We Are Vodafone - Episode 14

Transcript

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Tim Samuels 00:05
This is We Are Vodafone, a podcast about technology and its power to change our world from AI and the Metaverse, to flying cars and fruit picking robots.

In this series, we'll lift the lid on the cutting-edge innovations that are changing how we live and work, both now and in the future. Imagine a world where machines and manufacturing plants talk to each other, send data to remote experts in real time, or even predict their own maintenance needs. A world where people, sensors, software and machines all integrate and collaborate to get things done faster and better than ever before. It's not science fiction. It's the new age of the industrial Internet, the digitalization of industry, which represents the fourth wave of the Industrial Revolution. But what does it really mean for businesses and our economies? What's enabling it and what's holding it back? And what can we expect, as technology continues to evolve in the years ahead

For this episode of We Are Vodafone, I'm delighted to be joined by Justin Shields, the CTO for Vodafone Business, and Jenn Didoni, Head of Cloud, Edge and Mobile Private Networks for Vodafone Business.

Justin, Jenn, welcome to the show.

Justin Sheilds 01:20
Thanks Tim, great to be here.

Jenn Didoni 01:22
Thanks for having us.

Tim Samuels 0:23
Justin, I see that at some point you used your vast powers as CTO to set up an engineering and innovation hub in Malaga.

Justin Sheilds 01:32
Yeah, fantastic facility that we've had running there for three years. And I do get the opportunity to see the team down there now and again.

Tim Samuels 01:40
You thought you'd set up in Malaga, not Glasgow, for some reason?

Justin Sheilds 01:44
I mean, nothing to do with the weather and all the golf courses down there. It was purely about the ability to attract young, young talent, young engineering talent, to support Vodafone Business.

Tim Samuels 01:54
Jenn, do you concur that there was, it was an overwhelming business case for that.

Jenn Didoni 01:58
I think there was actually, most of my engineering team is based in Malaga, and I have to say, I feel very privileged to work with some of the best talent that I've had the privilege of working with at Vodafone for a very long time. I call them Malaga cool. It's just a very calm, techie, smart, social environment. It's a great place you should come visit.

Tim Samuels 02:23
I will literally take that as an offer. Thank you.

Justin Sheilds 02:26
We're super fortunate, we have a great relationship with the Technology University of Malaga, and we have a great relationship with the city. So we get to build a local technology, and we get to try it out in the in the city, environment, in the wild, which is really exciting.

Tim Samuels 02:39
Excellent. Well, having failed to expose you as having set up a sham centre in Spain, let's talk about the industrial Internet. To be honest before sort of diving into this, I had absolutely no idea what it was, and it sounded, it sounded a little bit scary, but to the lay people amongst us. Justin, what is the industrial internet?

Justin Sheilds 03:03
Yeah, so, so look, really, it's an evolution of the Internet of Things. So IoT to user, if you like, in a first acronym, and it has been around since the mid-90s, really, when we start to think about a world where we could connect things together over the internet in the same way that we are connected right the mobile networks and mobile phones. And then Industrial Internet is really just a subset of that. So it separates out industrial things, which I really think about them, like machines, manufacturing machines, or agricultural machines, and separate that from the consumer world of smart watches and televisions and fridges.

Tim Samuels 03:44
So in essence, we are used to household machines talking to each other and having some sort of relationship. This is applying that same principle to industry.

Justin Sheilds 03:54

Yeah, exactly. And the things could be modern machines like robots, which have obviously got computers inside them, but they can actually be more traditional machines, and we can use sensors to control those machines. So think about a lathe or a milling machine. We can use a temperature sensor to check that it isn't overheating. And then, by connecting all those things together, new things and old things. We can collect the data about them, and we can help to optimize and automate the process that we use.

Tim Samuels 04:28
Jenn, some have described this as the fourth wave of industrial revolution. That is quite a claim. Why could this be so revolutionary?

Jenn Didoni 04:37
It's such a great question, Tim, and what I often try to do with my daughters, age 10 and age 6, is try to get them to have a sense of awe and appreciation for the things that we think are normal. But actually underpinning that normality is a tremendous feat of engineering and technology and innovation.

