

Note: this transcript has been produced verbatim and includes all the quirks and idiosyncrasies of the speakers.

Dallas

Hello and welcome to episode six of the UK KTN Geo4Earth Podcast. I'm one of your hosts, Dallas Campbell. I'm a science and technology television presenter.

Suzie

And I'm Susie Imber, the other host. I'm a space physicist, and we'll be with you throughout the series, chatting with some of the finest minds, grappling with climate change.

Dallas

Yeah, so in this episode, we're gonna be talking to Holger Kessler, who's the NUAR, Stakeholder and Comms Lead at the Geospatial Commission.

Suzie

and Denise McKenzie, Partner, Community and Ethics at PLACE.

Dallas

This episode is called Mapping Urban Environments to Fight Climate Change. Hope you enjoy the series, hope it gives you food for thought. Enjoy this episode.

Holger

Yes, so thanks. I'm Holger Kessler. I am a geographer originally and then had a 20 year career as a geologist for the government agency dealing with geology, which is the Geological Survey. I'm currently in London, as I am seconded to the Cabinet Office for the last four years working in the Geospatial Commission, which is a unit inside Cabinet Office dealing with getting data, spatial data, so it maps locations into more accessible and more used by people and governments and industry. So yeah, thanks for inviting me in.

Dallas

Well, thank you and you're a NUAR stakeholder, what's NUAR?

Holger

The National Underground Asset Register is a big program. We're currently in the middle of, which is to get, it's something that's very dull in some ways..

Dallas

Okay we've had enough of Holger now, he's dull..

Holger

Sharing off utility data, pipes and cables, all utilities and local authorities have no single central way of sharing data at the moment, so it's National Underground Asset Register.

Dallas

Holger, thank you very much. And Denise, Denise Mackenzie.

Denise

Hi, and thanks you for the invitation. It's really good fun to be on here this afternoon. So I'm Denise McKenzie, like Holger, 20 year career in the geospatial sector, probably less on the technical side, more on the policy innovations project side. So I've worked in government doing lots of innovation, lots of nexus between public sector and private sector and how you make that work in collaboration, then moved out into the international scene. I've had great fun traveling around the world doing work with the UN, traveling around places like Africa, working in international standards and geospatial, so a lot of different aspects of that. Recently have landed myself in the world of data ethics, so I've been working on that for the last two years.

Dallas

Oh, we're gonna talk about that.

Denise

So one of the one of the co-authors of the Locus Charter, which was released last year, so 10 principles looking at responsible and ethical use of location data and just this year have started with a brand new organization called PLACE as their partner for community and ethics. So an organization looking to, I guess, build an entity that is ethics first, ethics, first in both data collection and also data use across the world. So lots of fun.

Dallas

Great. Now listen, dear listeners, just before we pressed record, we were having this great discussion about data ethics and all of us have different opinions it seems about data ethics. It's a really kind of, sort of hot topic. Is this a good place to start Suzie? Or maybe we should build up to data ethics, where should we begin with this?

Suzie

I think maybe we should start by talking a bit with with our guests about how we share data. So how data is shared, both on a sort of personal level, but also at a corporate level. So Holger talks about this project that he's doing, which is about this Underground Asset Register and many of you may know that I'm digging up my driveway and I want to know what's underneath it, and Holger is going to answer my question.

Dallas

I'm really worried when you when you find the answer we won't be able to use this analogy anymore, so it'll always be like a permanent mystery, Suzie's driveway and what happens underneath. Hey, maybe there'll be like buried treasure!

Suzie

I think there is.

Holger

Yeah, so we're sharing data highly, ineffectively in many places, and that could be due to cultural, it could be technical, it could be legal, it could be financial. There's all sorts of barriers to data sharing and in your drive, Suzie, the problem is there are lots of actors involved, the highways, the water, the gas, electricity, and all those different, they have no common interest in your drive, they all have an interest in their own and they maintain they have data about their own. But when it comes to the, let's call it the common good, or the greater good, or someone who has an interest in the hole, that's when it starts to get a slightly more tricky, and we need to then build trust and collaboration, all those soft words that we had in our brief for this podcast.

Dallas

Why are they soft words? Why are we even calling them soft? These are important words aren't they? Why are these soft words?

Suzie

Tell me what's the incentive for companies to share their data? And what the barriers are that make them nervous about sharing their infrastructure on my driveway or anyone else's? You know, what are the barriers here?

