

## Technologies & Skills Of The Future

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BRADLEY HOWARD (BH): Hello, everyone. I'm Bradley Howard and I'm happy to welcome you to the latest episode of Tech Reimagined. Today, I have the pleasure of welcoming Dave Copeland to our podcast. How are you today, Dave?

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DAVE COPLIN, CHIEF ENVISIONING OFFICER, THE ENVISIONERS LTD (DC): I'm doing great. Bradley, how about you?

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BH: Oh, wonderful. Thank you. It's quite warm when we were recording this at the moment. Lovely day. Can you just tell us a few words about you and your career, please?

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DC: Yeah, so I've spent – God, going on for 30 years in the tech industry. I started out my career with Apple. I spent 12 years at Microsoft. I've worked with Google and Facebook. And the thing that united me across about 30 years is this passion not for technology, for the sake of technology, but for what technology enables us to achieve as human beings. That's my sweet spot. I wrote a book called *The Rise of the Humans*, which is all about this in a world where we think the, you know, the algorithms are going to take over the planet and the robots are going to take our jobs, I want to fight back and say, 'look, this isn't about, you know, being anti-technology, but it's about using the technology to lift our capability, to help us achieve more. But we're going to need to strike a really different relationship, one that's much more open to what technology can do for us.' So my life is really spent working with big organisations and schools and governments and parents and individuals just saying what could we do to get technology to really positive, constructive, creative place in your lives?

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BH: Well, on that very note, today's big question is all around technologies and skills for the future. So what do you think are going to be the key technologies that are going to help us succeed both in work or life?

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DC: I think there's one big technology right now, and we talk about it all the time and almost to the point where we've sort of forgotten what it really means. But it's artificial intelligence and it's the kingpin for everything that's going to happen for the next two or three decades, if not longer. And the reason I think that is what artificial intelligence is going to enable us to do is to automate a bunch of things in our lives. And it's funny because 200 years ago we'd have been doing this podcast. It would have been the *Ye Olde Podcast*, clearly, Bradley, we would've been talking about the weaving industry and how this, you know, this revolutionary Spinning Jenny, is going to transform the weavers because we're going to automate the mechanical parts of what they do.

It's the same conversation today. Only the key difference is we're not going to automate the mechanical parts of what we do at work. We're going to start to automate the cognitive parts of what we do. So broadly speaking, anything we do that follows an established pattern. And the easy examples would be think about the call center scripts that you go through when you phone up a call center. The trickier ones, I think, about your doctor. So your doctor goes through a

established pattern of, you know, trying to figure out what's wrong with you, lawyers, accountants, you know. These are things that to a certain extent can be easily automated.

Anything that takes a human less than a second to think what a given response is to a challenge against something that can be easily automated. Now, as terrifying as that might sound, if that's used well, what that should do for us is free up all of the time we spend doing the robotics stuff such that we can go on to do the stuff that the algorithms can't do, the creative stuff, the really, you know, sort of advanced stuff, the really good stuff that brings in all of that sort of human side of work. And that's the opportunity for us going forward as a society, both in the world of work and in our personal lives is how we start to understand that balance, learn to love and trust the algorithms, but fight really hard to do more of the human stuff, the stuff that the algorithms can't do well.

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BH: And do you see particular industries where that's likely to hit first? I mean, we as Endava already see this happening in a number of industries, banking, financial services and insurance, for example.

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DC: Yeah I - look, I think it's going to happen everywhere, but I think there will be some really interesting ones and it's going to be some real painful truths, I think. So, for example, the regular GP, the role that they provide, a lot of that will be -easily- will be done by an algorithm. So, you know, if I, when I went to college, you know, to do medicine would be like, wow, that's amazing. I'm not sure that's a great vocation. I'm not saying it's a terrible vocation, but actually I think it's going to be a very different vocation. Same would be true: accountancy, lawyers, you know, we talked about banking and finance, you know, health care. There's a conversation about if I want to be a radiologist. Actually, the algorithms are actually better at identifying problems on scans than the human. So and, you know, this is a difficult conversation, Bradley, because what we end up with a really sort of a negative connotation of algorithms stealing our jobs.

