



# **Andy Green CBE**

Interviewed by

**Jane Bird**

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By Zoom

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*Welcome to the Archives of Information Technology where we capture the past and inspire the future. It's Tuesday 6<sup>th</sup> February 2024 and we're talking on Zoom as has become customary since the Coronavirus pandemic. I'm Jane Bird and I've reported on technology and the IT and telecoms industries for newspapers such as The Sunday Times and the Financial Times since the early 1980s. Our contributor today is Andy Green. Andy is former chief executive of BT Global Services and of Logica. He also held senior roles at ARM, IG Group, Digital Catapult, UK Space and the Disasters Emergency Committee which raises funds for humanitarian crises round the world. In 2020 Andy was awarded a CBE for services to the IT industry and the British space industry. Andy, welcome. I'm very much looking forward to hearing more about your life and experience in the worlds of IT and space. So, if we could start at the beginning? You were born in Solihull in 1955, I think?*

Correct, yes.

*Did you enjoy growing up in Birmingham?*

Yeah, really I was very lucky, you know, I had a lovely home life with great parents and brothers and sisters, went to some super schools and was lucky enough to go to King Edward's in Edgbaston, which in those days was a non-fee-paying school that you could go to from anywhere in Birmingham and provided you with a wonderful education. I particularly enjoyed being a Scout and getting out into the countryside, something I've kept ever since. But yeah, a wonderful childhood really.

*And your parents encouraged your education, did they, they were quite...*

Yes, I mean they were very keen on education in general, you know, with all of us, it was a really important part of the way the family was. Neither of them had been to university, but my sister went and my elder brother, so they were really keen to progress us all on in life.

*And at school, were you – obviously King Edward VI School is very famous and well regarded – did you find the teachers were inspirational, did you have particular*

*mentors who really influenced your path, because your father hadn't been in technology particularly. Well, he was...*

In scaffolding. So he was a sales guy really, you know, but he'd been in the Signals so I suppose there might be something. I mean I remember sitting around at home, you know, making crystal radio sets and things from a very young age, and I suppose I must have always been interested in science, I don't know why, but I really specialised in science very early, taking the decision around when I was fourteen. So I didn't take physics or chemistry at O level because I knew I was going to take them at A level already, which was the way they did it there. And so I was clearly someone who hit it. I don't really think, it's not obvious to me what, who the influences were, it was just one of those things that really seemed to just be me.

*Right. And you did four A levels didn't you? Did you do economics?*

Yeah, so I got ill. So I was due to finish my A levels very early, at sort of sixteen or something, but then I got glandular fever, so I ended up doing three years in the sixth form and in the third year I just took economics from a textbook, literally going to the staff common room entrance and getting a new assignment rather than any lessons. But it was also I think quite interesting, that was definitely my father. I remember him taking me on a visit to the London Stock Exchange, which in those days was a proper stock exchange with people trading on the floor and everything, when... and being highly impressed by all of that and really thinking about economics as a result of that particular visit.

*Well, that's interesting, because you didn't choose to go into the City as many technologically minded young people do today.*

No, I mean it was very interesting. I applied for lots of – because I went and did chemical engineering at Leeds, which was, you know, a wonderful experience, I made lots of very good friends that I've kept all the way through my life, and I was definitely interested in the sort of the commercial side of technology and particularly in chemical engineering. So I applied for Unilever and Procter & Gamble and Cadbury's and Shell, and I had a choice really between going to Bournville and

staying at home in the Midlands and doing production management at Bournville, or going to sales and marketing at Shell, and I remember that was quite a big decision at the time for me. But I decided, I was in that sense attracted to London in the way that people very often are, I think, and I have to say I don't regret that, I think, you know, it still remains a fantastic place to grow your career, and I love London as a city, as I do Birmingham.

[00:05:37]

*Yeah. Okay, great. Well, so we've skipped a bit there. Just to kind of backtrack a little, do you remember your first encounter with a computer?*

So my first encounter with a computer would have been at Leeds University with punch cards, so you know, you had piles of punch cards you had to get right and if you got 'em wrong, nothing happened. And we just used them really almost as training for ourselves, we weren't using them for anything very serious in terms of research or anything at the undergraduate level. But I do remember very strongly that, I remember, but I remember a slide rule very clearly, you know, all the way through my university life I was probably still using a slide rule. And I remember getting calculators and them being reverse notation, whatever it is, Polish reverse notation and all those sorts of things. But it was punch cards. I mean my biggest computer experience, I suppose, was when I was at Shell. In probably my third year at Shell or something I moved in to work with a group in sort of '79, and we had a personal computer, which was an absolutely... we were one of the very few groups who had one. And our job was to work out what was the best output from a, you know, a catalytic tower, so we were trying to work out which of the various fractions we should take off to get the best economic input. And used to put all the things into this program and then let it go and you'd go out for a very boozy lunch for three hours and it would finish the calculation for you. I guess my phone would do it now without, in a time when I could think about it. But, you know, we were using it very specifically for one of those calculations where you have to iterate round lots and lots of times and therefore it's very difficult to do, you know, just with a calculator or a spreadsheet or something.

