

CONNECTED PLACES

MASTER SCRIPT

EPISODE: 2023 YEAR IN REVIEW

INTRODUCTION

[theme intro]

Carolina:

I've got a little kid, he thinks I'm saving the world, right? So that's why you do it. I do it because I come home and I spend ridiculous amount of hours on the phone discussing with people the best way forward to decarbonize the system because that fulfils me

Sir John Armitt:

There are more SMEs than there are large companies. So therefore, more than anything else, I think what they want is a belief and an understanding that policy isn't going to change next week.

Clip Ali:

We collectively, cooperatively can make a difference right now. And as a result, we bloody well ought to be.

INTRO:

Welcome to Connected Places; a podcast about the future of our towns and cities, and how we live and travel in them.

I'm Ivor Wells, the producer of Connected Places, which is brought to you by the Connected Places Catapult.

We're the UK's innovation accelerator for cities, transport and places.

We help to connect businesses and public sector leaders to cutting-edge research and new technologies that can spark innovation and grow new markets.

Music bed

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Ivor:

Well that went quick, didn't it?

2023 – blink and you've missed it.

It seems like it was only last week that we were pulling together the 2022 year in review episode.

But here we are again. Looking back on another big year for the Catapult.

Now, as I often say on this podcast, not all of our work gets features on the show. Not by a long shot.

Now, throughout the year, and at any given time we're running dozens of projects as diverse as helping the NHS in Scotland to get medical supplies to remote communities using drones, or helping National Highways to use new technologies to ease the pain of roadworks for drivers and local communities, or it might be working with Government and industry to help UK companies access the growing market for hydrogen technologies. So yes, we're involved in a lot of things at any given time.

But in this episode, I want to revisit some of the stories that we've featured on the show this year, and to share with you some of the highlights.

Now later in the show we'll be taking a look back at the launch of the UK's first Station Innovation Zone at Bristol Temple Meads.

And we'll also hear from the Chair of the UK's National Infrastructure Commission whose assessment of the UK's national infrastructure hit the headlines back in the autumn.

But I want to start with one of the themes that we spent a lot of time exploring on the show this year, and that is digital twins.

Over the summer we were really excited to produce 3 episodes with 3 companies doing some really cool stuff with digital twin technologies.

Now basically, if this is new to you, a digital twin is a virtual model of a physical asset, like an engine or, if you're interested in place-based digital twins like we are, a building or a station, or even something as big as an infrastructure network.

Now, the 3 episodes that we did with 3 companies came out of the first ever Connected Digital Twins Summit that we hosted at the Catapult back in June, in partnership with the Digital Twin Hub.

And it was a great day. We had almost 1,000 people attend and I'm pleased to say we'll be running the event again on the 20 June 2024, so put that in your diary now and yes there's a link in the show notes for how to register.

But one of the episodes we did was with the engineering firm, Royal HaskoningDHV.

One of their clients we spoke to was Rob Goodliffe, the Coastal Transition Manager for North Norfolk District Council.

And a bit like me, up until recently Rob was new to the world of digital twins. But he told me how Bacton Beach in Norfolk had been experiencing some really severe coastal erosion in recent years which was causing flooding and property damage to buildings and houses along the coast.

He explained how working with Royal HaskoningDHV on a really ambitious sandscaping project to protect local communities and a major gas terminal from the sea, was a real eye opener to the power of digital twins.

Here's Rob...

Clip: Rob

Before talking to RoyalHaskoning I'll be honest, I didn't know what a digital twin was, so I sort of came at it from a complete, sort of zero knowledge basis.

But they come up with this idea of saying, well, okay, why don't we make a, a digital twin so we could make our North Norfolk piece of coast on a screen, we could feed in all this new data that we are collecting and not only can we feed it in, we can then interrogate it.

So we can look and see how it changes over time as we layer up the information. But we can also use things to try and set triggers. We can set triggers so we can see, well, when this happens, that's when we might need to think about doing another Sandscaping scheme or another intervention. But they can also then predict or start to predict how long we might be from that time. So it gives us foresight into the future about when we might need to start considering preparing for another intervention.

