**Future of Infrastructure podcast**

**Detail: Episode 07**

**Jeremy Goldberg [host]**

**Alice Charles, World Economic Forum [guest]**

**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, philanthropists, 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, my guest is Alice Charles, former Lead for Cities, Infrastructure and Urban Services at the World Economic Forum. Welcome to the Future of Infrastructure, Alice.

**ALICE CHARLES:** Thank you very much, Jeremy. It’s a pleasure to be here.

**JEREMY GOLDBERG:** Great. And, you know, it was – feels like just yesterday in some ways that we were on a panel together at the Smart Cities Expo in Barcelona in November. So it is great to reconnect with you, and I’m really excited today to explore a topic that I know is, like, near and dear to your heart around buildings and construction and infrastructure.

But before we get there, please briefly introduce yourself, a bit of your background. And for those that are not entirely familiar with the World Economic Forum, tell us a bit about the WEF.

**ALICE CHARLES:** Hi, everyone. And so, I’m Alice Charles, and by background, I’m an urban planner. And I guess what got me into that is actually I have a sibling who has cerebral palsy, and I really noticed all the difficulties he has navigating the built environment, and that encouraged me to study architecture, civil engineering, specializing in urban planning. And yeah, I’ve worked in business for cities, consulting with cities, in government, and I’m now in the World Economic Forum.

So in the World Economic Forum, I look after city-related activities, but also work on real estate, infrastructure-related projects, et cetera, even sustainable mass timber related work.

And I guess the World Economic Forum is an international organization for public-private collaboration. So what that means is we bring together leaders from business, from civil society, from academia, from government to focus on tackling some of the greatest challenges that are facing the globe.

And in our context, because we’re focused on cities, that means working with city leaders, senior city officials, and indeed relevant government officials at the national or federal level, who are responsible for cities and infrastructure and – and real estate. So, yeah, it’s an interesting role and a really interesting organization.

**JEREMY GOLDBERG:** Thank you. If you don’t mind sharing a bit more in terms of what were some of the insights that brought you into this field. What were some of the lessons learned around accessibility? Maybe map that through your journey, the time before you arrived to WEF.

**ALICE CHARLES:** One of the things that I remember, even from a small child, was the great difficulties in my brother navigating the built environment, and in reality, what did that mean? That meant, trying to get a wheelchair into a building. It meant, also he had some limited mobility. It meant him trying to walk on pavements that may be slippery and that weren’t made for people with limited mobility.

But I distinctly remember also community services, you know, going to the library, that the library wasn’t accessible for somebody like him. And kids love going to libraries, right, to have story time and read books. So he couldn’t access the same facilities as me. You know, play facilities and playgrounds were difficult for him.

And but what I also remember very well was his activism, from he was a very small child, he was an activist that would, you know, go in front of politicians and demand change. And he’s still doing that to this day.

So I guess, I sort of ignited the activist in me, and which brought me into the built environment profession. But certainly when I became an urban planner and I started practicing, and particularly when I started my career in London and went on to, you know, work for larger corporates, we did a lot of consulting on developing master plans and strategies for the redevelopment of areas of cities, in some cases entire cities.

And I would always think about, who are the most vulnerable groups in our city. Of course, I would naturally think of disabled, but I would also think of young children who are often not listened to, the elderly. I would think of migrants, I would think of women. You know, so I would think about those that are very busy people and just haven’t got time to engage in, you know, a city, a consultation exercise about the future of their city. So I would always think about, how do I reach those people, how do I get their views?

But also with colleagues from a design perspective, I would always say to them, imagine you are in a wheelchair. Imagine you are blind and you’re trying to navigate this space. Imagine you’re a new resident to the city and you don’t speak the language. So to try and imagine that you are a different, a different profile of a person.

But I think it’s also critically important in terms of the built environment professions that we professionals, I should say, that we bring together, that we do have diversity within those groups of professionals so that we think about wider groups, and we’re making sure that we’re designing for inclusion from the very beginning, because, you know, particularly the built environment profession is very male dominated and it’s very white male dominated.