Holger

So, yes, technical data quality, so they might be worried about exposing the fact that we don't actually really quite know where the water mains is in your road. There could be, there are and I wanted to bring this across as well, in some cases, we don't want to share data with everyone because there might be national security implications. So there might be a security concern about knowing where all your gas mains are. Then

the final one, it's a cultural thing about why should I share? I have the data that I need. But you know, who's Suzie? What's in it for me if I share with her?

Dallas

That's really interesting. Do you think and we were sort of discussing this before we came on air, there is a cultural problem about trust, in terms of sharing data? Some people are quite happy to share data, they see it as a beneficial thing for the whole, for the group. Other people get a little bit kind of well, hang on. I don't want to share my data, or who's going to be watching my data there. There is that suspicion and a sense of conspiracy almost about it.

Denise

Yeah, no, I would agree with that. I think a lot of that's borne out of the complexity, if you like, of the technology world that we've got, it's too hard for anybody to understand these days. So I think naturally, once you can't understand it, you tend to not trust it, because I'm like, Well, if I can't understand it, how can I trust something that I don't understand? So I think there's a real challenge for the sort of technology sector as a whole here to say, Well, okay, how do I simplify what it is that we're doing? How do I express the value and the reasons behind why we collect? I mean, the truth is, we've been on like this golden trail of innovation with technology since like, the 1960s, where, you know, just funding all we want is brilliant, new, shiny, make it more effective, make it more this, but because we've been on that train, we've created such an incredibly complex space, and now everyone's going, Oh, hang on, hang on, hang on. I know, yeah, I know, you can do that. But should you do that? And is that, okay?

Dallas

It doesn't seem to be in line with the way that the human brain works, or an understanding of human psychology. Because I think exactly as you say, quite often people are reluctant to change very often because people get used to a certain way of doing things and then things change and it takes a while for people to catch up and that's how things happen, that's how things progress. But this pace, the sheer pace of innovation at the moment, particularly things that you can't tangibly see, like data and modelling and geospatial, you can't actually physically touch them and the speed of it, people haven't had a chance to keep up. Do you think that the problem makes people, be resistant to being left behind?

Denise

Absolutely. I think you see a really big difference between the generations here and that for technology providers, that's hugely problematic, because you're trying to create solutions that fit so many different people and so many different generations of activity and understanding. And so something you make that works brilliantly for, like, you know, my 15 year old child is probably not going to work as great for my 80 year old dad. But both of them need to have access to the same service. So how do you do that? And how do you do that, so that both of them can trust and share the information that they need to share, within that space? You know, it's a really, really

challenging space that we're in at the moment, because we've still got, probably about two to three generations that are not digital natives. So we've got to kind of still work with that and make sure that they're included and not excluded and discriminated against because it's easier to just work with the younger ones.

Suzie

I feel a bit like a lot of the spatial data that is collected and I could be wrong here, you can correct me, but I feel like it comes from our mobile phone information, because that's how you know where I am. I never go anywhere without my phone. And that's true for many people. So I guess a lot of data, a rich source of data is my mobile phone location.

Holger

The other explosion that's happening, there is the mobile phone data, but then also we have all these devices, whether they are drones, satellites, and increasingly every car is becoming a sensor of all kinds, air quality sounds, road surface images around the road space. So this idea of sensors everywhere you know, it's not just your phone, there will be stuff everywhere sensing the environment for, again, the good and potentially annoying reasons.

Suzie

Well, I think more it's an awareness thing, it's that I actually don't know, who is collecting what, and I don't know why they're using it. I'm sure there's a really great argument for people having access to my data to make my life better and my journey easier and my access to services more clear and all of those things. But I don't see that picture very clearly. What I do see, is the odd scandal where something goes wrong, and then it makes people nervous.

Dallas

The key word is 'they' as well. It's this idea that there is this kind of amorphous 'they' who are watching us, and it's sort of conjures up ideas of, well, I guess, you know, conspiracy theorists love the word vague, because they see it as us versus them. And suddenly, you're not part of the 'they', you're the us and those them. It seems to kind of create these divisions. For example, Suzie and I, we've talked about this idea, and it may be a conspiracy theory, you know, you might be talking about a particular subject or a particular object or a particular thing and then suddenly, it'll come up in ad preferences, the thing that you were talking about and you haven't typed it. It's like, well, are 'they' listening to me? And it starts, and it may just be a coincidence. Oh, don't say that, I think it was a conspiracy theory. Okay, who are they? Why are they listening to me? And how are they listening to me, and why are they trying to sell me a lawn mower, just because I talked about lawn mowers?