This is an innovative scheme. You know, we don't know what it's gonna look like in 10 years. We model it and we are hoping it's gonna follow what the modelling says, and so far it has been, but the digital twin's gonna help us, help us do that. And, and help us compare it to what we've modeled. And hopefully it'll ring true. Hopefully it'll exceed our expectations, but the digital twin enables us to do that.

Ivor:

Lisette Heuer is Royal HaskoningDHV's Director of Business Transformation.

And for her, the value of the Bacton Beach project is applicable in multiple other sectors and environments.

Clip Lisette:

And this was an example on coastal erosion, but the same is very true for flooding. So digital twins helping to give insights in when and where floods might occur, what the potential impact is, as well as even go to automated alert alerting to homeowners or people on the streets, what actions to take those could be very well for communities to be prepared and bypassing in a way, all the experts in all the formal organizations, but really gaining time in being effective and informing the people where it matters too. And that brings us back to the purpose using digital twins for making more impact.

Ivor:

One of the things I learned a lot about while making a series on digital twins was how this isn't just about the technology.

So much of this comes down to people and organisational systems and hierarchies and barriers and silos and IP and legal requirements and all of those familiar words that can often strangle creativity and innovation – but a way through them must be found.

And one person who's at the cutting edge of this within the energy sector is Carolina Tortora, Head of Innovation Strategy & Digitalisation at the National Grid ESO.

Now, they are Great Britain's electricity systems operator, and the UK Government has a target for them to be running a zero-carbon electricity system by 2035. And digital twin technology is helping them create a virtual energy system.

But for Carolina, equipping people with the tools and capabilities to rise to that challenges is a huge priority – including the importance of inspiring younger people at the beginning of their careers.

Carolina:

I saw a YouTube video some time ago where essentially apparently the first twin, not digital, but twin was used in the Apollo 13, right? So the cool thing about that video is that it shows that the technology or the concept is not new, but here we are. I don't even wanna know how many years since, okay, let's not touch it. But it's been a few and we are trying to pretty much use it and leverage that kind of concept with, you know, adding the digital to it to today's problem.

So absolutely the people and skills is an issue that we find and we realise speaking at conferences and stuff, I was approached by some of the students in AI and stuff say, I didn't know that this was a field I could go to into, right? So they're always thinking of going into Amazon and you know, learning how to guess what kind of music people are gonna like based on the fact that they're listening to Taylor Swift. So they go into Spotify and I can't afford those people, right? So I will never be able to pay them as much as Spotify pays them or, or whatnot. So thinking about not just what skill set does the country need, but also how do you make it so that it's attractive to them to come here?

We're not in it for the money. At least, you know, if you work for a system operator or utility, this, this is not where you become a millionaire. Okay? So this is not where it's gonna happen, but it's a vocation. I've got a little kid, he thinks I'm saving the world, right? So that's why you do it. I do it because I come home and I spend ridiculous amount of hours on the phone discussing with people the best way forward to decarbonize the system because that fulfils me and I wanna be able to give that to some of these kids as well.

Ivor:

And that's the other thing that's so inspiring in all of this. Because to enable the technology to do it's thing, people have to choose to collaborate, and to collaborate on solving real world problems.

And one of the most passionate advocates I met working on this series was Ali Nicholl from a UK company called IOTICS.

You'll hear me talking to Ali shortly. But one person he's worked closely with is Rich Walker, a data analytics leader for the government and public sector.

Rich talks about why collaboration is not just important in an abstract sense, it can have a powerful impact on the public purse, and people's lives.

And he recalled a conversation he once had with a senior police officer.

Clip Rich:

And he goes, look, I've been doing this for 30 odd years. I've been a chief constable for 15. Every single serious case review I've ever sat on, in the top two conclusions were if information had been shared more proactively with the right people in advance of the issue, it could have either been lessened in severity or avoided altogether. And the average cost to the public sector, well, to the taxpayer, of a serious case review is now well over a million quid each time.