*Absolutely, yes. So that's quite a change you've seen over your lifetime in IT.*

Yeah, absolutely. I mean I often talk to people about it, you know, we didn't have mobile phones, the way people contacted each other was different. I remember terrible crises over telex and, you know, we had sort of three levels at Shell: get 'im, get op and urgent and, you know, and get 'im meant go get the person, even if they're asleep. Get op, when they're awake, sort of thing. I remember when I was in the catalyst business inadvertently ordering twenty kilogrammes of platinum over a telex machine and the guy coming back, you can't do that! I needed twenty kilogrammes of platinum, but it was like two weeks of the world supply of platinum, so we had to buy it in much smaller quantities, and I was summoned to the telex room to rescind my telex, which of course was a, a telex was a contractual document, unlike a fax.

*Yes. Great. So let's just think, so you went from Leeds University directly into Shell as a graduate trainee, didn't you?*

Yes, I was in Shell before I was twenty-one, I was really keen to get to work. Compared to all my kids, who wander round the world enjoying themselves, I wonder why, but I was always really keen to get to work, I had been fascinated by business the whole of my life and so, you know, I went into Shell. Shell's absolutely fantastic place to go, you know, they move you around, give you lots of different experiences and, you know, it's really tremendous way to grow. And they're very honest with you, so they tell you how well they think you're going to get on, there would be something called your 'currently estimated potential' that they did in those days. And I left Shell...

*Quite brutal, perhaps, yes, could be brutal.*

Yeah, I left Shell because I didn't agree with them, I thought I'd do rather better than they said I would. And so I followed a colleague into – who'd left earlier – into consulting at Deloitte Haskins & Sells which later became part of PwC, funnily enough, rather than Deloitte, and did a couple of years only of consulting, really, but it certainly shifted me away from the sort of chemicals and manufacturing world into the technology world in a significant way.

[00:10:22]

*Right. So you hadn't fallen in love with computers at this stage, or indeed...*

No, no, I was... in fact, arguably I've never been in love with computers, I've always been in love with the way business and society evolves, and I suppose once I'd got into technology I became really quite focussed on the way that works. And I'm much more a telecoms guy than I am an IT guy, you know. And I remain absolutely absorbed and fascinated by the way we continue to see everything change as a result of things that didn't exist when I was at school, you know, it still remains my passion. But it is the impact rather than the technology itself that has... But as I say, when you look back and you think about me spending all my time in my bedroom making bits of weird kit, presumably there's been something there from the beginning. But, you know, I think for me it was a decision about getting involved in business, I really only did three or four assignments, one at Portmeirion, which was fascinating, one with a Sheffield Forgemasters, but then I went into BT, which was the first time Deloitte Haskins & Sells had sold to BT...

*So that was in 1985 you joined BT, I think? Is that right?*

Yes, but I was there for two years, well, eighteen months as a consultant before then. And as a consultant the first thing I did was sort of sort out their phones, because each individual phone – and there were hundreds of the damn things, you know, feature phones of one sort or another had a different price – and they were rented. So the conversations that used to go on in the call centre whenever somebody's phone broke down about what price it would be. So I had the great, you know, wonderful genius of putting them all into bands and so there were like five bands instead of 200 price points and it simplified life for everybody.

*So you're saying- this is domestic phones as well as business phones then?*

No, this was domestic phones, you know, people would have all sorts of phones, you know, lobster phones and all sorts of strange shapes and ideas. But there were lots and lots of them. Because we moved, had just moved out of the sort of rotary dial

thing to push button phones, but still the exchanges were still mechanical and twittering away, and we were just beginning modernisation of the exchanges. So I went into BT, as you say, in 1985, I think, roughly that, and went in to do IT marketing, funnily enough. So I went in as one of several people in different departments of BT doing IT marketing, because nobody really knew what IT was, and it was interesting. As I said, we- I can't even remember what the other standard was, other than MS-DOS, but there were two standards for...

*CP/M.*

CP/M, that's right. So we launched both because we couldn't work out which one to go with, although it became pretty obvious within a couple of years what we should have done. And did things like that. But I'd resigned after eighteen months at BT because, you know, there were loads of people doing the same job, it was, compared to Shell it was very disorganised and I thought, well, this is not for me, better go and do something else. So they were reorganising, so I went to my boss, Duncan Lewis, fantastic guy, and said don't, you know, don't bother with me in the reorganisation, I'll go and do something else. Anyway, he convinced me to go and run payphones, which was, you know, mobile phones were not quite around by then, they'd probably got one in a boot with a big, in a car phone type thing, but weren't really moving. And we had an absolute disaster on our hands with payphones and the CEO had promised to fix them.