Denise

If you have any one of those devices in your house, that is helping you with automation, and you can talk to it and it switches something on, including your phone for that matter and you have got that software installed, it is listening, because actually, that's what it's designed to do. It's designed to that, you've downloaded it because you want to be able to switch on your lights in the house. I've got it so I can switch on my heater in my office in the mornings, so that it's warm by the time I into the office. But I'm conscious too that it's on all the time and so actually, if you haven't, you know, if you're not knowledgeable enough to know how to switch off other settings that prevent it from listening to absolutely everything and utilizing that in the marketing then you are going to get those things. I mean, personally, a lot of the time, I'm like, well, that's great, I'm probably going to get ads that are far more relevant to me if it listens to what I'm talking about anyway. I don't want to know about little kids and babies or what have you like that, because my kids are bigger. But, if I switched all of that off, it doesn't know anything about me, it's going to give things that are completely random based on maybe my age or other bits and pieces they know that are there. So yes, it's listening. Yes, there are things you can do about it. But there is a big education that needs to happen here. And I wouldn't say that those big organizations make that effort to make it simple to understand how you do those things. There will often be those fantastic terms and conditions that say you have all the power to change all of these amazing things if you do a degree and understanding terms and conditions, so that you can actually then be able to make that work. So I think we've got a really great challenge here of how you simply explain that, so people are empowered to actually do that and have that ability and agency to be able to..

Dallas

I think we're all terrified and I think all the companies that do this are terrified, which is why they say things like your privacy is important to us. They're saying it as a kind of value, like somehow we really care about you. And the only reason they do it is because they don't want to get sued, everyone's terrified about being sued, so we've created the structure of fear, fear from the from the tech companies, fear from the people who are worried about being listened to. But you're right, we need to sort of sort this out somehow don't we?

Holger

Yeah, I just wanted to come back to your very direct question. Who are they? Who are they? So I represent..

Dallas

It's you, isn't it Holger? You sit there in the basement with headphones, listening, dialling, tuning into various people.

Holger

Well, we do have listening agencies, of course, as well and they have a public facing website and you can see what they do. No, seriously, the Cabinet Office, I'm just literally looking at the Cabinet Office intranet, and we do have a, we are here to facilitate better policy and decision making with data and we are also here to protect the democracy and the constitution and the realm and all those good things that if, for the moment we say we trust our government, and we have a democratic system of elected representatives and their agencies, and the geospatial commission is one of them, then and the Office of National Statistics. I mean, I circulated an article earlier that population does actually in some instances for some reasons, like track and trace, trust the government with location data, if it's explained, and you have a feeling that this organization, the Office for National Statistics, doesn't do bad things with this data, so they, if they are government agencies and they're doing it for the right purpose, for changing the world into a better place, mitigating climate change and digitizing the energy system for more smarter meters and all those things, and it's explained, and I think you're right, Suzie and Dallas for asking for better understanding of what is being collected, then I think, yeah a positive change.

Suzie

I agree with you, you know, all of these things, you wouldn't find many people that would opt out of wanting to have a greener economy, for example, and giving up their data for that reason. Absolutely. People would do that. If it I think the issue as well is that, because we don't always know where all of our location data is coming from and I've got so many apps on my phone, I've got no idea which ones have access to where I am and which ones don't, or why they're using it. I don't know, I installed it four years ago, you know, just pressed yes on the terms and conditions, and now it's a bit out of control and now I don't actually know anymore. And that's bad on me for not, you know, being tidier with my digital footprint. But I think it's probably reflective of lots of people.

Dallas

Do you think there's an old adage that people don't change their minds, they just die off? Are we gonna get to a point where, you know, I mean, I'm obviously very young, is it gonna get to a point where actually things aren't going to change, but people will just die off and those who've grown up with this from the beginning, it's just, this is going to be fine and no one's going to question it? I think for perhaps, Denise, you were saying about the generational thing, older people do find this rather dehumanising the fact that we've actually, essentially, I'm being ridiculous here, had our humanity taken away, and we're reduced to data points.

