TECH REIMAGINED
AN ENDAVA PODCAST

How we move people and goods reimagined with Adam Banks and Tony Whitehorn

- Part 1

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BRADLEY HOWARD (BH): Hello, I'm Bradley Howard and welcome to Tech Reimagined, a place where we get technology experts together to explore innovative of ways to reimagine the relationship between people and technology as it relates to things that influence our everyday lives. Today, I have two experts from the mobility industry, Tony Whitehorn and Adam Banks. Tony, would you like to introduce yourself?

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TONY WHITEHORN (TW): Hi, I'm Tony Whitehorn. I've been in the automotive industry for well over 30 years. Goodness me. And more recently I was president and CEO for Hyundai, a motor company in the UK and parts of Europe, and I stepped down back into the middle of 2019 and now set up a consultancy and I'm involved in many things in boards with regard to mobility.

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ADAM BANKS (AB): Hi, I'm Adam, currently a non-exec director on a number of fintech financial type companies–here, though, more because of my background. I was CTIO, which is Chief Technology and Information Officer for A.P. Møller-Maersk, the world's largest shipping company. And prior to that I was Chief Technology Officer and Chief Information Officer for Visa.

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BH: We're hearing a lot about mobility at the moment. I'd like to start by sharing our definition of what mobility is all about. It's that which enables people and goods to traverse the landscape of the physical world faster, more efficiently, and with more granularity than is currently available today. Tony, how does that resonate with you?

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TW: Yeah, I think what's really interesting about mobility is that it really is...it sort of encompasses so many things nowadays. That's a good thing and a bad thing. And I think what therefore happens is that it's, it becomes a bit nebulous to some people. But it does enable more and more sectors and more and more industries to enter a space that historically has probably been dominated by the likes of the automotive industry, to be honest.

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BH: So, things like payments, for example, we hear a lot about how transports is facilitating payments, especially on underground to metro environments and driving the adoption of contactless payments.

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TW: Yeah, I mean, historically you'd had never have thought that, let's say Visa or anybody like that would be in the mobility space. But as per your previous definition, enabling people and goods to move in a seamless way–to enable that to happen, you have to have something like payments, therefore it becomes frictionless. So, on that basis, you're drawing in different industries that previously would never have considered them to be in, in that mobility arena.

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BH: And do you think that's one of the reasons we're seeing such acceleration of new companies

coming into the fold, like Tesla, for example, with a market cap that surpasses almost every other vehicle manufacturer?

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TW: Yeah, I think that what historically has happened, as with many industries, is you had this silo mentality that say, 'Yeah, I am in the automotive industry, I am in the freight and logistics industry.' And by virtue of connectivity, those barriers have been broken down. And I don't think that that has ever really happened before. So, where we are at the vanguard is something that is changing quite dramatically, and in a brand-new space.

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AB: I think there's an interesting point there, around, for want of a better word, base technology capability. So, be it connectivity, be it type of devices, be it battery life, those kinds of things are really starting to open up industries that previously couldn't be digitised because they were physical to digitisation, because you can connect the physical to the digital.

[00:03:53]
BH: That's really interesting, isn't it? So, we've been hearing a lot about the term Mobility-as-a-Service and how it will be powered by 5G. Adam, do you think that this is another industry buzzword or does it have some genuine meaning?

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AB: Depends which one you're talking about. If it's 5G, then I do think that certainly for goods mobility it's going to have a significant impact. Data volumes in that area are tiny. They always have been. They're constrained by satellites. So, the sort of 5G bandwidth is nothing but hype. It's the low latency aspect. When you look at, if I just take Maersk as an example, there's four million containers in continuous movement around the world. Trying to understand every single data point, where it is, what's happening to it, the amount shock it's been through, temperature, pressure inside a container on a continual basis requires a very, very chatty interface. And that's what 5G is going to enable at a different, lower level of granularity than we've ever had before.

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BH: So, there's four million containers. How do you think that will affect things like the airline industry then, for example, where you got aeroplanes all over the world all now wanting to be tracked?