The reality is what the algorithm should be enabling us to do is to do our jobs even better. And just to pick on one example, let's go to radiology and there was a project that I was sort of on the periphery of a few years ago, which was taking machine learning into an oncology ward in a hospital in Cambridge at Addenbrooke's Hospital. And it takes a good oncologist, a good consultant, about five hours to look through the scans of a single patient to be able to identify whether that patient has or has not got a brain tumour. Well, the algorithm, trained properly, can do that same process in 30 minutes and not five hours, does it in 30 minutes and with greater accuracy than the human.

But the joy of this story has got nothing to do with the fact that the machine is better than the human. The joy of this story is what the oncologist choose to do, chooses to do with the time that saved because they could do another nine patients in the time that's been saved, they could process nine more patients. Wouldn't it be great, get that waitlist down. But what this oncologist said, well, actually, look, this is the point where I'm about to tell another human being that they have or haven't got brain cancer. I actually think if I've got time to spare, I would be better, I would deliver more value by spending that time with the patient and just talking to them and being with them. And for me, it's the epitome of something that I call the opportunity cost of automation. I'm pretty convinced that organisations of the future will be measured by – they're sort of measure of success, will be what they choose to do with the time that automation has given them back.

So if arbitrarily I can automate 30 percent of your business, if you go and choose to do something that really adds value, I think you're going to be really successful. If you take that 30 percent and you go and, you know, spend it on something that actually, you know, could easily be automated or done elsewhere, I think you're going to die in five years. You're just not going to be around is a race to the bottom at that point. And so it really becomes about how we understand the opportunity of AI and machine learning, but it's really about what we choose to do with the benefit it gives us. That is really where the measure for success will lie.

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BH: So what do you think the employees should be doing at the moment to prepare for AI coming their way?

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DC: There's a number of things Bradley. Number one is about being confident enough in the algorithms. So - and you've got to do this step by step. So I worked for a big pub and restaurant organisation in the U.K. and we had this debate about an algorithm that we'd got for allocating the bookings, the reservations. And the way the argument would go is, look, we've got this algorithm that will help us maximise the number of bookings we're able - the volume, the throughput, that we're able to push through a given outlet. Right. So and it makes sure that we're, you know, all of the tables fall at the right time.

So we would take that to the manager of that outlet. And the manager would stereotypically say, "What algorithm is going to know more than me? You know, I'll tell you what, this place is going to be like 10 o'clock on a Saturday night when England's playing at home. And no algorithm is gonna to know". And we're like, "Well, yeah maybe. So look, tell you what, give us 10% of your inventory. So 10% of the available tables, and we'll let the algorithm handle that. And then if it does a good job, we can see if we're going to do more." So, of course, time passes. The algorithm does a great job and now the algorithm handles all of the bookings. Right.

So number one is about being open to the opportunity. And we have a responsibility as technology providers. We've got to win that trust. We've got to earn that trust from people. Number two is for those individuals to really understand what's going on. And so the algorithm isn't perfect. It works on patterns, you know, spotting patterns in data, but probably more data and more patterns than we can comprehend as humans. So I think, you know, having that understanding is helpful. And the third is about data. And, you know, in the tech industry, we talk about data all the time. But I actually think every individual in every organisation needs to build a data culture, which is just a basic understanding of what data is, how it works, what's good data, what's bad data, because these are the basic skills that when we're looking at, well, how do we make the algorithm work better or why isn't the algorithm performing the way that we think it should?

If I understand the data that's being used, I'm going to be in a better place for really understanding, you know, the value of it going forward. So it's those little things. It's about winning and earning trust. It's about showing the benefits such that they can open their minds about the possibility. And then it's really learning to love and understand data at a high level. I mean, I'm not talking about being a data nut.