[00:14:50]

*What was wrong with payphones then?*

They just weren't working, so about sixty per cent of them working at any one time, and they were losing a lot of money, and they were horrible, and it was really a national disaster because people didn't have mobile phones, and so people got very cross about it, it was all over *Woman's Hour* and, you know, Radio 4 and it was a real disaster. And I wasn't concentrating too hard, as young people don't, and I thought I had fifteen months to fix it, and in fact I was employed in December and we'd promised that it would be fixed in March, so I had until the end of February to fix it.

Which was quite entertaining really. But, it did teach me quite a bit about life, which is that if you don't have much time, you don't really think about it too much. I remember the three or four of us who were trying to get this done sort of went out and did a load of thinking and calculations and we, just before Christmas, we sat there and said, this can't be done, because the payphones were out of order for longer before we knew about it, before we'd even been informed, than would get up to the quality standard we'd set. So you couldn't possibly do it. And we were blaming the field for doing this, all the guys in the vans, we were saying it's all their fault, but they didn't even know about the phones being wrong in time to fix them, in time to meet the quality standards. So we thought this is impossible and we went down the pub, and apocryphally we saw a tramp in the pub, somebody came in next morning, I've got a great idea, we'll employ all the tramps to check the payphones. But the guts of that was we then ended up spending, I don't know, ten million pounds or something, to employ all of the people who – and I'm afraid it was, we used to say ladies in those days, but it probably was all ladies – who went to the supermarket shelves and made sure all the Schwartz spices were in the right place, they were called merchandisers. And we got a contract with them and they each got a beat of payphones and went round, checked them, and when they weren't right they'd send 'em in and told us, and hey ho, we hit the target and were considered great geniuses as a result of having fixed this big problem for the company. But we then went on to turn it round... sorry?

*They were independent, they were freelance?*

Yeah, yeah. So I mean if you imagine how, normally it would take you twelve months to get BT to sign – in those days, not these days – a ten million pound contract, or roughly that. I got it done in twenty-four hours, because they really, really did want to do it. So what it taught me is when you have to get something done – a little bit like the Olympics – when you have to get something done, you get it done. You know, you really, you work out things, people work with you. There was a lot of other stuff to it, getting the supply chain right. All those things we had to get done, but... And then we turned the business round, it turned into a very profitable business. If they were working people put coins in the slots and it was the first thing I



really did of scale, even though we were a very small team, we obviously were working with a very large number of people all round the country to get it done.

*That's interesting. But then you helped the business downsize from 205,000 to 84,000, I think?*

Yeah, so look, you know, what was happening in that period, if we were going from all those clickety-clack exchanges, we were putting in digital exchanges, over the time I did lots and lots of different things, from, you know, charging for directory enquiries, I mean that probably saved 10,000 people, because everybody was throwing away their address books and just, you know, ringing us up when they wanted a number, and the better we made the service, you know, the more they did that. All those sorts of things. And, you know, I ran the engineering workforce over periods, over that time, I ran all the technology over that time. We introduced something called CSS, which eventually I managed to get rid of right at the end of my career, but you know, big IBM CRM system effectively, but bespoke, highly bespoke of course, in those days. But automating all of those things was really new and hadn't been done. Automating the exchanges meant that there was much less maintenance work, reorganising as a national organisation as opposed to lots and lots of regional organisations, all those things, masses and masses of change. People always thought of BT as a very slow place, it was actually incredibly fast moving and right in the heart of technological change and, you know, those sorts of numbers. I remember on one 1<sup>st</sup> July, I can't remember what year, 17,000 people left the company on one day, you know. It was quite extraordinary when you think about it. And with it came the pension burden that they are still struggling with, which we probably should have understood more about, but there we are. But, you know, the change was always very significant. I was really a change leader, that's what I did. The company tended to put me into places where they needed change, and that was kind of what I was well known for across the organisation.

[00:20:46]

And, you know, when we finished one of those reorganisations and I'd been, you know, running the sort of strategy function having done operations, and I got my first

sort of divisional job, which was, we called it BT Openworld, which was a short-lived brand, but we really did, for whatever reason BT had sort of forgotten about the internet and hadn't really... so you had Freeserve and lots of other brands like that, Freeserve were giving you internet without a dial-up charge, so you know, you used to dial up your internet – sorry to be so old-fashioned – and most people were charging by the minute for a dial-up, and you know, we kind of, we ignored the Freeserve, we said the dial-up thing just wouldn't work and we launched it on a fixed fee, I think it was £30 a month or something, highly expensive, but it was... You know, we launched the fixed fee, monthly fee, and that was revolutionary at the time. Of course it's been the same ever since. And then we went on to launch broadband over ADSL, very slow, two megabits a second or something, but still very fast compared to dial-up. And did an enormous amount of work around portals and all those sorts of things, trying to work out what was the right way forward in terms of how much you should become a publisher, all these questions were buzzing around. In the end I think we settled in the right place, we built BT's market share from sort of ten or fifteen per cent up to sixty per cent, which it stayed at pretty much until Sky, I think, dented it a bit several decades later. And, you know, so it was a fascinating period really. It was very different. I remember we had the first open plan office in BT, on the river, and I used to go into work in a t-shirt and get told off if one of the non-executive directors saw me when I was back in BT Centre for one reason or another. But, you know, we did try to create a different type of culture, I think quite successfully, to enable us to sort of move a bit faster and to be more relevant in that type of world.