So of course, we get a lot, and an expectation that they can go onto their iPad and order something and it arrives that evening or the next day. That is an incredible transformation from the way it used to be when I grew up, right? I had to wait several weeks for things to arrive in the mail. And what we need to understand is that there's a lot that goes underneath that that is powered by this new generation of technology and automation and robots. So it takes, you know, really precise stock control, inventory control, precise positioning of where those things are, automation of forklifts, of robots, of autonomously guided vehicles that pick up packages, get them onto a truck. Then there's all sorts of technology that underpins that, truck tracking and logistics, planning the route optimization Even the thing that my daughters see, which is when the guy delivers or the woman delivers the package, they have a scanner. That scanner is keeping track of that inventory all the time in real time. They also have to have a network of shops where you return things in the mail, and all of that incredible network is powered by next generation networks. It has to be super secure. There's a lot of AI and analytics and autonomy that underpins all of that. So while it, you know, revolution sounds like a really grandiose term, it is quite normal things that we're appreciating and we think is just commonplace, but it's actually not. Underneath it, there's a there's fantastic innovation, and the speed and the pace of that is really mind blowing.

Tim Samuels 06:42
I mean, we'll dive into the detail of where it is now and where it's going. But is it hyperbole, Jenn, to say that this will have a have a transformative impact on your on your daughter's lives as they get older?

Jenn 06:53
Yeah absolutely. And I hope they'll have a transformative impact on the technology too.

So I think it's all about how we can use all of the data that we're now able to collect, because we can connect everything, and we can measure everything, and that can be used in really powerful ways. It can also be used irresponsibly. And therefore, I hope the next generation of STEM or science technology, engineering and mathematics careers really takes that ethical responsibility forward, in order to be able to make the best out of that technology to deliver really, really good outcomes for end consumers, for businesses and indeed, for the planet.

Tim Samuels 07:38

I'm interested Justin, if we, you know, if we're looking at this as this fundamental change as kind of this industrial revolution part four. What's Vodafone's role in this? Are you helping to drive the change?

Justin Sheilds 07:52
Yeah look for sure, we're helping to drive the change. But like most industry problems that you need to solve, you have to work in an ecosystem. So we're primarily focusing on the connectivity. We don't, we don't build devices. We're not deep experts in the manufacturing processes. So we're really there to ensure that we have great, ubiquitous, reliable connectivity that can support the industrial Internet and we can collaborate then with device manufacturers or industry expertise and customers, in order to enable them to take advantage of this technology.

Jenn Didino 08:31
One of the key differences that we need to think about is, you have consumer connectivity, which we all know. We have mobile phones. We have broadband. We have WiFi in our home. We might have a, you know, a connected doorbell or heater. If we're using and applying the same connectivity to an industrial environment, nobody would want robots powered by, you know, a best effort sort of broadband service. So what we've done is we've created purpose built connectivity solutions for mission critical use cases and applications for businesses, because as we start to see customers that are taking this industrial Internet into real production environments, you have health and safety risks. You have really precision engineering that's happening in manufacturing plants. Nobody wants, you know, a pharmaceutical vaccine, to have a bit of downtime in the system, right? That means that we build very secure, very reliable, highly scalable and highly resilient and redundant connectivity for these customers as well. And we've worked, as Justin said, with that, with that ecosystem of partners, to shape exactly what that connectivity needs to be to serve those use cases.

Tim Samuels 09:53
And I guess what's clear is that you know, with any of these great leaps that the technological advance to another stage, which seems to be driving all these things forward, and just as consumers, there was a big jump when we were on 3G to 4G and that opened up a whole other world of using your smartphones in completely different ways. Is one of the key jumps here that's driving the industrial Internet, 5G and all it has to offer in ways that we as consumers might not have noticed when our phones went from 4 to 5G?

Justin Sheilds 10:23
Yeah, yeah, for sure Tim.

