and what they're thinking about and how they're thinking about the people they are designing for. And that's fundamentally different than how they might think about designing for most anybody else.

And so, I introduced a different definition of disability, one that comes from what's called the social model of disability, that says that disability is a mismatch between the person and their environment. And really what that does is transform that relationship between designer and user to one of, as a designer, if I failed to do my job, I've created a barrier; if I do my job well,

I've not created a barrier. Therefore, disability is really in my hands to either create or not create in the interaction that I'm designing.

And so, rather than in the medical model – that first legal kind of definition of disability – that's about, well, anything I give you is a bonus, and so no matter how little I do, here's my gift to you, the social model is the idea that there's a mismatch; it is within your control and the worse job I do, the greater the barrier I've created, and that's on me. And so, what we've talked about with designers at AT&T is it's your responsibility not to create the barriers in the first place.

00:14:13 – Lauren Cloward

That's a really great point and I really like that idea of the social definition and it being a mismatch between your environments and the fact that, you know, accessible technology is a way to integrate more people with disabilities into the workforce who are a large source and pool of talent.

But I do know that accessible technology, beyond being useful for people with disabilities, can be helpful regardless of ability. So how have you seen some of those design principles of universal and accessible design benefit all workers?

00:14:54 – Aaron Bangor

Yeah, I think the most obvious example and one we've championed at AT&T is really around captioning videos, and that's pretty straightforward, but it's very powerful in this day and age, because so much of what we do is video based. Let's just take training for instance; or, now that we are remote in a lot of cases, our interactions with our colleagues, with our leadership in an organization is going to be through video. And captions are very powerful. Obviously, they benefit people with hearing loss, but research has shown that it helps improve information retention.

00:15:36 – Lauren Cloward

I have to say, at least for your point with captions, I'm definitely a visual learner, so whenever there's captions on a video, it definitely helps me retain information. Kind of like what you were saying.

Looking at employment specifically and disability employment, what are, you know, one or two examples of some innovative, maybe more recent technologies that have really helped either you or other people that you've seen with disabilities overcome some of those really high barriers to employment?

00:16:08 – Aaron Bangor

PEAT, the Partnership on Employment and Accessible Technology, did some research a few years ago and found that 46% of job applicants found that job application websites are difficult or impossible to use. If almost half of people with disabilities aren't going to be able to get

through that first door, then is it any wonder that we see less than 20% employment rates of people with disabilities?

So, we've, you know, really talked about this in a state level and policymaking perspective. We've certainly talked about it at AT&T. If we can't make the welcome mat welcoming 'cause it's not accessible, I mean, that tells people with disabilities right off the bat, oh, they're not serious about it. So, making the site accessible and certainly having content on there that has some representation of and shows a commitment to people with disabilities, and to mention the job accommodation process and that ability and availability there is important. So, just from a size and impact scale, that's kind of one I would say is very important.

00:17:24 – Lauren Cloward

Clearly there's some great design being done in this space. Turning to your work with Texas and with policy, what has the state done to encourage universal design and the adoption of some of these really great assistive technologies?

00:17:41 – Aaron Bangor

I'll talk about two. I mean, there's lots that we could go into, but two that I think I'm particularly proud of, and have a direct relationship to employment.

One is that with the support of the Texas Education Agency's Commissioner last year, the Governor's Committee helped them form a Digital Curriculum Accessibility Advisory Committee. And this was really in response to not only testimony that we received from the public with our committee, but through a lot of relationships we've built across the state, which is as more and more of the classroom becomes digital (and certainly in this last six months that ramped up to eleven, but even last year this was strongly the trend), showing videos in the classroom and using digital textbooks or websites or PDF files as worksheets, people with disabilities were being left behind because a lot of the teachers were not aware of what makes technology accessible. What should they be looking for? Even if they knew they had a student with a disability, they were not always able to deliver something that would work for them.

So, the goal of this advisory committee is to help set standards across the state and provide the resources that curriculum specialists and classroom teachers and teachers' aides and everybody involved in and supporting student learning from K-12 can use to make sure that digital resources are accessible. And that's extremely important because without an accessible education, there is a fundamental and systemic barrier for people with disabilities to attain their future independence, and society loses out on their talents because they're not going to be able to join the workforce or be as productive in the workforce without that quality education.

You know, I mentioned I have a PhD in engineering and that was because I had accessible and assistive technology resources to be able to get that level of education. Without it, I wouldn't be in a STEM field and I wouldn't be able to bring the perspective of a person with a disability to

the work being done in STEM. If there are systematic barriers, particularly for math and sciences and engineering and so forth, then people with disabilities aren't going to go in their fields and then technology development in the future is going to lack that perspective, and it's going to be worse off because of that lack of perspective in its development.