*And, one of your achievements I note was negotiating cash out of Bernie Ebbers at WorldCom.*

Oh well, that was a slightly later period, you know, when we... So I actually used to fly off to Washington once a week or something with a team of people. We were, we had agreed to merge with MCI - and that was the biggest merger in the world at the time - and I was the implementation director and we were out negotiating with the MCI guys about how it was all going to work and how we were going to operate. And they were very different to us, they were often called a telecoms, a legal company with an antenna on top. They were basically fighting AT&T and

establishing themselves, and we were of course very established, monopoly-ish player in the UK, so very different cultures. So we were having this long discussion. And then for whatever reason we renegotiated the price down, I think they suddenly ran into financial difficulties, and WorldCom came in with a bid. WorldCom were a sixth the size of MCI, and they made this huge bid and we owned quite a bit of it, I don't know, twenty-five per cent of it, I think, which was worth seven billion dollars, which was a lot of money in those days. And, you know, we wanted out in cash and so Colin Green, who was the legal director, and Sir Peter Bonfield, who is of course an icon in many ways in the sector, and I were, I remember, sitting on the blanket box with Bernie and his sidekick and his legal director arguing this point. Colin, I think, is the person who should take credit for it, because he pointed out there was an 'or' not an 'if' or something in the thing, and we were able to get our cash out. Which everybody said we were completely stupid to do, because of course WorldCom's share price went up through the roof for a while, and then of course it collapsed into bankruptcy and nobody then remembers and tells you what a good job you did, they still say you're stupid, but that's the way business is, you have to do the right thing.

[00:25:36]

*Yeah, yeah. So, any other sort of key things you might like to pick out from your time at BT?*

Well, I think the key, as well as the launch of broadband, I think the key thing was taking over Global Services after the dot.com bust. You know, we had an organisation which was running like everybody else in the world, saying the more fibre you had in the ground, the more, you know, the more valuable your business was. Which was a bit like saying, the lower your stock turn the better retailer you were. It was completely crazy idea, but nevertheless that was the belief. And so we had, you know, an organisation who had, you know, lots of great leaders who were out sort of driving market share and the metrics that the markets had told them was important. And the dot.com bust comes and of course it's all very different. And I remember my first, when I first took it over, which I thought would be very short-lived, I, you know, I went in and cancelled a Four Seasons meeting and had everybody in a meeting room with curled up sandwiches, trying to explain to them

that we couldn't afford to lose £500 million a year in cash, which is what the plan said we were going to do. And so we spent a great deal of time turning that round. But at the same time we built, you know, one of the first MPLS networks which, you know, a core for the internet. We, you know, we invested in a lot of undersea fibre, we...

*So we're talking about early 2000s now, I suppose, are we?*

Yeah, that's right. So this is the period between 2001 when I was on the BT board, and 2008, so I was seven - roughly probably 2000 to 2007 - I was roughly seven years at Global Services. We made eighteen acquisitions, you know, Radianz from Reuters, Infonet, which was a competitor organisation. Brought all these things together, built a very substantial operation, was the biggest division of BT because we moved all the big corporate clients out of retail into Global Services at some point, so it was a very significant organisation operating round the world. And it was interesting because it was a challenger like MCI I was describing, like Mercury was in Italy, in Germany, in France and so on. So we had challenger operations as well as big corporate networking or globally. And I used to live my life on a plane, really. You know, I used to really go round the world. We had operations in South America, Australia, US of course. We had the joint venture with AT&T that we'd negotiated, which I'd been instrumental in doing, which then fell apart, called Concert, which was in existence for a significant amount of time. You know, it was a really interesting period.

[00:29:04]

*So in what sense challenger, I mean you mention Mercury, do you mean challenger organisations within BT competing with each other?*

No, so not like that. So in Italy you would have Telecom Italia, but then BT Global Services would be the equivalent of Mercury. So we would be providing corporate, you know, we had assets and networks in Italy, but as a challenger. So, and in Germany, and France. So we, you know, so my legal director spent a lot of time stopping us being cut off by the incumbents around. So, you know, on the one hand you're incumbent at home and then a challenger overseas, it was a really interesting

sort of conceptually set of ideas. But, you know, the fundamental basis of most people's corporate network in everything else was being provided by AT&T, Nynex, Orange from France, Orange Business Services, ourselves, and you had relationships with telcos all over the world to provide you with local loop connection to all sorts of places. So a very interesting period, running very big contracts and running big IT contracts as well. We had an outfit called Syncordia, you know, we, I was talking to somebody in the NHS the other day who says they're still using the Spine project that we put in that connects the NHS together. So we had very large IT services contracts as well as very big managed services contracts, you know, contracts worth hundreds of millions a year.