Denise

Whereas I would say a lot of younger kids actually find that it has increased their humanity, and it isn't exactly [unintelligible] that they would never have been able to have otherwise and it has enriched who they are. I think, you know, like anything, there will always be a section of society, age or otherwise, that is not comfortable with this, it's not comfortable with having this alter digital environment and digital persona space,

that will probably opt out. The danger in that is that if we rely, you know, the they in the government, that they that need all the data and the information, If we don't recognise that they're missing, then we will make decisions like they don't exist. So for example, occasionally, you end up in situations where there's fantastic satellite imagery that's taken, and there's these great automated layers created that are called cover, you know, and they sort of go, oh, this is all farmland, or this is all agricultural land, or what have you. When actually we know that there's an informal settlement of humans that live on that. But because of the way that data has been structured, the government now thinks that no one lives there. So those people now don't exist. So I think that's the risk that we run always, with this kind of alter digital world. We talk about things like digital twins, and all this other stuff, like being this accurate representation of the world is really hard to do. Because to do that, you'd have to forcibly make everybody participate, and everybody would have to participate in the same way. And of course, that's not going to happen. So there's some real responsibility there. I think.

Suzie

Can you talk a bit about the ethics of selling people's data and why, I think that's another part of people's nervousness is that, I give someone data, and perhaps they could sell my data to somebody else. So, data is valuable to some degree. And so again, people might feel that they're not secure in that giving data to one thing doesn't mean that it gets sort of widely shared. Is that a problem do you think?

Denise

Okay, so I'm going to switch a couple of terms here, I'm going to say that, that actually, what people want to sell is information, more than data itself. Yes, where's data, but at the end of the day, it's about getting information about something or analysis about something. And I would say that as humans, we have been doing that long before we had technology. We have been collecting information about the human population or about the world, we've been exploring and going getting this stuff, selling that information in a book or a piece of research after that. We have actually been doing this for a really, really, really long time. And as long as we've been marketing and selling goods, we have been creating information about who's buying those, trying to learn about that, trying to predict how to do that better and we've been selling that information. So I think the reality is we have been doing this, this is not new, I think the thing is now, perhaps it's less easy to understand.

Holger

It's less tangible, back to Dallas' point, I was just going to make a very quick reference Dallas, to another earlier point of yours when in our pre-chat, you know, I'm just going to switch off and opt out of all of this, well, let's just think about like other ancient things that identify you. Your house has a number and your road has a postcode and your town has a name, and there's an electoral register and there was Doomsday Book. We've always gathered information to administer and make the town function better and get water to your house and get the mail to your house.

Dallas

And we've had maps which are digital twins.

Holger

Exactly, but I think you are absolutely right under geospatial commission and all the work that Denise in the Open Data Institute, we're all doing the right thing we just need to amplify, I think, is to get over to you, What are the positive outcomes from all this? Yes, there's some commercial, yes, there might be some unethical things happening and we need to expose those and discuss those. But look at these positive outcomes for the planet and for the society from all this.

Dallas

I think, you know, it's funny, every time you do anything now, you go to the you go to the loo, in Kings Cross Station, there's a row of buttons wanting to collect data, how was your experience today? Everything's been reduced to an experience. It's like, we want to improve your experience, but actually, no, you don't, you just want to collect data. And that's the thing that you go through, you know, if you're at the airport, you go through a thing, and you're presented with a row of four buttons, with faces of various degrees of smiling and non smiling, there is just seems to be that kind of obsession. And once you kind of notice that it kind of gets in your head, it's like Oh, my God, just leave me alone. I'm sick of data, I'm sick of kind of, every time I do a talk now, it's like, we need to give you a feedback form in order to collect more and more data. It's like soon, we won't need to do anything, we just need to lock ourselves away and just we're just reduced to a feedback form.

Suzie

Well, let's shift slightly more towards using data for sustainability in the built environment.

Dallas

That's what we were going to talk about.

Suzie

If we could kind of focus a bit more on, on maybe highlighting some of the positive things that can happen. And Holger, maybe discussing a bit about the role of government in some of these programs that are running.

Holger

I mean, one of the most recent examples, and it's so nice to be out at conferences and workshops again, where you happen to meet and talk to someone who you hadn't planned to talk to and I happened to talk to people who are talking to car companies, and getting access to the sensor. So I briefly mentioned earlier, sensor data from cars, and Suzie, this is also really important, if it's about you, as a person and your example, with Strava you had earlier, that's a very different thing than, you know, your car measuring air pollution, and just feeding the air pollution or the friction of the tyres and making the road, giving a fee to local authorities. This is what this company was doing, a fee to local authorities, live monitoring hotspots or black spots on their road system where people are wacking the brakes on all the time, that's informing the road gang to go out and fix this road in particular. That's such a positive outcome. There's actually just winners everywhere there because it doesn't identify you in the car. So those are a really positive example I thought and really exciting. And what can the government, and both and people like Denise and the private sector do? We just need to make sure we have governance, you know, we make sure that we have ethics and morals enforced and upheld, that it does not start to go and record other things, what music you have on in your car, then you know, your body temperature and all sorts of other things, you could say it's about standards and ethics and rules.