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BH: So let's go to a macro level at the moment. Can you can you tell us with some of the trends that you're seeing in future technologies that we should be aware of?

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DC: It's a really great question, and I'm not sure that there are, you know, individual examples. But I think, you know, the thing that I've really enjoyed and again, against the most horrible of circumstances is this new relationship that we've discovered with the technology that we carry around with us every day. The power of our smartphones is insane. And I don't mean that in computational terms. But, you know, people as a result of the pandemic have been forced to digitise the way that they do business.

And, you know, let me give you my pub and restaurant example, which I love this, you know, the fact that I can now go into a pub and sit down at a table and order a drink or a meal without having to go to the bar, without having to touch anything else in the outlet, without - just being able to be on my phone is pretty amazing. That capability has been around for a while. And I remember when we first trialled it, I had not only people in the business but also punter's customers – “Why would you do that? That's ridiculous, I just walked to the bar. That's stupid.” Whereas now you think, actually, that's bloody brilliant. I'm only going to go to somewhere - and not because of the pandemic. It's just simply more convenient.

And what we needed was a little nudge to be able to change our behaviour. It's a bit like another example from hospitality, the kiosk screens at fast food places like McDonald's. You know, why would you use one of those? Why wouldn't you go to – well bloody hell McDonald's, find it drives their revenue by about 30% because you can peruse the menu, you can explore you can be enticed into new offers. All of these things. We're just in a much better place right now to have that happen. I think rather than sort of looking at these specific, you know, individual examples or specific technologies, for me, it's the humans where the greatest potential now lies, you know, in terms of the opportunity going forward.

You know, for years we've talked about this concept of ‘dumb users’ and, you know, people who don't have access to great technology. And we've often forgotten the fact that most people have better technology in their personal lives than they use in their professional lives. So these ‘dumb users’ are now experiencing all of these things and they are quite sophisticated users and they have really high expectations of us. And when they engage with our businesses, they're already up here about what they want the technology to do for them. And I think it's a really special time for- I think that is probably the most significant opportunity that's related to technology that sits in front of us right now as we speak in 2021.

So for IT guys like me who have, you know, four decades I've begged- I would love, if you would just walk in the door and say, “Hey, Dave, tell me what technology can do for me?” I would have just, “Oh, my God, Christmas has come early”, but it never did, of course, it was, “Hey, Dave, can you just fix my bloody computer and then go away? Because, frankly, you scare me.” Now, we're in this wonderful debate and we're looking at how can I help the business? It's almost back to where we started it 30 years ago when you needed nerds like me and you, because we were the only people who knew how this stuff worked.

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BH: You mentioned about consumer technology often being ahead of what I would call enterprise technology. Why is that the case and why is it still the case? Because many of our services are still cloud based, usually on the same cloud that we're consuming on both. But why does it always feel enterprise is behind?

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DC: It's a really challenging balance, I think, Bradley. A few years ago, I probably would have answered this differently. There used to be a prevailing wind in IT departments, which was dumb users and complicated security requirements and licensing agreements, and, you know, "I know you want to use cloud storage or, you know, in my day it was wireless networking, but you can't because I said so because I control the IT", you know, and over time, users would just say, "no, I'm going to do it anyway. What are you going to do about it?" And so that world doesn't exist. But what does exist is some of the complications around, you know, security and, you know, to a lesser extent, licensing. So the capability to deliver consumer grade services exists. The challenge is how you make that delivery happen.