Maybe just to kind of double click on, 5G and why is it different from 4G, as you said 4G was really a revolution for consumers. You had fantastic bandwidth and speed and you could download. But 5G really unlocks the industrial Internet, and it has several properties that really designed with kind of industry and businesses in mind.

Look, first off, it has super high speed and super high capacity, means you can move huge amounts of critical data incredibly quickly and securely, much better than 4G and in fact, much better than WiFi as well. And then secondly, which is really important, we can now guarantee performance of an application or a use case within 5G so if we have a mission critical process, we can dedicate part of the 5G network to that process or to those machines. It's literally a slice. We call it a slice of the network. And actually we got really cool example of that from just a few weeks ago.

I don't know if you are a festival goer, but if you were one of the 200,000 people that went to Glastonbury, we provide the network there, but we were actually able to give a slice of that network to food and beverage to ensure that people could get a beer or a burger and actually the food and beverage renters could get paid and check the security of the payment. So I've got a great example of using a network slice.

And then the last thing, which is, which is also important, is going to unlock more use cases, many of which we haven't even thought about now, is incredibly low latency. So this means, if you're doing specialized applications, could be controlling a robot with some augmented reality. The latencies for the time it takes to go from making a kind of command or pressing a button to an action at the end of the robot is like one or two milliseconds. So it really enables us to do things in real time that we could never have done before.

Tim Samuels 12:19
So if you were the person running that pharmaceutical company, what's 5G allowing you to do that you couldn't have done on 4G or even possibly on WiFi.

Justin Sheilds 12:29
Yeah, so, firstly, there's no what we call quality of service on WiFi or 4G.

So everything is competing for that connectivity. So if you've got people using the phone or other machines are all competing for the resources on the radio and on the network, whereas on 5G we can dedicate the network solely to that use.

And then secondly, if you compare it to other form things, which is effectively cables, right? So cabling things, by not having cables and having the same speed, efficiency and security, gives you a lot more flexibility on how you can design your process, where you can put your machines, which really, really impacts productivity.

Jenn Didoni 13:10
One use case that really brings it to life, I think, is, is visual inspection. So that's where a manufacturer, maybe a pharmaceutical, will be using video cameras. Or even, we've seen cases of audio listening to machines to understand if the machine has an error or it sounds a little bit weird, it can predict, before it actually happens, that the machine's about to break down. Or using a video camera to understand what's happening on the shop floor, if there's any issues, if there's ways production could be sped up, if there's any defects in what's being produced.

But the thing about visual inspection is it's all about uploading video into some kind of a cloud that's analyzing it. If you go out into the public network, operators like Vodafone for consumer services, we optimize that network for video download, because most of what people want to do is stream videos on social media or Netflix, and so that radio capacity is dedicated mostly, to downloading videos with a small amount for uploading. What we find in the Industrial Internet of Things, or with our business customers, that actually the primary use case they want is to upload video. And with 5G we can either give them a network slice or a private network that's completely dedicated to them, where they can say, actually, I want most of the capacity to be all about uploading things, and then I'll just send messages to the machine, stop, start, heat up, cool down.

Tim Samuels 14:43
So in terms of the sort of technology, then 5G is a game changer, and ally that with cloud computing and data analytics as to all, has a huge, huge draw. But I guess from what you're saying, Jenn as well,

there's a degree of AI, which is taking place here. If you're looking or listening for patterns and be able to predict that something's going to go wrong, or something isn't quite working. Is it fair to say that another of the great leaps forward, which is taking place simultaneously, is around artificial intelligence and machine learning?

Jenn Didoni 15:15
I think it's the perfect storm of all of the ecosystem improvements that are happening, right from chip sets that can handle more sophisticated workloads and capability to the advances in the cloud, to advances in artificial intelligence and analytics To, as Justin mentioned, the cost of things, like sensors going down so that we can start to prolifically measure more things, and then, of course, having connectivity that is adaptable and personalisable by the use case that that is being run over it. That when all of that comes together, we can start to bring applications to life that genuinely change the way that we all experience the digital world.