*That were run by other – when you say managed, what, were run by other organisations?*

No, no, run by us.

*By you. On behalf...*

By us. Yes, so we did all of Unilever's network management, all of Reuters network management. So very large-scale contracts being run, and with all the risk that goes with large-scale contracts, you know. So it was a fascinating period. We turned the business to cash positive, made it modestly profitable. It had great difficulties later in life, a few years after I'd left, and I think some of that was inevitable, some of that was because we were very exposed to the financial services sector, which of course went into a major downturn in 2013?

*Eight? Oh, thirteen?*

No, eight, you're right, 08/09. That's right, wasn't it, 08/09, yes. I'm a step ahead of myself. So...

*You would have left by – you did rather good timing, didn't you there – you left in 2008. Was that...*

Yes. I left BT Global Services probably in 2006 and in a COO job. I promised to sort of see Ben Verwaayen out and Ian Livingston in and was running all the tech. So on several occasions I ran all of BT's tech as well. During that period I think we managed to get CSS out, having been involved at the moment when it was coming in. So shows how long these systems last, really. But, you know, we were continually working on the modernisation of the way we operated as an organisation, it's a big organisation as well, so had the CIO reporting to me three or four times in my career, I think. But at the end I was responsible for that, the strategy for... so we were highly engaged at that point in the creation of Openreach and the separation of the wholesale network, the local loop network and the fibre network from the retail organisation and managing all of those types of things through. So, interesting period. I have to say BT was so interesting. When you asked me to write some stuff down about it, I was really struggling to put together the sequence of all the things that had happened. People said to me, why did you stay so long, and it's probably not a great thing for my career, honestly. Well, it was just so interesting, there was so much going on, there was so much change. And all the time you felt you were doing something meaningful. I honestly believe that the work that the telco industry did setting out the internet, all of the technology behind that, coming to the conclusion how we should charge people fairly for the services. I remember having enormous long debates with Bill Gates on why weren't all the service providers, you know, the people like Microsoft and Google and Facebook, who weren't around by then yet, going to pay anything for the fibre we all had to put in the ground and who was going to pay for the capital. And he said, Andy, it'll be fine, we'll not pay anything. And somebody said to me the other day that it was time that they started paying, and I said, well, I've had this argument with Bill Gates, but over thirty years, and he's been right every year so far, so I suspect he'll continue to be right about the issue. But it is true, never the...

*That who should pay? I mean is that still...*

Well, I mean it is quite interesting what's happening now. You know I'm on the board of Airtel Africa, and of course it's fascinating being involved in mobile services in Africa at the moment. But, you know, Google and Meta are basically building undersea fibre cables and providing capacity because they are concerned about whether the industry is making the returns that will enable it to move fast enough. So

you do now have in a way the industry that needs the bandwidth sort of stepping in to try to deal with some of the things that some people call my market failures. But I suspect the telco industry is never going to win that battle after all these years, but we'll see. You never know in life, things always change and you get proved wrong, which is one of the nice things about life. But, so you know, but I think it was a...

[00:35:34]

*Well, in a sense, you can't have, if you don't have the telco industry there you can't have the internet, when it needs...*

No, quite, you can't. And so, you know, and if you look at it, you know, in the time I've been in the industry, Vodafone didn't exist, goes to be one of the most fantastically admired companies in the world and sort of tails off into a period of decline. And so you see how – and BT itself is a very small company now, compare it to, you know, anything in the chip industry, it's a tiny company, you know. So the telco industry has not been a great way to create shareholder value. I think it has provided enormous societal value, enormous societal value, and therefore I'm forever proud of being involved in this period. You know, whatever the economics from a shareholder value point of view, you cannot argue about the societal value that people who've been involved in the telecoms industry have delivered.

*Yes. Well, that's something that we could perhaps pick up a little bit later when we just perhaps ought to finish running through your career.*

Yes. So where have we got to? Let's say we've finished BT now, shall we?