Denise

Yeah, and transparency is what I would say is another really big case, it's very much about transparency of the data that's there. I mean, looking at the built environment, particularly globally, we have some major challenges. The reality is that the majority of the Earth's population is going to be in urban environments in the space of the next 10 years and only continuing to grow. And these are happening particularly in, not in fantastically wonderful urban spaces like London and the UK and the sort of developed world, it's happening in the developing world. So it's happening where there isn't great road infrastructure, it's happening where we don't have good telecommunications, we don't have good sanitation, you know, and these are building up in informal settlements, in places where there's flooding and so forth.

So actually, sustainability or otherwise, it's not just the sustainability of the world, it's also the sustainability of the humans that live in these places as well and trying to get the data and the pictures. Now, some of that comes from mobile phone data, it's not always particularly fantastic. So from that perspective, to do sustainability well in these things, you have to look at a huge variety of different data methods to do collection, to be able to understand what the issues are and help governments. I can tell you right now, many of those governments in the developing space, don't have the staff with the skill to understand a lot of the complexity of the data that's there, now they don't have access to it.

You know, as wonderful and as fantastic as satellite data is, they don't own it. It's owned by a commercial company, so there's no sovereignty to what they've got over that information about their own country and their own city. So we've got some real challenges in getting that right data, because at the end of the day, a government person cannot make a great decision, if they don't have the right information in front of them, you know, so you have to be trying to help look at that. So for our organisation, for example, we're trying to help with a collection of things like aerial photography and

drone image capture but our goal is ultimately for the government to own that data. So it becomes theirs, they have sovereignty over it, they have the ability to understand their own city and urban environment and the citizens that are there. So they've got the right data and the right information that they need to make those decisions. And it's really powerful. I mean, these days, with machine learning, and so forth, I saw a fantastic piece of work where this university group looked across a really dense urban slum type area, with a lot of, you know, shops and things like that and it was able to pick off exactly the type of air conditioner that was sitting on the top of each one of the roofs, work out the size of it, do an estimation of energy output, and so forth to it, and then actually do a model that says,

Okay, so on a weather day, where it's going to peak at 35 degrees, we know the spike is going to be x, which means now we can tell the government that they can adjust the energy load, and then they need to have extra peak or they shut down other electricity usage activities in the day, because we know the air conditioners are all going to eat up that information. Or another one that was able to look at roof types in slum areas too and look at weather and wind patterns and then say we're actually in a natural disaster where you had a huge storm, you're most likely to lose all the roofs and the building structures in this area, so this is actually the spot you need to invest in. So in that instance, it's really powerful. And I think to hold this point as well, this is not individual information, this is collective and community information. But it is quite detailed, so you do have to be incredibly careful with it.

Dallas

That's really interesting, the difference between collective and individual I think as individuals, we kind of worry about ourselves as individuals. But somehow we need to be educated that it's not about you, the algorithm does not hate me or care about me.

Suzie

Yeah, I think that's the core actually of people's reticence, is personal information. Because if it's anonymized, I would bet that a large number of people will give you anonymized data to make things better with great pleasure. As soon as you start attaching that to a person, I think that's when things start getting more difficult and it's an education piece, you know, as I said.

Holger

Yeah, I was just gonna mention, I loved listening Denise, to your examples, shows that I haven't really been out of the United Kingdom for a while, that's nice to hear examples from from other places, because you forget, we have a lot of great infrastructure in this country. And back to the other point, we are not sharing even in the developed world, we're sharing data very ineffectively at times. But I was just going to say that if we go to health and ideally, in order to combat some of the worst, outstanding diseases, we've got to tackle, we would like to have more information about Suzie, in order for that data to become, so you then end up going towards sort of the car data I mentioned earlier, that doesn't need to know about you at all, it's just interested in temperature and the friction. But if we're in health, for example, we do maybe want to know your age, your upbringing and background. So that's where it

gets very tricky. I know the National Health Service and the research organisations up all over this space, and then trying to work out how we can do the best for ourselves.

Suzie

They're very, very careful with the data that they have. But the data is extremely rich isn't it in the NHS? The amount of data that they have is incredible and the things they can do with that data are phenomenal for the benefit of all of us and they are rightly, very careful about it. It's probably a good example.