Tim Samuels 15:59
I mean, Justin, do you need all these pieces to have arrived at the same time? If you didn't have the advances in AI and machine learning, but you just had 5G or you had AI without 5G would we not be talking about this in revolutionary terms?

Justin Sheilds 16:15
Yeah, I think the, if you look at the evolution, I mean, the cloud has played a massive role in the development of IoT. So again, if we think about I'll give you a really, really simple example.

So we've been working on an environmental project in Scotland, where I'm from, on the on the River Neath, and looking at the long term impact of climate change on the river, and we build a sensor that goes into the water called Bob, for obvious reasons. And we've had multiple iterations of Bob, and the first iteration of Bob had two sensors. It had a battery that lasted for literally a few months, and we had to go and collect the data from Bob, kind of upload it, process it and give it to the scientists.

The latest iteration of Bob, which we just deployed now, has seven sensors. It has a battery that lasts for 10 years. Also, has a small solar power cell on it. It's fully connected to the internet. It sends all of that data to the cloud, it does some pre-processing, and it makes it available for the scientists. When you think about the productivity improvement for the scientists, they didn't have to go to the river anymore or waste time. They can get data which is already pre-processing and giving them insight, and then they can work out what action to take.

So you have all these small evolutions of the cloud, of AI, of analytics, of battery life, they can all incrementally make things better. So really think about this as an evolution and the importance to basically have open systems and platforms that enable us to plug in new capability as it comes all.

Tim Samuels 17:53
Can you give us some more examples, Jenn, of real-world cases of the Industrial Internet in use and making a difference in different companies?

Jenn Didonin 18:01
Yeah I mean, I think one, one example that Vodafone has actually built in-house with a lot of the engineers that Justin's brought on board in Malaga actually, is a platform that we call step or Safer Transport for Europe, and it advances a special communication protocol for vehicles and infrastructure. So for, let's say, traffic lights to be able to talk to cars or infrastructure, to be able to

communicate with cars, so that we can build safer roads and ultimately get to a zero fatality environment on the roads in Europe.

We've built that both the special messaging protocol on top of a special form of the cloud that we call Edge compute. We've embedded that Edge compute at the edge of our 5G network, so that when messages come off of 5G enabled devices, they go straight from the base station into the cloud, rather than kind of traversing a long distance, so that those messages happen as quickly as possible to keep people safer. So that's another one that I'm particularly really proud of, that we've built in-house.

Tim Samuels 19:18
How does that work? Does the Car talk to traffic lights to optimize traffic flow?

Jenn Didonin 19:23
Yeah, I mean, I guess a real time example is the other day, we were coming around to bend and there was a traffic jam, and my husband had to slam on the brakes because he came around the bend and then saw the traffic jam. This kind of a system would be able for some sensor, maybe in a traffic light or a connected streetlamp, to be able to detect that there's a an obstruction and send a message to vehicles that are coming farther back on the road, and maybe even automatically break or issue warnings.

We've got a couple of great use cases where we're using connected vehicles to detect pedestrians or bicyclists, in a way that a driver or the vehicle sensor might have a blind spot to, but perhaps some kind of infrastructure on the road is going to be able to see that. You start to layer in the AI capacity that we're building, to build, say, digital twins of road infrastructure or cities, and you can start to have really highly coordinated environments, and this is so important as we start to see more and more automated things happen, whether it's autonomous vehicles or drones or robots, as Justin was saying. Those things can operate autonomously only when they're able to really understand the environment around them, and that comes from sensors, not just on the connected thing itself, but also in the ecosystem around it.

Tim Samuels 20:52
Connected cranes, with you guys I'm never quite sure whether this is going involve an animal or something industrial. Can you, can you tell me a bit more about this?

Jenn Didonin 21:00
Sure. So we have, we have a couple of customers that are working on connected cranes. Some of them are using IoT sensors to detect wind and the wind pressure on the cranes to create safer environments, right? Because nobody wants to be on top of a large crane when the wind is blowing. And if it's really dangerous you want to be able to intervene and step in and act.