*Yes, it's Logica.*

As Ian Livingston came in, I was intending to stay a bit longer, but a guy called David Tyler, who was chairman, or was just about to become chairman of Logica, got hold of me and said, look, will you come and do it, and I decided in the end that would be a good thing to do. I wanted to build a UK IT services champion, I was very focussed. It was interesting times. Martin Read, who you probably have interviewed before,

had built a very interesting organisation, acquired operations in France, in Spain, in Scandinavia, Germany, but it was still really operating as a series of independent operations. And so when I came in really the most important thing we did was to stop it being Logica CMG in some places – I've forgotten what all the brand names were, but they were all different brand names – ran the whole thing as Logica. We did a really interesting cultural exercise across boundaries pulling all that together. I think because of the way the industry had gone, you know, Logica had been a quite sharply focussed organisation around high-end, hi-tech work in its early years and had grown into being a mini Accenture or Capgemini really, with a lot of outsourcing contracts and a lot of system integration contracts. And it's a very odd time, because everybody believed that the outsourcing contracts were the way you should go, all the shareholders believed that was very good, stable business and that system integration was a very cyclical and bad business. Of course, it never really was like that, if you think about what happened to EDS and virtually every – I saw Atos at the moment not in great shape – but virtually everybody other than Accenture you think about, I was forever being told how wonderful Capita were and how they got it all right all the time. And of course they just collapsed in the end because these big outsourcing contracts, unless you're prepared to continually ensure they are correctly put in the books, they lead to these catastrophic moments in the industry. But the shareholder base never understood that. You know, I remember we had a fire alarm in the middle...

[00:39:28]

*What do you mean by a catastrophic moment?*

Well, if you think about Capita, it's an organisation that literally everybody is saying – who's the wonderful guy at... my brain's gone dead – but, you know, people are forever saying it's going very, very well, everything's great, and then suddenly it has to write off huge contracts because they run into trouble. And that's because, you know, the organisations build up hope within them. So the project management system, the finance system, everybody builds up hope inside them, and they don't honestly and properly – not, honestly's the wrong word – but they don't properly understand the risks they're taking within their contract base. And unless you're



prepared to do that and consistently do that, you know, I think it's very dangerous. Whereas system integration, if you're doing a very, if you've got a team of experts in, you know, one of the security services or something, is a fantastically profitable and consistent business. And so, you had very different views. But look, it was a very good time to be in the industry, it was very interesting, I think. We had the Indians of course, big Indian players, TCS, Infosys, very high quality coming in. A lot of what we needed to do we did, I think, well, brought the organisation together, but I think in the end, you know, when that 2008/2009 crisis hit, we suddenly were seen as having too much debt.

*Right.*

And that, together with the fact that we needed, together with the fact that that turned down the sector and we needed to really shed quite a lot of labour in very expensive places like France or Scandinavia, to re-employ it in India, meant that it became extremely difficult to run it on the public markets because it needed very substantial restructure which the markets were not really up for. So, you know, in the end we ended up selling it to the Canadian CGI, I think it's doing very well since then, they've done a good job with it. I know a lot of people, you know, a lot of the same people are in place doing the same work and it's great, but for me personally it was a disappointment, it was a good exit, I think, for the company, but it was a disappointment because I'd hoped to create a UK owned champion in the sector and had failed to do so. So it was, from an executive career point of view, you know, a bit of a sad end from my point of view, not what I would have wanted really, but there we are. Great people, and during the middle of it all I got involved in the space sector, which Logica had already been very strong in, and spent a very happy ten years helping the space sector in the UK grow, you know, and up until early 20s. So that was a lot of fun, supporting the government and working with minister, David Willetts in particular, getting Tim Peake a place on the Space Station, all those sorts of things, was a lot of fun, a lot of interesting times.

*I can imagine, yeah, must have been. I mean your experience at ARM though, must have been another disappointment.*

Yeah. I mean ARM is a fantastic organisation, it's a great privilege. So ARM was my second, so I'd been involved with an outfit called Navteq who did mapping, and eventually were bought by Nokia from us for a vast amount of money. We did in-car dash maps in the days before Google Maps and Apple Maps. And then my second not associated with BT non-executive director role was at ARM Holdings and, you know, I went in as the company was kind of maturing from being quite founder-led. And so... but it was a wonderful period, really world class people doing a world class job, but becoming a big, a FTSE 30 company, and therefore of great value and needing the sort of experience that some of us brought to the board table. Interesting cultural clashes at times. But it forever, I think you'd say, you know, that story – which is not my story – was a fantastic one and, you know, we ended up with SoftBank bidding a very, very significant price for it, and I think with a very high shareholder support to sell it. Which didn't make me at all comfortable as a person, I would much preferred to, again, for it to have again stayed as a British company. I think we still have the heart of the company here with the technology in Cambridge and I think it continues to play a really strong role on the world stage, you know, and I think, when I say not really my story. I mean I was there as part of the group of people whose job was to make sure that it did grow up, you know, didn't have things like internal audit and boring things like that, when those sorts of things have to happen and you have to sort of get the company to a point where it can be a large quoted stock, effectively. But it was a great experience and it was great to be able to help the team. I think from a business point of view my biggest influence was probably to really push with the people internally you needed to push, that we shouldn't just make chips and then let people do what they want with them, we should think about how do you make chip designs that are right for automotive, chip designs that are right for different parts of the mobile piece, chip designs that are right for AI eventually and that sort of application, and sort of customer market focus rather... and moving a little bit away from just being technology brilliance towards thinking a bit about what the use cases were being. And I think that would have happened anyway, but it was something I could help push along.