[00:05:01]
AB: Yeah, so that kind of capability has been there for a long time. If you think about a plane, it's got an almost unlimited power source. It's got a huge amount of assets strapped to it. It's when you go to the other extreme and say a pair of jeans or a small cardboard box. How would you track a cardboard box? It's got no power connectivity to it. It's got no network connectivity. The kind of technology we're seeing today enables you to do exactly that. So, mesh networks that are pretty much powerless, RFID type networks, those kinds of things connected to, let's say the container that they're in, the container broadcasting to the ship or the truck that it's on, the truck broadcasting to them. That's the kind of insight you can get. And then companies and customers can be able to choose to prioritize goods in transit. And that's a complete game changer.

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BH: So, between Adam and Tony, we've heard almost the B2C type approach that Tony was describing with basically cars. And Adam, you were describing much more of a B2B type environment of not just looking at the container, but the goods inside the container and the

environment in the container, which I had never thought of before, but do you think there are also the adjacent industry links with B2B tracking of containers and the items?

[00:06:15]
AB: Absolutely. If I offered Tony the opportunity to have a factory that never ran out stock because he could prioritise the gearboxes over the dashboards or whatever it was that was coming in, that would be a hugely attractive proposition. Cost of goods? So physical transit costs are almost zero to put some real numbers on it. The cost of shipping, all of the raw materials into Japan or to China to make a pair of Nike trainers and ship the trainers from China back into Europe is 25 US cents per pair of trainers. If you think of the value of actually getting the right goods to the right place on time, the value is massively higher than the current cost. And that's the opportunity we'll see through integrating the edges of supply businesses and demand businesses, so that it becomes in essence, a single virtual business, although with two separate P&Ls and two separate focuses.

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TW: And yeah, I think that's a really interesting point Adam has, because I think Toyota were at the leading edge of lean production, and their whole thing was don't have too much stock lying around. And that was really done on, I was going say, on a 'handdrolic' type of basis. But with connectivity, that now has spread into just about every manufacturing plant, whether it be cars, whether it be trainers, whatever it happens to be. And connectivity and IT has enabled everybody to embrace that lean production syndrome.

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BH: Is it Toyota–and in your case, Adam, Maersk–are they providing the connectivity and the integration between the different...?

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AB: Well, I think that's the next step. So, the connectivity we're talking about now is sort of connectivity within a business. Where we're going to get to in the next phase is connectivity across businesses. So, that for example, as the primary carrier for BMW, Maersk, for example, would be aware of the stock levels within BMW of certain items and can prioritise containers in their flow to make sure that that stock is kept at a suitable level.

[00:08:13]
BH: Thinking about the future, and automated cars, how do you think that's going to affect the overall industry? Tony?

[00:08:22]
TW: Yeah. There's a lot of hype about automation of vehicles. I'll be really honest with you. If you have a look at the car today, the level of automation is graded from one to five. One is essentially no level of automation, and five is no steering wheel. We are today, and if you think about cruise control, you think about radar, you think about lane-keep assist. So, when you think that was a serious amount of automation in the car, we are at level two! So, going from level two to level five is a massive, massive step. In 2016, there was incredible hype, about everyone going, 'Oh, yeah, we'll have automated cars! It'll be amazing!' And Waymo came along and guess what? Even the CEO of Waymo says, 'I will never see automated cars in my lifetime.' Automated cars, complete automation of vehicles will not happen until, my belief, about 2050. So, we are talking serious length of time. So, will it change? I think that what's going on the industry itself is that the car industry has got other priorities: Electrification, connectivity, are far, far more important for them than levels of automation. And so therefore, they're concentrating on those two aspects. So, I think

that it's a great headline: Automation. But from my perspective, I don't think it's something around the corner. Yes, the companies are using it at the moment for safety aspects, of course they are. But to be really honest, there's other priorities in the automotive industry.

[00:10:05]
BH: And you mentioned about the power train in cars at the moment. So, in the UK, here we are. The government has announced that we're going to not have any fuel-in cars in 15 years' time. How do you feel about that?