Other examples is we have customers who are running ports, and you might want to have a connected crane that is moving containers off of a big ship into the ground. And the more connected and aware it is, the more possible it is to be remotely operated, to create safer environments, and to actually speed up the time that we get cargo off of a boat and onto the roads and deliver it in a package to my kids.

Justin Sheilds 21:55
I think the other example of a connected crane, which I think is really highlighting how this technology thing can create entirely new business models. Is operating the crane actually fully

remotely and using, again a 5G network slice to provide that control and then to effectively offer the crane as a service. If you look at actually the economics of cranes, most of the cost is actually with the person operating the crane. So if you can operate it remotely, you can actually, you don't use the crane all the time on a site. So you can have one operator operating multiple cranes, and that 5G network slice enables the crane provider to offer the whole thing as a service. So kind of a new and interesting business model.

Tim Samuels 22:44
I mean, it's interesting that the picture which seems to emerge is lots of piecemeal changes in lots of different industries, which, in their own way, can be transformative. You know, it can make things, it can improve health and safety, it can improve efficiency, it can reduce running costs, it can free up the amount of time that people have. And it seems that when you put that mosaic together, lots of change in lots of different industries, you can actually then see the profound economic impact. It isn't just one thing and one big thing that suddenly changed.

Jenn Didonin 23:14
Yeah, I kind of think about how my health outcomes changed when I got a smart watch, and it's just little things. But, having something measure how many steps I'm taking, what my heart rate is, how many glasses of water I've drank today, just having them measured drives a change in my behavior. And so the way I think about it is it's not just that we have connected watches that's telling us how our physical health is doing, but think about like everything now, because of the technology that Justin was talking about, narrow band IoT, like super long battery life, very low cost, sensors can be put everywhere. We can sort of start to monitor how everything is doing, and with that, we can create digital twins, and we can understand better the ecosystem and the dynamics and the interplays of how things are working together, what one change delivers a different change and a different outcome somewhere else, and kind of start to orchestrate better outcomes for loads of different use cases. And it's just that, Justin, and I happen to be focused in most cases, on business outcomes. You know, manufacturers, utility companies, shipping, transport, logistics, automotive, those are the industries that are at the kind of cutting edge of adopting this, but I think eventually we're going to get to a point where we have digital twins of everything around us, so we can start to understand how to drive the best outcomes for the world. And I'm really passionate about understanding how can we better control and monitor what we're doing around the world in order to improve things like our planet, our education outcomes, our health outcomes. There's a lot of benefit that goes beyond what we deliver in terms of better outcomes for our customers, but better outcomes for the world around us.

Tim Samuels 25:12
So I mean, it's interesting. We talk about it as industrial, but the and if you run a business, it's going to make you, hopefully, more efficient and leaner. But the real outcomes are going to be felt by consumers as well, in terms of their environmental, the health benefits to just having a lot more convenience in your in your day-to-day life, is that your sense Justin?

Justin Sheilds 25:31
Oh, I mean, for sure, in the end, is the consumers are sitting at the end of the value chain for all of these industrial processes, and the ability to make things which are more reliable because to be able to use more data to like, check the number of defects, the ability to drive down costs so that key items are more affordable. For sure, these are these, are all these. Are all your benefits.

Tim Samuels 25:57

And as with any great change, there are ethical dilemmas, there are risks, there are challenges. And you know, one of them, as we've sort of touched on, is, could it take people's jobs away, and are we going to find that your coworkers are, I think, what's being termed co-bots now. If you keep your job, you're going to be working with a co-bot. What does that look like, Jenn?

Jenn Didonin 26:17
So I think the nature of work is going to change. Okay, so there's no way we can avoid change. It's going to happen anyway. But what kind of work we focus our time on is up to us. And you know, I think what we're going to get into an environment where things like being able to decide what is the ethical use of technology is actually going to be a job in the future, right?
And maybe, sort of coding basic applications is not going to be required anymore, but having somebody who's thinking very deeply about, how do I draw the boundaries and the guardrails of what that technology can do, what's right and wrong? So all of a sudden we're kind of, in my mind, we're swinging back into an environment where your job force is going to start to have different skill sets. But I don't think that it's going to necessarily mean that there's net less jobs. It's just going to be different types of jobs with different skill sets emerging. And the important thing is that we're creating an environment where people have access to training, to learning new skills, to education so that they can adopt and react to the new types of roles.