Dallas

Pandemics for example, you know, actually being at a model viruses and stuff is just phenomenal and again, it's that funny thing talking about sort of ethics. The old adage that any technology that is far enough in the future becomes indistinguishable from magic, and the faster the technology develops, the more magical it becomes almost and in a way that sort of magical sense of it being able to think, before you've even thought what you were thinking about, is slightly disconcerting, you know, to the human brain sometimes.

Denise

Yeah, no, no, I agree. And I want to throw something else in here too, because we talked about collective benefit to community too. I think there's a really interesting area when we talk about data, that is the cult, the communities that are vulnerable that actually need to be protected too so there's a rightly important piece here when you collect information about individuals, where if you can identify that actually they are from perhaps a group that is going to be discriminated against or is perhaps health wise, more vulnerable than others.

To me, there's actually an ethical responsibility to find that information out, so that then you can look at how you do the protection of that. Like indigenous populations are a perfect example of this one, you know, still typically around the world, we have great racial issues between, you know, colonial groups that have come in and indigenous populations and as a result, many sacred sites, many groups, are often at risk, because of who they are and what they are. So our ability to kind of have some people know where that is, but then not others know where that is. And so I think the level of access to information becomes a really critical point, when we're talking about these groups.

Dallas

We're sort of slightly running out of time. I'm slightly conscious of time and I want to, as ever, I want to kind of get your opinions about where we're going to be in the future, where the sort of direction of travel we've sort of touched on and looked at. But if we can kind of project a little bit, 5 or 10 years into the future, what are we going to be looking at and what would you consider to be successful in the sort of geospatial world? What would be your magic wand, if you could wave it, what would you like to see? What do you think we'll see? Holger?

Holger

Yeah, I'm gonna go back to a local example. I would love to see in 10 years time, local decisions around my town or my district being done in a much more open and transparent manner. So planning, simple things that affect all of us, planning decisions, bypasses, HS2 a big one, but it could be you know, your local conservation area or changing a shopfront. All of that I would love to see, like our children play in 3D worlds all the time, I'd love to be able to say to the town council and to the planners in the town, let's go on to the street, whatever headsets, or whatever way we've got our tablet and look at proposals and make more informed data rich, data informed decisions, and to have a much more democratic and consensual process. So that's where I think we are heading, because at the moment, we're sticking papers on lampposts, nobody knows where these maps are. No one understands the process. And it's actually undermining slope, sort of our system and democracy. So that's one aspect I think will happen soon, and will get a lot better.

Dallas

Digital hippies. Denise, what's your thoughts?

Denise

Well, I, you know, to some degree, this is what I'm in the middle of trying to build at the moment is my future, what I hope it's not going to look like, look, I hope, and I'm going to go a bit more, I guess, international, when I look at this. I hope that 5 to 10 years from now we have governments that are accessing better data about their populations, I hope that we are not just accessing that better data, but have people working within them that are able to provide the right analysis and information that's required for decision makers, because globally, we have got some monster problems, we've got monster health problems, we've got monster environmental problems, we have population explosion. So there is that side of it.

The other thing, and this is I guess, key to what our organisation is trying to do, is that I think that we are past an era where it's okay to just innovate without being questioned. I think that we are moving into a space where the citizens of the world expecting now that governments and private organisations start to design with ethics first and start to think about the implications, better understanding of the unintended consequences of the systems that they're building, before we start hurtling down with a "I've got a solution". Understand the problem is better. I think that's going to be enforced. I think people are becoming far more savvy consumers in what they're doing and they're looking for organisations that are showing and are able to do that explanation and transparency, which I think means we'll have to learn how to speak simply which will be a real challenge for us technology people.

Dallas

That's my dream, that's my utopian dream, is a world where people just talk simply without without the kind of obfuscating waffle that goes on.

Suzie

I love both of your visions, so I genuinely hope that they both come true. We're out of time for today though, thank you so much for joining us Holger and Denise.

Dallas

Okay, that's it for this episode. Hope you enjoyed the discussion as much as we did. Thank you very, very much to Holger and Denise for taking part. Most of all, thank you for listening. And we look forward to your company very much next time.

Suzie

Don't forget to get in touch with Luca Budello or Andy Bennett at KTN if you'd like to chat, or collaborate further with them on any of the topics we've been talking about today, and of course as ever, the link to the publication Meeting Net Zero and the Power of Place, which accompanies this podcast series can be found in the podcast description.

Dallas

Yes, indeed. We will see you next time. Bye.

Suzie

Bye.