The second dimension is really around accessible transportation. There's a lot of technology that goes into this that we're seeing more and more, but something I come back to is some research we did on the Governor's Committee a few years ago looking at how transportation affects people with and without disabilities. We found that in general, transportation was about 50% more often a barrier for people to do things like go to the grocery store, or go to a doctor's visit, or just go out and socialize with people, and in particular to get to work reliably. Because if you can't get to work at the same time every day, good chance you may not stay employed in that job.

So, accessible transportation is huge. And we've been looking at how do we make sure that as autonomous vehicles are being built, not just the physical vehicle to get in and out, let's say, as a person that uses a fixed frame wheelchair, but the technology that's going to be packed inside of it, as well as the technology you're going to use to call the vehicle – through an app, let's say – needs to be accessible. We're on the cusp of that tool in the future, but the here and now is the transportation network companies, services like Uber and Lyft and so forth. Same thing – are their services accessible and making sure that the experience that people with disabilities have today with cab companies (there's some regulations usually around these regulated cab companies about what percent of the fleet has to be able to pick up and drop off people in fixed frame wheelchairs), is that carrying over to the TNCs?

00:22:38 – Lauren Cloward

Those are really important examples in our digital age, and with the pandemic, everything going on, and something that other states and local governments can look to is some of the work that you guys are doing there in Texas.

How have you utilized some of the State Exchange on Employment and Disability's resources that they have for that?

00:23:02 – Aaron Bangor

Yeah, well, I think the definitive work there that SEED has done recently is the 2016 "Work Matters" report. I was fortunate enough to be involved in creating that and definitely brought things we're doing in Texas to that, but then when we were done with that, brought it back to Texas. And as importantly, if not more importantly than that, were the resources in there of what different states were doing and learning from each other. Ron Lucey, who's our Executive Director of the Governor's Committee, likes to say, "taxpayers should only have to pay for a good idea once." And so, we need to be thinking about how are we taking good ideas from other states and figuring out how they will work best in our state? In my case, Texas.

00:24:04 – Lauren Cloward

Thanks, Aaron. And then briefly before we wrap up, based on your experience and your many years in the field, how do you envision the future of disability employment and what role will technology really play?

00:24:18 – Aaron Bangor

Yeah, I think technology is key. Whether you call it digitalization or virtualization, the trend toward technology mediating more and more of the work that's done within the workforce.

To give you an example, think of plain text, ASCII text. It's really boring. It's kind of there, whether you're doing a PowerPoint or captions or whatever. But text can be made any font size, it can be changed to color, any color you want, whatever works best for you. Text can be turned into speech, like a screen reader does, or speech can be turned into text like dictation. You can copy and paste it. You can search it. You can do all these things with text that are almost impossible to do if you have a printed page, right? So as technology and data begin to mediate more and more of the work that gets done, even if it's with a physical environment, there will be a digital twin; a model of that physical environment or that physical system may be done digitally so that it can be more easily monitored and so forth.

This is ripe for making it accessible because there's nothing inherently inaccessible about the zeros and ones that digital technology is made on. It's really our choice as designers to make that accessible 'cause we're not necessarily dealing with the laws of physics like we are in the physical environment.

And so, as more jobs are mediated by technology and the software that manages that data and those systems, it's really key to make sure that accessibility is built in upfront – that we're baking it in and we're not bolting it on after the fact. That just doesn't work that way any more than it does trying to retrofit a building that was made inaccessible at first and then you have to jackhammer stairs and things like that.

I'm really excited about technologies that help virtualize or transform into software 'cause it will allow more people with disabilities to do work, even if maybe in the past the physical nature of it may have presented barriers. And frankly, at the same time, the virtual nature of it will lend itself to telework, or at least remote work or mobile office work, which will benefit everybody but provides a lot of flexibility on how and when and where we work, and that flexibility is just inherent in the nature of accessibility.

The technologies that are rolling out now around Internet of Things and smart manufacturing and cloud computing and artificial intelligence and machine learning – all these things that people hear about – are all converging on a software driven workplace that if we make the right choices, we have the right philosophy around universal design, and we think inclusively about who will be in the workforce, there will be people with disabilities that we train through the

education system to be eligible for these fields. Then the sky's the limit for employment of people with disabilities.

00:27:50 – Lauren Cloward

Well Aaron, thanks so much for joining us today and I'm really looking forward to seeing some of these advancements in the coming years and what that can do to the disability employment space. Really appreciate the work that you do and thanks so much for being on this afternoon.

00:28:08 – Aaron Bangor

(Outro music plays in background)

Lauren, thank you very much for having me.

00:28:14 – Jim Ogsbury

(Outro music plays in background)

Thanks for listening to this episode of *Out West*, presented in partnership with the State Exchange on Employment and Disability.

To learn more about SEED's ongoing work on disability employment, please visit SEED's webpage at dol.gov, and be sure to join us next time as we continue to discuss emerging issues facing the western United States.

Finally, WGA would like to thank Aaron Banger for sharing his expertise on accessible technology and disability employment.

Happy trails, everyone.