[00:10:20]
TW: So, I'm going to be a bit provocative here, because what's happened is that the world has jumped on the E.V. (electric vehicle) bandwagon. And if you look at it from 'well to wheel', which is the whole production cycle of an E.V. vehicle. If you compared an E.V, vehicle to the exact same diesel vehicle, the E.V. vehicle would have to have driven 60,000 miles before it comes exactly the same level as CO2 as the diesel vehicle, because in the production of an E.V. vehicle, the level of CO2 is enormous. So, yes, it's wonderful when people say, 'Oh, I've got a zero-emitting vehicle,' but you have to look at the whole production cycle of it. Don't get me wrong. If we can get zero emission in terms of levels production for the E.V., for the battery, then great. That's really good news. But we're nowhere near that at this moment in time. So, I think that E.V. has some legs. It is not the panacea. I think that many people, to be honest, would be more suited to driving a diesel vehicle today, which you don't hear that from anybody else, I have to say. But it's been painted as a very black picture. But to be really honest, if you're doing 30-40,000 miles a year, you should be driving a diesel vehicle. You should not be driving an E.V., particularly if you do long journeys. Overall, it doesn't suit, it's inefficient for people's lifestyle.

[00:12:02]
BH: Absolutely. Can I ask, what's the main vehicles in your households, then? Adam?

[00:12:08]
AB: I'd really rather you didn't ask that question. [Laughter]

[00:12:11]
TW: He's got a bike probably.

[00:12:12]
AB: No. I'm on the other end of the scale, when it comes to energy consumption, I'm afraid. I work on the basis that you're as green as you can be based on the numbers of litres of engine you leave on the drive when you go to work. So, I have quite a few large capacity engines, but they sit there most of the time, so that's okay.

[00:12:27]
BH: That's interesting because that brings us on to ownership. In fact, before we move on to ownership, what's the main vehicle in your household Tony?

[00:12:34]
TW: Yes, I have two. I have a hybrid vehicle and a petrol vehicle.

[00:12:36]
BH: Right. Okay. So, let's talk about ownership, as you were just saying, Adam. So, as part of Endava's 20th birthday, our chief exec, John Cotterell, was asked in an interview about future trends and he specifically called out the automotive industry, and he said, 'Only one in 20 cars are

being used at any one time. The rest are sitting in car parks and garages. So once autonomous cars become more widely available, people won't need 95 percent of the cars they need today.' And we've already talked about automated cars, but the ownership point is really interesting. If only 1 in 20 cars are being used at any one time, why do we need so many cars?

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AB: I think that's an interesting societal point in there as well. Everyone immediately looks at the benefits of, well, you know, five percent of the cars there are today, much higher utilisation, much more efficiency. I spend most quality time with my kids driving them somewhere. Now, in a fully autonomous world, they're doing that by themselves. And I definitely would miss time with my son on the way to sports and my daughter on the way to music, because that literally is probably 8 to 10 hours a week.

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BH: That's really interesting. Tony?

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TW: Yeah, I think let's put autonomous cars to one side, because they're in the future. They're some way away. I think between now and 2050, what's going to happen? We only drive our cars five percent of the time. 95 percent of the time the car is stationary. Where's your car now? It's in a car park. It's somewhere else. It's not being used. And when people say, 'Oh, I use my car a lot,' think about the time of use of your car. Yes. I think you never, ever think about when you're not using your car. And yet it's not used 95 percent of the time that you have it. So, as society moves on and people look at sustainability, we have to look at a more efficient way of utilising that asset. So, I am a big believer in car sharing of some form. Now, car sharing doesn't work if you are commuting–I totally understand that. But in terms of second cars, is there something that you can be–I mean, not a lot of people have two cars. There has to become some sort of car sharing situation that is a viable prospect. And I don't just mean alley rental. There is something like fractional ownership, which would be very interesting, because let's be honest. You wouldn't have thought that 20 years ago that all those wonderful C.D. players and C.D. disks that you had in your lounge or stacked up to be looked at would actually be completely useless now as Spotify comes in. It's a subscription model. Same with Netflix. There has to be something else in terms of the utilisation of the asset that we have today in a more efficient way. And that to me is a subscription model on cars. That's, I believe, what's going to bridge between now and the autonomous cars.

[00:15:33]
BH: So, I ride my bike through central London most days as I commute to work, and I pass several bays that are part of these subscription models, but it still feels not very many. Even in the middle of central London. Why are they not taking off? Do you think back to Adam's point that it's quite cultural, that we want to own cars?