[00:46:27]

*Sort of commoditisation, in a way?*

Well, almost the opposite in a way. Originally ARM just spent its time making chips that were lower area and lower power, lower power consumption, and did more and more, and were massively successful at it. And, you know, Intel used to spend the whole of ARM's turnover quarterly trying to catch up with it, and never succeeded. It never succeeded because ARM's a real ecosystem. You know, ARM is not just ARM, it's Qualcomm, it's Apple, it's Samsung, everybody works together on the ARM ecosystem and Intel never got that, and the reason they never caught up at all really was that. You know, the other thing was really seeing the beginnings of the schism between China and the US and the ecosystems, the technology ecosystems and, you know, working on this question of setting up a subsidiary for ARM in China that enables the Chinese ecosystem that uses ARM to have some protection. You know, all those things are very interesting. Very interesting period, really fascinating strategically as well.

*Did that happen then, did they build a system?*

Oh sure, yeah. It was quite a big – gamble's probably the wrong word – but, you know, they had real difficulty taking out the CEO who got the chop, you know, the stamp that they use in China, but they resolved it eventually. But it's been important because the ARM ecosystem continues to thrive in China because they're able to effectively sell an architecture licence rather than chip licences. But I'm sure that story is still developing, I'm not really completely up to date on it these days. But it's something we've seen really hit the world stage, I think, in general.

*Fascinating, yeah. Okay. So, other things, you've talked about space a bit, I suppose. Catapult.*

Catapult was very interesting, I think, period. So the Catapults were set up when the RDAs were taken apart and they included some really good industrial work on high-end materials, or very large cranes, all sorts of things that an individual company can't afford, but if you put it in place, can be used to help a sector grow effectively, and that was the idea of Catapults. And they decided to set up one or two knowledge-based Catapults. Now, when you think about digital, you're not, there's nothing big you can

buy that's shared across people, so you're into how do you stimulate the digital ecosystem. And I think, you know, when we set it up I talked to everyone, I said this is going to be very different, it's going to be much more nimble, have to kind of change what it's doing. And it proved just like that and I think, you know, on several occasions I think the government said we're going to close this thing down and I managed with colleagues to sort of really push for them to give it – it was quite hard work, we were forever under the microscope. But I think it's been really valuable, I think we've ended up with something that has been really...

[00:50:11]

*What sort of thing, so what would you point to as what it's been able to achieve then?*

So, some of the things are being, some of the work it's done on 5G applications and how we can develop successful 5G applications. Clearly seen as the key, the core to that. And then the other area is the interface between the creative industries where we're very strong, and the digital industries. So a lot of the work on 3D, you know, 3D – I can't remember what they call it now – but, you know, enhanced reality, virtual reality, all those sorts of things, being very, very effective at supporting the creative industries, even thinking about how they get involved in those hi-tech digital elements of the creative industry. So two really big successes. But from the team, Jeremy Silver, the CEO, who's just stepping down, I think's done a great job, as his predecessor did.

*Okay, great. Now, so are there, stepping back, is there anything else that you'd like to highlight in terms of your professional, your career?*

No, I mean I think, I just think that the technology continues. The reason I'm involved in Airtel Africa is, you know, mobile phones in Africa transform people's lives like almost nothing else. They enable them to safely move money around, they enable them to get educated, they enable them to have a side hustle and make some money, they transform people's lives. And, you know, I've got, I've had a long-term interest in development from a personal charity we set up, called Abesu, which did help women's co-operative build homes for themselves and develop through to my

time at DEC, which you mentioned, and now as chair of WaterAid. And, you know, so I've been fascinated to- I've worked nearly everywhere in the world, one way or another, apart from Africa, which I've only really been to South Africa a few times on business and on pleasure, and so I was fascinated to engage in Africa and what's going on there and I remain highly hopeful that we will find ways to bring that enormously talented group of people into a better standard of living than many of them have today.

*Yeah, yeah. So are there other things that you would like to highlight in terms of change to society because of your work?*

Yeah, look, I mean I think, you know, when you think about the day-to-day lives we lead today, the way we're talking right now, the way we communicate, the way people keep close. I've got a son who is at TikTok, you know, and I look at all these things and there are always ups and downs, goods and bads on things, but I think if you think about the world, there was a whole period of decades when apparently there was no GDP growth in Japan. And I always used to say to people, well, that's all very well, but if you ask people to go back twenty years and live like they lived twenty years ago, they would not say to you that they haven't grown, that things haven't changed. There is a, you know, an enormous consumer surplus that's delivered by technology. Our ability to access information, entertainment, sport wherever we want to be in the world, you know, wherever we are in the world, our ability to communicate well, our ability to look after our health. All these things don't come through in the economic statistics but they are fundamentally transformational. And I think I've been so privileged to work with some of these amazing people who have, who have pushed that journey forward. You know, the telcom industry, the chip industry, you know, the IT industry, all of these things are pushing forward what is possible as a human. Now, there's lots of downsides with it too, but you know, life is about us settling down and sorting these downsides out and not thinking about going back to the past. Nobody wants to go back to the past.