So if you put that in pounds and pence, that's a cost, that's to say nothing of what happened to the individual, you know, Baby P, Victoria Climbié, all of those horrific incidents, they really have a lack of information sharing and triangulated perspective at their core, and it's quite irrefutable, and it was probably in my career the most impactful conversation I've ever had.

Clip Ivor:

I think that's a really poignant thing that Rich just shared, because not only is this a societal and a behavioural and a cultural challenge when we're talking about digital transformation, but it also involves. Some moral decisions. And I think we recognize the fact that there are always business imperatives to take into account, legal issues, IP, all of that is still there.

But I think what Rich just said, particularly about vulnerable people is this kind of technology has an application and has a benefit in tackling some challenges, which when we choose not to do something about it, whether that's convenient to hear or not, we are making a moral choice.

Clip Ali:

I think that point about making a choice is right. There is a Kantian thing about ought implies can. You only ought to do something if you can do it. And if you can't do it, then it's a nonsense to say, I ought to do this. Point is, it is possible. The ought is there in terms of you ought to be doing something about it. And if for whatever reason you decide that you don't want to, or it doesn't fit with your outcomes, or it isn't your decision.

That's your choice, you as an individual or an organization, and it's not my place to judge you on that. But what I will say is, recognize you've made a conscious choice. If you are sat on your hands right now, over these environmental,

sustainable, societal, governance, you know, whatever it might be, that's a choice you've made because you can do something about it.

There is activities happening all over the UK and indeed the world. The pace is accelerating of what people are doing. You can look after what's yours while still being part of the, part of the solution. And now is the time. Now is the moment to do it because if not now, then when? And candidly and cliched, if not you, then who?

We collectively, cooperatively can make a difference right now. And as a result, we bloody well ought to be.

Ivor:

So you can probably tell that I was both impressed and at times pretty inspired getting to know the folks at RoyalHaskoningDHV, National Grid ESO, and IOTICS.

So I would encourage you to have a listen to all 3 of them as they each hold up a different lens to digital twins; a large, multinational engineering company working across multiple different sectors; a national energy systems operator that's trying to decarbonise its entire network; and a small company that's on a mission to provide the tools to navigate the intricate landscape of data and information sharing.

Links to all three of those episodes are, you guessed it, in the show notes.

[STING]

Ivor:

Now I want to shift gear, or change track if you'll pardon the railway pun, and take a look back at what we've been doing in Bristol this year. Because it's been very exciting!

Basically, we've been working with Network Rail and Bristol Temple Meads Station to create the UK's first Station Innovation Zone.

What does that mean?

Well, innovating in rail stations is difficult.

Basically, if you want to test and trial a new product it can be a minefield; there's the approvals landscape, meeting procurement and contractual requirements, accessing funding, integrating with other systems, and coordinating with sometimes a huge array of diverse stakeholders. The list goes on.

And also, the rail operator, or the station owner might not have the capacity or in-house skills to be able to facilitate and enable all of that.

So the Station Innovation Zone programme was launched to help overcome some of these obstacles, and to demonstrate that innovation can happen in a way that makes a real difference to the way passengers experience a train station.

Now of course one of the problems we have in the UK is that our stations were designed and built a long time ago.

And that's where the multi-million pound redevelopment of Bristol Temple Meads and the surrounding area is an ideal opportunity to test and trial new innovations in how the station is experienced by 21st Century passengers.

Susan Evans, Head of Stations & Passenger Experience at Network Rail, and she's one of the people we've been working with.

Clip: Susan

So for the station innovation zone we've set three challenges. Safe station. Seamless station. And social station. A safe station is a station that's as safe as possible for everybody that uses it, as a passenger using our retail or just meeting friends and family. A seamless station means that it's easy to navigate and find where you need to go. It's not stressful and intuitive to use. A social station means the station is at the heart of the community it serves – it's there to be used by rail users as well as the local community.