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AB: To chip in with a Copenhagen perspective, having spent the last five years living in Copenhagen, two things are very apparent: One, the bicycle is king. I mean, the bike has right of way over cars. So, if you're in the UK, when you come to turn left in a car, it has to wait for the bikes in Copenhagen. So, there is a massive amount of cycling. Something like 99 percent of Danes cycle weekly. The other is that there is a very large usage of car share schemes. The main reason for that is parking charges. So, parking charges outside your house are 35 pounds a day. Unless you have specific land you own, which in the city is fairly rare, any form of parking is about 35 pounds a day. Therefore, the hourly model becomes highly attractive. I mean, I was five years out there, didn't have a car.

[00:16:47]
TW: Yeah, I think as well that society is changing. Historically, we as a society have been about ownership. That's what we have been. We own our houses. We own cars. That's you know, that the castle is, you know, that's what we have been brought up with. The millennials coming through, they're more about usage. They don't care about ownership. You know, there's so many more rented places that are out there today, which was never something that I was brought up with, but today, that's exactly what my kids are doing. So, on that basis, that idea of ownership, saying, 'Why should I own it? I just want to use it.' And that, therefore, is a different psyche to those people who are coming through, and on that basis, if you think about usage and not ownership, and this isn't a great thing for car manufacturers, because they're going to see not as many people buying cars, because people can be sharing them. You know, the three of us, actually, we could be starting to share cars. So, I do think that there's a model that is changing and that is something as well that there's happening with our culture as well as a need for sustainability and wastage. It's ridiculous. You go down a road in London and you can hardly get down it. Why? Because of all the cars parked.

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BH: Yeah, so, I had a great conversation with my brother-in-law a couple of years ago. So, I've got a 17-year-old son, and we worked out how much we could give him as Uber vouchers rather than putting through driving lessons, the test, buying a small car and insuring it in the first couple of years. And it was several thousand pounds, but it just doesn't feel the same kind of return. If we just said, 'Here, here's a whole load of money for you to go and spend on Uber,' so maybe there needs to be that cultural change. Are you suggesting that with more flats renting, but also more subscription models across things like Netflix, Spotify, etc., it will just become natural to rent a car as you need it on that need basis?

[00:18:51]
TW: I think there's something definitely in that, in that culturally we are moving on. And when you start to look at the asset that is not used 95 percent of your time, you're going, 'Why have I got this?' There must be some sort of opportunity whereby the three of us could, with the appropriate app, share this vehicle, shouldn't we? Not necessarily as my primary vehicle, but my secondary vehicle. Shouldn't we be sharing this? Much better, much more effective in terms of wastage and sustainability.

[00:19:21]
BH: So, Tony, while you were chairman of Hyundai UK, you saw a big change in customers wanting to buy the car, to hire-purchase and other different forms of owning that car. How long do you think it'll be before we start seeing real mass change and a migration into more of a subscription model?

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TW: My view is that is around the corner. If you look in central London, great situation whereby you have a number of developers who are building flats and when they're building apartments, they have a restricted number of parking spaces. And of course, from their point of view, they don't want that many parking spaces, because for each parking space, they could put another apartment. So, from their side, it's good. Greater London council as well, they're also saying, 'Oh, we also don't really want to have too many parking spaces, because we want to cut down on congestion.' So, there has to be something there whereby this block of apartments could start to share vehicles in a restricted number of parking spaces with all those people who actually own those. So, my belief is it is coming.

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AB: Are we going to see the auto manufacturers step up? I mean, if you think of that model, it'd be great to have three small cars, one medium, one large, and a van. Where the auto manufacturers are rocking up and saying, 'Hey, we'll be part of this as a partner.'

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TW: Yes. So, from my knowledge, and I absolutely know that that's where the auto manufacturers really can see things happening, in the automotive situation, there's C.A.S.E, 'case'. So, it's 'Connectivity, Autonomous cars Sharing an Electrification'. So, that's C.A.S.E. And it's that the 'S', which doesn't require lots and lots of investment, it requires a cultural change, an innovative move. And that's where automotive manufacturers are saying we need to get into bed with people who are into the sharing model, because really, big conglomerates like Toyota, Hyundai, BMW, they're not agile enough to get into that, but they're partnering now with people who actually can develop sharing models.

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BH: So, putting the last two parts of the conversation together where we've talked about autonomous vehicles and also car ownership, we're already seeing a decline in car sales, across certainly in the UK, the SMMT announced that earlier this week. But if we suddenly start finding that the number of cars being sold declines because more subscription models, do you think we'll then see less investment into autonomous cars as well? So, it would become kind of ever decreasing circles? I know that you're saying that autonomous vehicles are probably still a way off, but will that be even further away if there will be less investment there?