So in that sense, you know, we’re not really getting that diversity into the design process at the very beginning. And I hope that, you know, with changes that are happening now, we’re starting to see more diversity in the built environment profession. Particularly we’re also seeing change in the university level. I hope over time that there will be much greater inclusion in the built environment.

**JEREMY GOLDBERG:** But when you’re not in the room, Alice, right, how do we ensure that those conversations are happening? What needs to happen when a voice like yours isn’t able to be at the table? What do we do in that case?

[06:26]

**ALICE CHARLES:** Well, I think the critical thing is to make sure that voices of all groups that live in our built environment are represented, and so that we have civil society organizations that can represent those groups, that the citizens themselves can’t come forward. I think it’s critically important that we bring in academia that has done research into how we can better accommodate different groups within society. But I think the very first thing a city needs to do is take stock and say, who lives in our city, and look at that wide range of citizens that live in our city.

And, we often rely now, for example, on gathering data through IoT technology. And the first question you need to ask yourself there is, who is unlikely to interact with that technology, and how do I get their input, so that you’re not making a data-driven decision based on biased data, that you’re actually making a data-driven decision based on inclusive data? So I think we need to go above and beyond in ensuring we have the relevant people in the room, and the way we gather data is a very inclusive way.

**JEREMY GOLDBERG:** Great points. So I want to shift into a little bit about where we are in this moment and these major sets of investments that are being made in the EU and the United States, in the Middle East and Australia, globally, right, around infrastructure. And we talked a bit about this on the panel in Barcelona last year and this moment that we have that we’re in to do it differently, to do it better.

So when we think about it, when you think about going forward, a big chunk of these investments are going to facilities and improvements. So you’ve started talking about this already, but what is the best way to use those funds?

[08:26]

**ALICE CHARLES:** So first of all, I think, you know, it’s very historic that we have a bipartisan bill in the United States, and we have an even bigger commitment, for example, in India than in the United States. So it’s great that we’re seeing, you know, these infrastructure bills coming forward, both in the Global North and the Global South, because we need infrastructure to be provided in tandem with development. So I think first of all, that is absolutely fantastic.

However, not to be overly negative, we also have to recognize that we have an enormous infrastructure gap. And if we are to transition our infrastructure to withstand the worst effects of climate change, then we need to invest very significantly in our infrastructure. And the global infrastructure hub, say that we have around a $15 trillion deficit in infrastructure, likely to have, sorry, by 2040. So that is a very significant bridge.

What we need more than ever, given the energy crisis that we’re having, the energy security crisis that we’re having is in the Global North it’s focusing on retrofitting homes as soon as possible, you know, really ramping up renewable sources of energy.

It’s also, you know, encouraging people to walk and cycle, avail of public transport as much as possible, incentivize the use of public transport as much as possible, and, you know, focusing on decarbonizing our great infrastructure.

So that’s what we need to focus on, and we need good urban planning to prevent sprawl, because we can’t have a compact city or a net zero carbon city unless we contain urban sprawl. So that’s what we need to be focusing on.

But returning to the Global South, what we need is investment in infrastructure, in tandem with development. That has not been happening. There’s an opportunity for new builds to be done in a much better way, not to make the mistakes that we made in the Global South. But that requires concerted effort, both from multilateral development, banks, governments in the Global North to also contribute, and from investors and financing institutions to invest in the delivery of that critical infrastructure in Africa.

We recognize there’s risks in investing in Africa or India or Latin America, but we do need that investment to come forward to ensure that we’re providing the infrastructure that’s required in tandem with development.

**JEREMY GOLDBERG:** I did follow some of the conversation coming out of Davos, and two of the points that you raised, one around supply chain and the other around sustainability and climate, they’re interrelated, of course, but these are really serving as a guidepost, you know, from the agenda out of the World Economic Forum.

And it is true, right, as you point out, it will be great to see sort of how identifying these items, putting them on the agenda, how they translate into change today, but also for the longer term.

And so, when we think about the sorts of measures that need to be in place that are important for measuring success, choose which one you want to take, supply chain or housing, perhaps. How are we going to measure success around these projects, particularly in the public sector?