Sometimes it's a simple look, You can't use Dropbox, arbitrarily, because we don't have a license for Dropbox. But here's this thing called One Drive or Google Drive, which we do have a license for. And look, it doesn't look exactly the same as what you used to, but it works in the same way. So, you know, I'm sure you'll figure it out. Then there's the midground where, you know, and there are fewer and fewer of these around, where there would be the sort of classic IT solutions that have been IT solutions for decades. And they feel kind of like 1990s IT rather than, you know, 2020s consumer grade technologies. Those are thankfully, you know, dying out. If you look at most commercial grade enterprise software, it has that consumer look and feel because people realise that and they see that. But I think part of it is also in the awareness of individuals. And it's back to the mindset of how the organisation deals with technology. If technology is dealt by the IT department and is managed in a corner, in a box, and they're just 'the IT guys', you know, that's always going to be difficult. If technology is seen as the enabler, then actually there should be this beautiful, balanced dialogue between the technologists who understand how the technology works and the business people who understand what they want the business to do.

There's this meeting of the minds, you know, "Can you do this?" "Well, no, but I could do this". And it's one of the most important skills that I learned from the IT security guys, which was they always used to be the guys that said "no", you know, so "can I use wireless networking?" "No, it's not secure", I'm like "Yeah, but it's really convenient" "No, it's not secure". And what the security guys learned is when they said no, we just went and did it anyway. And so what they learned to do is to say "yes, but" instead of "no". And so "Can I use wireless networking?" "Yes. But if you're going to use it, here's how we want you to do it". And I think that's what we've got to learn in the technology industry. When we're working with businesses and with individuals within those businesses is like, you know, can I have cloud file storage?

Yes, but if you're going to do it, here's how we'd like you to do it. So it's this, you know, we need to go back to empowering people with technology. That's what we're here to do. We have to be mindful of the constraints. And there are you know, often what we'll see in technology is greater constraints than often consumers will see. I'm you know, I'm really worried actually, honestly about cyber going forward. This whole concept of ransomware, I think is really problematic. I think it's an issue that we've really got to take seriously as an organisation. We've got to be thinking about cyber in a way like we've never done before and making sure that it's engrained in the hearts and minds and not, you know, that we lock everything down, but we're doing all that we can to manage that. But we have to have this balanced, open debate and discussion about the opportunity of technology based on the business outcomes that we're trying to drive. That's what I think it's going to take to get technology to the right place in business.



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BH: Do you think on the subject of cyber-attacks that there's still a public perception of it? Some kid in a hoodie somewhere and actually it's a victimless crime. It's not actually that bad. It's just a bit yobboish.

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DC: Yeah, I do. There's a wonderful, and I don't know if you've seen this on your social networks, Bradley, but there's a wonderful pushback that's happening right now for all of these things that 'your birth month and the last thing you bought is your new name' or whatever it might be. And it's basically all of this social engineering is like, 'I'd like your birth month. If I could get your first car, that would be really helpful. Your first pet's name would be brilliant. Where did you meet your spouse?' and we're starting to expose those kinds of things. But I think also at the same time, if you're looking for it, what you see is this state sponsored cyber-attack, which is, you know, just such a significant threat to our businesses and on a scale that we can't imagine.

I've never wanted to be a doomsayer. I'm really, I don't mean it in that sense, but we've got to understand that this is the world that we live in today. So let's just make sure that we do everything possible. You can never eradicate the risk, but you can make it much less likely to happen. And that's what we've got to do. We've got to educate our people. We've got to patch our software. We've got to make sure that we're using the devices and the technology appropriately because we're in a really different world. You look at the guys, you know, with the pipeline in North America just a few weeks ago and just the impact that that, you know, had there, we're going to see more and more of that going forward. And so we've got to prepare people. It's an inevitability of our life today. And it's not, you know, something that needs to be terrible, but it's just something we've got to learn to deal with.

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BH: Well, thanks very much for that last minute piece of advice. That's really good. And please, if you see anything on a social network, do not start entering your private details. It is just social engineering like Dave well pointed out. So thank you very much Dave for joining us. Thank you to all of our viewers and listeners for joining us as well. Please remember to like this podcast. Please can you subscribe as well, and stay tuned for another episode of Tech Reimagined. Thank you.