We've had everything from way finding proposals through to safety innovation, improvements for passengers with neuro-diverse requirements and visual impairments, so a real diverse range of applicants.

Ivor:

Basically, the whole idea of the innovation zone is to create a place where companies can come and test new products and solutions in ways they couldn't do if they rocked up on their own.

So the Catapult began by working really closely with Network Rail to help them set the challenge for the companies, and then with the companies themselves to help them get live trials up and running.

One of the companies was Createc. They're based in Cumbria and the technology that lies behind the solution they've been trialling was actually a response to one of the worst tragedies that's ever hit the north of England.

Rosie Richardson from Createc told me more...

Clip: Rosie

This particular technology was funded off the back of the Manchester Arena attacks. So I live in Manchester. So really, really devastating events happened. And a year later there was a call for funding that came out that said, is there any technology, new technologies emerging on the market that could help us kind of answer some of these challenges around monitoring who is in spaces and keeping people safe and secure when they're in these large public spaces? And so we answer that call is create tech and put forward one of our technologies, which was the precursor to situate the technology that we have today.

Train stations have this real responsibility to keep the public safe and secure, but also not to be continually monitoring people with cameras because we need to respect their privacy. So you have that that perfect storm really of we need to keep people safe, but we also don't want to be infringing on them when they're going about their everyday lives. And that's where kind of we found our niche with rail.

Situate is our real time anonymous crowd monitoring technology. And so we monitor people in real time and provide that data to transport hubs so they can better manage the safety of people within their spaces, security people within those spaces, and also operational efficiency. So understanding where staff should be when things are getting too crowded with things, it may be getting to a dangerous level of crowding and they need to take action.

Ivor:

We've been really proud to work with Network Rail on this project, and of course the brilliant companies who've participated.

Rosie and the team at Createc are just one of those companies, and I would encourage you to listen to the full episode to hear more of her story, and the other companies too.

[STING]

Ivor:

As I said at the start, not all of what we do at the Catapult features on the podcast, and unfortunately in this episode I'm not able to bring all the conversations we had on the show this year either.

But I would like to finish with one more.

This autumn the UK's National Infrastructure Commission published its second National Infrastructure Assessment.

The last one was published five years ago, back in 2018. So this one was quite a big deal for Government.

And we were really pleased to have the Chair of the National Infrastructure Commission, Sir John Armitt on the podcast.

Now, this year's assessment was focused on three big strategic priorities.

1. Reaching net zero by 2050.
2. Reducing environmental impacts and adapting to a changing climate.
3. Supporting levelling up and creating sustainable economic growth across all regions of the UK.

We were really pleased that the Catapult's Climate Resilience Demonstrator (CReDo) got a mention in the assessment as a 'useful tool' in understanding the interdependency of infrastructure systems.

Basically, CReDo is one of our digital twin flagship projects. It's a practical example of how connected data can model the impact of flooding on energy, water and telecoms networks. And it's being developed by the Catapult in partnership with Anglian Water, UK Power Networks and BT.

So when Sir John visited our offices, he sat down with the Chair of the Catapult, Prof. Greg Clark to talk about the importance of technology when thinking about the future of national infrastructure, and the role that entrepreneurs and innovators play.

Here's Greg:

Professor Greg Clark:

Now in the UK, infrastructure and indeed engineering and real estate and so much more has been a big growth and export sector over many years and British companies have done well in international markets. We're very interested at the catapult in thinking about what more can we do to help British businesses thrive and grow in the infrastructure sector for those that can trade to trade.

Have you particular insights about what we need to do to enable British businesses, as it were, to be right at the forefront of this global infrastructure revolution that's going on?

Sir John Armitt:

Well, I think we have to decide which businesses. And it's unlikely to be the contractors. There are more SMEs than there are large companies.

The SMEs probably employ about 90 percent of the people in work. So, they are a vital ingredient. They're the ones who are trying to juggle 35 balls at once with a small team. And therefore, more than anything else, I think what they want is a belief and an understanding that policy isn't going to change next week.