[11:55]

**ALICE CHARLES:** So I think first of all, in relation to housing, you need to take a step back and understand what are the challenges that give rise to the affordable housing crisis that we’re experiencing in cities around the world. And, it’s not necessarily going to be the same challenges in every city, but broadly, they relate to issues in relation to acquisition and titling, and they relate to issues around supply and availability of land. They relate to issues around the cost of construction, and they relate to issues around financing and the lack of availability of financing. So they’re all sort of supply side challenges, so getting the supply of land to actually build houses.

But equally, there’s challenges in terms of eligibility, so more demand-side challenges, the eligibility criteria in terms of getting access to affordable housing, also the cultural aspects in terms of whether people think it’s appropriate to rent or to buy, for example, and the dominance of sectors, you know, the sort of large investors who own large amounts of rental property. Sometimes they have such – such a volume of rental property, they increase rents very significantly, and, you know, they take people out of an affordable rental equation. So there’s balance to be struck there.

What I find is in most countries and cities around the world, housing is very politically charged, and a lot of the interventions that are made tend to be short-term interventions, rather than holistic interventions. And I think what is needed is more holistic interventions.

Also, we need to recognize that the private sector are generally building housing at the upper end of the markets. You see much less housing being brought forward by the private sector at the middle and lower end of the markets. Yet that’s where the demographics are. That’s around the world, that’s where the population are.

So I think governments need to get back to supplying housing themselves, bringing forward their assets, building housing and building sustainable communities to ensure that those who are at the lower and middle end of the market are getting appropriate housing.

So I guess what I would say is every government needs to understand the challenges that give rise to the problem and then bring forward measures to try and address it. But governments will have responsibility in terms of supply, just like the private sector. And to just rely on the private sector will mean you won’t get to balance.

**JEREMY GOLDBERG:** So, Alice, you’ve done a great job articulating in a very practical, pragmatic way a lot of examples around the housing conversation, and you’ve pointed out holistic interventions. For our audience, talk a bit more in depth about what we mean by that, and maybe use another example, beyond housing, that you see holistic interventions being an important part of measurement of progress around building or construction, particularly in the public sector.

[15:14]

**ALICE CHARLES:** So what I mean by holistic interventions is looking at all of the challenges that give rise to the problem and coming up with solutions that will solve the entirety of that problem. Or in the same way, if you were building a building in a city, it’s not just thinking about the interior of that building but thinking about how that building sits within the city.

And if we think about digital twin technology, which a lot of cities are using now, I think that’s helping them to really effectively think about the future of their city. So it’s helping them understand the various scenarios, right? So, here is the city right now. We could follow this path, or we could follow an alternative path. What does that actually mean for the city as a whole? And by scenario testing by using digital twin technology, they’re able to ultimately, you know, come up with the optimum strategy.

For example, there was a public transport scheme that was brought forward in Hong Kong, you know, recently, and they were able to use digital twin technology to analyze what was actually happening at the subterranean level in the city, to determine what was the optimum route that they were going to use for the development of that public transport system.

So it saved – they were able to identify all of the constraints and, for example, utilities, able to look at the sort of geology, et cetera associated with the subterranean level, and make a quick decision, which saves a lot of time, first of all. It means that when you start construction, you’re not going to encounter all of these obstacles, which suddenly stops the development of the infrastructure. You go back to the drawing board, think, how do we redo it? You’re adding significant cost.

So that’s what I mean by looking at, in that context, how we’re going to address the challenges holistically, in that case, the used enabling technology to assist with that. So, it’s at the very beginning, look at all the challenges you may encounter, try to come up with the optimum route, and then roll it out in a more smart and efficient way.

**JEREMY GOLDBERG:** Great. So we’ve touched on, in the right order, I believe here, that we both agree, right, it’s the people, the process, the technology. And that technology and digitization piece is really important.

One of the challenges, you know, just to kind of put on the table here is the digitalizing things, right? Because we’re talking about digital twins or IoT and it’s daunting for a lot of governments, it’s daunting for a lot of industries, but daunting in terms of what it means to have to digitalize internally your business processes to actually do something like what you’re saying.