Tim Samuels 27:33
And I guess some of those roles are going to be dedicated to security, because any new technology can be used benevolently or can be used with malice? And I guess the risk of a bad actor hacking or taking control of portions of the Industrial Internet Justin, is something to really guard against?

Justin Sheilds 27:53
Yeah, like the garden of the same and as we put more critical data and processing control in the clouds, at the edge, on devices, then a focus on cybersecurity is super important. Having people with expertise to make sure they design the systems and the data in the right way. To have people who are checking and systems that are checking to ensure that data is still secure.

Bad things will happen. Hackers will get in. They can take control. They can do ransomware attacks on how you respond, and how we support companies to respond, and a good way, yeah. It's super important, certainly a discipline and a skill set which is more and more in demand. But actually, we can use some of these same technologies also to do productive things, to do automatic checking and make environments more secure, but, yeah, absolutely a hot topic.

Jenn Didonin 28:49
I think in some ways that's why the Industrial Internet can be a bit of a misnomer, because the Internet almost implies sort of open access and free rein for everyone to get online. Many of the solutions that we're building for customers are built in completely private connectivity. It doesn't touch the Internet, and if it does need to go over the Internet to get to the cloud, we've implemented zero trust security solutions on top of everything that we do, because some of these use cases operate in completely closed systems. Some of them, like more of the consumer-oriented applications, will, of course, use the Internet, but it's highly secure environments in most cases that we're building for our customers.

Tim Samuels 29:38
And is this technology going to be available across the world, or will there start to be a kind of a technological divide that's exacerbated between the most powerful nations and the developing world?

Justin Sheilds 29:52

For sure, in the developed world and in cities and high-density populations, you have the best access to 5G for example. But again, that low powered network that we have as part of 5G can go super far and super deep and doesn't take a lot of bandwidth, so can really help us to get to remote sites. And we have lots of applications using nano band IoT that enable us to support those specific use cases of the things we've done with Extreme E in Scotland, were good examples. But we also have other connectivity's that we can draw on, satellite and low orbiting satellite is really something which is starting to take pace, and we work in collaboration with many of those operators to provide connectivity to really remote locations. I think in Sub Saharan Africa, that's an area where satellite technology is really going to help, because the ability for us to deploy traditional mobile networks is really logistically extremely challenging. So yeah, look, I think having ubiquitous coverage globally in every location is going to have a pretty high bar, but some of the emerging technology can definitely help.

Tim Samuels 31:02

Jenn if we look to the future, where do you see this going, in terms of our daily lives, at work and at home, in terms of our health? What does the kind of nth degree of this look like?

Jenn Didonin 31:14

I like to think backwards and think about like my grandmother was a telephone operator. So, she was literally someone who would ask, who are you trying to reach? Okay, let me plug you in to them. And she used to plug those circuits into the wall for people. And then when I was growing up, I grew up in Asia, and my family was in the States, and so I didn't get to talk to my grandmother very often. It was a very expensive long distance phone call. Now I look at my children, and it's completely normal for them to have a FaceTime with Grandma, whenever they want, and they don't think about the cost, and they don't worry about the cost.

And I love to then think that the exponential change that has happened from the communication that my grandmother had, to what my daughter has. What's my granddaughter going to experience?

And I'm kind of visualizing a world where it's not just a FaceTime, it's a three-dimensional experience. It's haptic. So, I can actually virtually hold someone's hand and feel what that feedback is. So, the kind of melding of the digital and the physical worlds is going to really come together so that our experiences are genuinely enhanced by the mixing of those two worlds.

And I think you can take the same analogy into business as well. You know, the CFO, or the COO of a company is going to have that much data and capability to understand how their business is operating and how they can optimize it, how they can disrupt it and transform it to take the next wave of change and innovation that, for sure, is going to keep coming, right? We nobody's going to stop the tide of change and innovation, but what we're going through now with this fourth industrial revolution is that our ability to understand how things are going to change and how things are changing, is so much sharper and clearer than it ever used to be.