[00:22:14]
TW: I believe that's true. Car manufacturers are not making as much money as they used to because they're having to invest in great levels of technology, and particularly electrification. Nobody makes money out of electric vehicles. Manufacturers, dealers, intermediaries–there's very little profit, in fact no profit really, in electrified vehicles at this moment in time. Whereas historically with a normal internal combustion engine vehicle, there's lots of profit in that. So therefore, the manufacturers are saying, 'Where am I going to get my money from to invest in the future?' They are looking to survive as at today. And that's an issue for them.

[00:22:55]
BH: So, it's interesting that we talked about the profitability of the car manufacturers, moving back to Mobility-as-a-Service, companies like Uber, Lyft and so forth as well, they're also announcing that they're struggling to make some profits as well. And in fact, Uber have said that the way that it is going to generate some profit is through its sideline businesses like food delivery, etc., rather than the transportation of people. Any comments on that?

[00:23:22]
TW: Yeah, actually, I'm interested in from Adam's point of view, because is it very much in the logistics? Are logistics now very profitable?

[00:23:32]
AB: No. So, logistics is more of a commodity industry than you'd like to think. I mean, there's brokers in logistics, the people called 'freight forwarders' who are the commercially astute folks that are buying and selling space. I mean, they don't only assets are just buying or selling space on assets or buying and selling rental of containers. The margins there are reasonable. But if you look at the asset owners, the people own the ports, the ships, the containers, roughly speaking, over 10 years return on invested capital has been down in the sort of 2 - 3 percent.

[00:24:04]
TW: Oh, gosh.

[00:24:05]
AB: So, I mean, if it was your money, you'd leave it in the bank type scenario. They're mostly family owned businesses, have been for generations, which is what keeps people there. So, I think that industry has to look for another opportunity, which is where there's a seamless logistics, where manufacturing and consumption is tied together through real understanding of what's going on as stock levels within both ends of the chain is where potential logistics can play a more important role.

[00:24:31]
TW: Hm.

[00:24:32]
AB: I mean, if you think, we'll go back to our Nike trainers example. 25 cents to ship it, just think of the labour arbitrage. All of that profit pool has been given away to the end customers in there, so that there needs to be a way of thinking about physical flow smarter. And that's what some of the logistics companies are starting to get into now. It's possible, for example, on a large boat, one of our big boats carries 23,000 containers. If you're the last loaded and the first off, you fall days quicker in transit than being the first on and last off. That's not monetised today in shipping. Why would you not go to an express sort of model? Equally, the same way a computer network, an IP network works. You have sort of dynamic routing of IP packets. Well, that could be the same for physical goods. You could dynamically route stuff across a network. The challenging part today is, of course, that means going through different countries, which means different paperwork, which means different clearances. So, if you know, if you dynamically routed it. But there's no reason now we've got this granularity of information that you couldn't dynamically route goods in exactly the same way we do with computer networks.

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TW: So, from your perspective, you are saying that profitability in logistics can be leveraged by virtue of technology and connectivity.

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AB: Yes. It basically gives us the opportunity to abstract. We can ship by cardboard box, not ship by ship load. And historically, logistics has worked on the thing it sits on. So, everything on a train travels together, everything on a truck travels together, everything on a ship travels together. Well, we have the insight to do that at the micro level of granularity today. So, they might just be happening to travel together and branch off at different points. That's where it'll get to, and that will allow personalisation to a certain degree of logistics, transport, which is what everyone's looking for, from a customer perspective.

[00:26:31]
TW: It is quite fascinating, because I also see that IT and connectivity is crucial, more so in, let's say, in my industry, in the automotive industry, and in particular, if you look at what's happening in the automotive industry as we do gravitate towards E.V.s, you would start to say, ‘So how's the government going to generate some money?’, because they get 28 billion pounds from fuel duty at this moment in time in the UK. So, as fuel goes down, where are they going to get that from? The only way, my belief, that the government can get more money is by some degree of taxation on usage, and that therefore is the car all of a sudden has to become connected from the minute you get into it, and all of a sudden the clock starts ticking, is picked up by the government, and you are

therefore charged, let's say, 20 pence from going from Reading to Maidenhead. And that's how it's going to have to be done, because you can't start taxing electricity, because that goes into your house and that's only at 5 percent VAT compared to 20 percent as well. So, the amount of money that the government's going to lose by virtue of fuel going down, going to electrification is massive. And the only way they can get it back is through technology in the car talking to–essentially, it's seamless tolls. So just like where you're saying in logistics, connectivity is the route forward, it has to be so in I think in our lives, in the whole of mobility, that's going to be the case.