And that what they're planning and basing their business on today isn't going to be sort of thrown out the window in a few weeks time because government suddenly announces a contradictory policy to the one that they've had. And this is a constant theme of ours as the NIC is to say to government, look, what we really need across the whole sector, SMEs as well as big companies, as well, of course, as investors is that certainty, policy can never be totally certain, but consistency of policy, at least for an investable period, so that you know what you're investing against in policy terms.

So you know that it's going to be pretty consistent for the next five, 10, 15 years. And that's why it's important that we try and get that sort of agreement about broad policy across the parties. So that when the next party comes in, they don't throw out everything that the last party did simply because they, you know, they want to be different, but they do actually believe that that sort of general line of policy, which is being followed in a particular sector is the right one that enables not only the investor at the top end to be saying, yes, I'll put some money into this.

It enables the SME guy to be saying, right, I'm going to put some money into sort of developing that new material because I know that's going to be required in five years and the government isn't going to reverse it.

And I come back to my general point, which is that at the end of the day, all of this is for the citizen. I went into civil engineering originally on the rather sort of, you might call it sort of, corny phrase of harnessing the resources of nature for the benefit of mankind.

And that's what inspired me into the, into what I do. Nowadays, of course, harnessing the resources of nature is a bit of a two edged sword. And so, we have to do that in a sustainable way.

Ivor:

Greg and Sir John covered a lot in their conversation, including the role of enlightened leadership at the local level, how innovation can help make investment go further, and what the future of national infrastructure might look like decades from now.

So do have a listen to the full chat – and yes, the link is in the show notes.

[Long sting]

Ivor:

Don't forget you can subscribe to the Connected Places Podcast on iTunes, Spotify or wherever you get your podcasts. If you'd like to find out more about the Connected Places Catapult, visit our website at cp.catapult.org.uk.

Also – a date for the diary. We're running the first Connected Places Summit on 20/21 March 2024 in central London.

Across two days we'll be featuring interactive content, live project showcases, inspiring thought leadership and opportunities to connect with peers from the worlds of technology, transport, mobility, cities, academia, and Government.

Registration is now live, so do put 20-21 March 2024 in your diary now, and check out the link in the show notes to register.

Well, that's all we have time for in this episode, and sadly, this is our last episode for 2023.

We'll be back again in the New Year with an exciting new line up of episodes for you.

But before I sign off, I want to give a shout out to some of the Catapult colleagues who help in all sorts of ways to get the podcast recorded, scripted, mixed, published and promoted.

It's a team effort – these things always are, so I want to start by saying a huge thank you to;

David Kurzer, who's hard work, friendly smile and love of all things audio makes for a great production executive. Thanks for all your hardwork David – it's noticed and appreciated.

Also, a big thank you to Alex Smith and Mike Walter who've both really helped us raise the bar this year – especially the brilliant stories that Mike's been able to capture from our growing community of entrepreneurs, innovators, researchers and thinkers.

I'm really excited about our plans to share more of those stories on the podcast in the new year. So watch this space.

Also, thank you to Isla Petrie our social media wizz, Jon Wright our data and metrics genius, Melissa Clark our marketing, branding and design guru, Silvia Peneva who runs our fantastic events programme which is where myself and Mike and others are able to talk to so many fascinating people, and last but not least our Executive Director, Charlotte Lewis, who does a brilliant job of keeping us all signing off the same hymn sheet.

And finally, of course, there's you, the listener.

I say it every year but it's true every time – it's such a pleasure bringing this podcast to you, so thank you for listening, and sharing, and giving us your feedback.

But for now, wherever you are in the world, if you're taking a break with family and friends over the coming fortnight, I hope you get a chance to switch off, rest and see in the new year with a spring in your step.

Theme Music on this episode is by Phill Ward Music

This is Connected Places.

I'm Ivor Wells.

Thanks for listening.