Tim Samuels 33:19

So you can see the potential for the different technologies to allow the Industrial Internet to have an impact on the developing nations, even right now. But I suppose Jenn the greatest advances are going to come in places like the US and Europe for now?

Jenn Didonin 33:35

Yeah, we as Vodafone see enormous potential in Europe for the Industrial Internet, not alone, because there are some huge contributors to industry and industry powerhouses in Europe. Whether it's in the pharmaceutical industry, the manufacturing, automotive, oil and gas, we have huge companies that are building the machines and the capability that will power the Industrial Internet. But we also have a very large, small and medium business population that is innovating and thriving every day, and we believe that by democratizing some of this technology that the big guys are using to power SMBs. We're going to really bring innovation and disruption to our consumers and basically enhance Europe but the broader, broader world as well.

Tim Samuels 34:33
Justin, what excites you most about the future?

Justin Sheilds 34:36
I just think the ability to take these use cases and deploy them into more and more different, practical use cases in different industries. I think agriculture and environments are places where I don't think technologies had a big enough role. The cost of sensors falling, expanding the connectivity. And reach that we have, and the ability to build really simple applications that confer into those business processes where money is much more important, I think at a smaller scale, I think that's super exciting. We love working with customers who've got problems, but we really love working with small and medium sized companies, because you can really see the personal impact of the work that you do.

Tim Samuels 35:22
I have to say, as someone who's slightly on the outside of all this, it is fascinating to hear about this kind of revolution I wasn't really aware of that's going on all around us, and you can just see how much impact it's going to have on industry, on the economy and on so many lives. Makes you wonder what the fifth industrial revolution is going to be and whether we're going to be part of it or are the co-bots just going to have a get together themselves, and you know, we'll come in one day and now good weekend, and they've instigated a revolution behind our backs.

Justin Sheilds 35:50
I'm definitely a glass half full optimist term on the use of technology, if I look at how our lives have changed right over the past, I've been working in computing, telecommunications, for 29 years. And if I look at the kind of advances we've made, and the positive change that we've made and new things that we can do, then yeah, definitely positive about the future.

Tim Samuels 36:12
And you're also glass half full, Jenn, this is a revolution to be welcomed?

Jenn Didonin 36:18
Yeah, absolutely. I think that there are fantastic changes and outcomes that we're delivering today, and I really believe in the future that we're going to drive even better outcomes. I think there are some very real problems in the world that if we applied all of this fantastic technology to, we could really solve them, whether it's, you know, climate change or health crises, or how do you get better equality and connect Africa as Justin was saying.
I think all of the emerging technology that we have has enormous potential. Of course, I also worry about, you know, the ethical implications, and that's why I'm a big believer, actually, in trying to drive as much education as I can into my kids about how to ethically and responsibly use technology for good, to connect for good.

Tim Samuels 37:17
There are challenges, but it feels if, if this can be harnessed in the right direction this, this could be transformative, Justin?

Justin Sheilds 37:23
Yeah, look, Tim, I think with a sensor, with connectivity, with cloud computing, in AI, I don't think there's any problem that we can solve right and as it becomes more democratized and easier to use, then I think we can definitely solve more of the things that get in the way of productivity, get in a way of people's lives. So yeah, we can. I'm super positive about the future.

Tim Samuels 37:51
Great the Industrial Internet, the fourth industrial revolution. Who knew? It's exciting stuff.

Jenn Justin, thank you so much for your time and joining us here on We Are Vodafone.

Thanks again to Justin shields and Jenn Didoni for sharing their insights on the Industrial Internet and its potential to transform how businesses, both big and small work. As we begin to navigate this fourth wave of the Industrial Revolution, we're already seeing how technology is helping us work smarter, faster and better. Let's see what the future brings. Thanks for listening to We Are Vodafone for more insider insights on the next big thing in tech, till next time.