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AB: And I think that one of the challenges doing it, logistics by nature is global. No one ever ships from UK to UK; you don't do it. A lot of the regulation is national. And I think we're going to see exactly same challenge in the car world when we're looking at connectivity there. Because the way the UK government set it up might be completely different in the way the French government set it up–even worse if it's both left hand drive. So, let's say I'm in Europe and I'm out of Europe, left hand drive countries, potentially with adjacent borders. Are the car manufacturers going to have to support multiple models and multiple modes of that? That's really not a burden you want sitting on your balance sheet if you're a producer.

[00:28:45]
TW: Absolutely, and there has to be some level of degree of legislation that comes in that is global whereby, you know, you move from France to Germany and it's all seamless. It has to happen.

[00:28:56]
AB: And is the facility for global regulation, does it exist in the auto industry today?

[00:29:03]
TW: No, not really. I mean, it's very, you know, European centric. Yes. So, Europe had their own rules, but America has their own rules and Asia has its own rules. So that's a bit of a problem moving forward. You could do something across Europe. And I suppose that more with people movement in cars, it is restricted, not so really with movement of goods.

[00:29:26]
AB: Legislation, governmental legislation, and actually getting adaptability in product, and the court, in order to support the adaptability, is one of the biggest challenges in logistics. Because you can't get two different customs agencies to agree on anything. By nature, they're going to be competitive.

[00:29:43]
TW: Roll on, Brexit. That'll be good, then. [Laughter]

[00:29:45]
BH: The IT industry has been trying to work with customs companies for many years. So, we're now going to play a game. It's called 'The Mobility This or That'. I'm looking for one-word answers, as difficult as that's going to be with my current guests. So, I'm going to take it in turns to ask each of you a question. I'm looking for your preference over each of them. So, the first one, Tony, because I already know what Adam's answer would be. Tony, would you prefer to cycle or drive?

[00:30:20]
TW: [Laughter] Okay, so there's a pause there, because it depends how far the cycle ride is.

[00:30:25]
BH: Okay, let's say let's say a five-mile trip.

[00:30:27]
TW: Oh, cycle.

[00:30:29]
BH: You clearly don't live in the hilly area. Adam. Electric or fuel?

[00:30:33]
AB: Fuel.

[00:30:35]
BH: Netflix or Amazon Prime?

[00:30:37]
TW: Netflix.

[00:30:39]
BH: Analog or Apple Watch?

[00:30:41]
AB: Analog.

[00:30:42]
BH: I can see you are at the moment. Spotify or Apple Music?

[00:30:46]
TW: Spotify.

[00:30:47]
BH: Cash or Bitcoin?

[00:30:49]
AB: Cash.

[00:30:50]
BH: Monzo, or one of the new challenger banks, or traditional bank?

[00:30:57]
TW: I would say Monzo.

[00:30:58]
BH: Okay, I'll let that for a one-word answer. Facebook or Snapchat?

[00:31:02]
AB: Neither.

[00:31:04]
BH: [Laughter] I knew that was going to happen. Tony, when traveling on London public transport, plastic cards or Apple Pay?

[00:31:15]
TW: Plastic cards.

[00:31:17]
BH: Doorbell or ring?

[00:31:20]
AB: I've got a bell, but like a proper, big old clanging bell. [Laughter]

[00:31:25]
BH: There we have it.

[00:31:26]
TW: You nicked it off of one of those ships you had, didn't you? [Laughter]

[00:31:29]
BH: The CIO and CTO of massive, massive companies still has an old-fashioned ringing doorbell. There we go. Thank you very much for joining us on today's podcast. In Part 2, I'll take a closer look at how Adam and Tony got to where they are today in their careers. We'll find out the best piece of advice they've ever gotten in their career. Don't forget to like this podcast. Subscribe to the channel to automatically get all of our new episodes directly to your device. Thank you very much.