So, what are some of the challenges or lessons that you’ve learned along the way in working with governments that they have changed in terms of digitalizing their processes that are required or necessary to actually do what you’re saying?

[18:14]

**ALICE CHARLES:** I can think of a particular city and it’s a Nordic city and it’s very well financed and very well run. And they went from a scenario of saying, okay, we want to employ a chief digital officer, and they established a team, and they, you know, basically have resources right across the city administration, ensuring that every arm of the city administration was digitalizing, every department, every organization that was owned by the city, et cetera. And they have about 200 resources dedicated to doing that. But that’s a very wealthy city.

**JEREMY GOLDBERG:** Sure.

**ALICE CHARLES:** That’s not the average city, right? So I think that what often happens is you see some degree of intervention starting in the planning department, because they have to make the future city plan, and they recognize that there’s benefits in doing so.

So what you see, first of all, is in that context, is the city looking at, well, what is all the data that we have as a city that we gather on that city? How can we layer that data on top of each other and make evidence-based decisions based on our current situation?

And through that exercise, you start to see capabilities spring up across the city administration, because the planning department has to work with every department across the city as, you know, as they’re making the city plan, they’re developing the strategy. So you start to see that the skills improve, the digital skills improve across departments. So I see more of those interventions.

However, most cities that I would speak to, particularly in the global sites, would say, we just don’t have that capability. We have a capacity deficit in terms of qualified professionals, first of all. In some cases, people might have just went into the civil service at 18 years of age. They may not have a qualification. So there’s a piece around having to send people back to school to get their qualification in some parts of the world. So that’s one obstacle.

The second then is everything is done with paper. So, it’s thinking about how do we move from paper to an alternative system. So it’s a quantum leap for them, and I think most of them would say that it’s very difficult.

What I do see is some of them partnering with academic institutions, who can help them with some of that, right, that they can come in, the students can come in, do some of the work with them. Also, in turn, develop some of that capacity within the city authority. So I often see really good partnerships with academia to help them overcome that gap in the Global South. And philanthropy also helps out as well to some degree, but particularly universities can really help them bridge some of that gap.

**JEREMY GOLDBERG:** One final question. What is one thing that you’ve read, or you’ve watched or listened to lately – and maybe it’s from Davos – that had an impact – or not – that had an impact on how you think about this moment that we’re in infrastructure and technology and COVID recovery?

[21:27]

**ALICE CHARLES:** So I read lots of things, and actually something that has really stuck with me is a piece which was on CNBC about Elon Musk saying that he was telling his staff to come back to the office.

So, why did that stick with me? Because first of all, I strongly believe the office is not dead, because we need to go to the office to meet colleagues, you know, to collaborate with those colleagues. There’s also a cultural aspect of coming together. So I do believe that, to innovate, we need to come together as colleagues and collaborate. And whilst we can still do that in a hybrid working manner, I think we haven’t really seen that balance as yet between the appropriate time to spend at home and the appropriate time to spend in the office.

And why that was really interesting for me is I have been hearing a lot from cities about the impact on the economy of cities because people are not in the office. So, you know, in a lot of cities, they say we only have a Tuesday, Wednesday, Thursday economy right now, because a lot of people work from home Mondays and Fridays. They’re also seeing less people have been traveling. So it’s had a very significant impact on the economy of cities.

We’re also seeing, in some cases, you know, some companies have downsized their offices. Retail footprints have been downsized. So I guess I find it a very interesting decision, because I feel that more will likely follow.

I’m not saying I support his decision in terms of 100% back in the office, but I think it will actually result in more leaders taking a decision around what they’re going to do with their office portfolios, if they’re going to go back 100% or four days a week.

So for me, I think that was a really interesting decision because it will actually have a profound impact, if a lot of people start to go back to the office, on our town and city centers.

**JEREMY GOLDBERG:** Excellent. Thank you to my friend and colleague Alice Charles for an incredibly inspiring discussion from personal to professional at this moment that we’re in, in infrastructure in cities. I look forward to seeing you again and thank you for your time today.

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**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 **wwps.microsoft.com**, or find me on LinkedIn and Twitter at **JeremyMGoldberg**.