*No, no.*

[00:54:54]

The other thing I do right now is I'm a National Infrastructure Commissioner, which means we advise the government for thirty years on the future. And I try to bring that sort of sense of what technology can do to that. You know, I'm an enormous optimist about our ability to get to net zero, whatever the government's doing of the day. You know, I often talk about Australia. You know, Australia generates far more electricity from rooftop solar than it does from coal, despite the fact that its government has been supporting the coal industry for decades. The world is just moving towards an electric future, and that's going to need all of the technological support in thinking about how we manage and drive that world where we're no longer sort of raping the planet all the time in order to exist. And I think technology's going to be at the heart of all that as well. So I remain very optimistic, I try to remain as engaged as I can in the things of today. And one of the things I said the other day to a group of energy people is, you know, I feel very proud about what we've done in the technology industry in this way we've transformed the world, but I think the most exciting journey that exists and maybe one that will outshine that is the one of taking us all to a world where we're able to continue to grow and prosper with, you know, in a net zero neutral world, which I'm confident we're going to be able to achieve.

*Well, that's fantastic to hear that confidence because there's plenty in the world feel discouraged about it at the moment. I was going to ask you, it's sort of vaguely related I suppose, for your thoughts on the Fujitsu Post Office scandal and how something like that could happen, because it does touch a lot on a lot of your kind of work experience, I would have thought, the kind of the culture and the business structure that would allow a situation like that to happen.*

Yeah, and I think it's really, it's really chastening for everybody. I have been involved in situations where the teams underneath me, despite everything that I would say and do and think, you know, would sit there and agree with their customer to, you know, not change the way they measured things or other things without it being in line with the contract or without it being in line with things. But I mean I, as a director, I spend all my time working out who I'm working with, I suppose, and thinking about do we know which way is up, you know. And I think there is a way

that organisations get driven into a point where they, you know, I talked about the Capita experience, great people at Capita, have always been, but then they allow somehow the story to overtake that fundamental sense of what is going to work over the long term is going to be sustainable. So I spent lots and lots of my career talking about sustainable growth, culturally, and the fact that, you know, if you really wanted to do things that worked over the long run, then you needed to do them in a sustainable way and that sustainability wasn't about net zero and all those sorts of things, it was about the ethics of the way you think about things, the culture you create and the way you do that. Now, but I have been responsible in a large organisation for people who have done things which I would never do. And I think you always have to be modest about this, right. You can do everything you can to set up a culture that you think is the right culture, but in the end, things can go wrong. What worries me most about the Fujitsu thing is there seems to have been very senior, at very, very senior levels a set of knowledge about what was going on and an inability to feel the humanity. I had somebody the other day say to me, isn't it terrible that Bernie Ebbers, who we were talking about earlier, died in jail. And I said, I have no sympathy. I said, this was a man who when he knew his company was going over got all his employees to invest their pensions in his company. I can never have sympathy for people like that. So I think there is something in life about having a point of view, and I think there have been people, I think if you look back in the records, there have been people who have been on the Post Office board for a very short period of time, probably those are the people you should talk to. But I think when a client and a customer get in, a client and a supplier get into a particular point, you know, I think that gets very difficult. I don't know who in Fujitsu would have known, honestly, it's not clear to me how senior people would have been who would have known about this, because it's that sort of thing. But I think we do know in the Post Office it was really quite senior people.

[01:00:34]

*Yeah, yeah.*

But you should always be modest. I remember going and lecturing to people on being a new NED and them saying to me, how did they let the Tesco thing happen. And I

look at them and say, I'd never let that happen. Well, I wonder whether you would or you wouldn't, you know. I'm sure people said, we would like to hear more about what's going on with the way we pay our suppliers at Tesco, and I'm sure they were told by the executive, led by, you know, very strong CEO, it's all fine. And then you have to decide, are you going to push it to another level. And I think it is, you have to be very modest and worried about, all the time, about what can happen on your watch and also be prepared to stand up and say I got it wrong, because you know, none of us are, even when we try we can't be sure we're going to get that sort of thing right.

*Yeah, yeah, indeed. Now, let's think. So anything you would do differently if you had your time again?*

Well, I often think I should have left BT earlier, but then I think what a lot of fun I had. You know, and there are things I regret, but it's hard to find things I'd do differently. I was saying the other day, I was very proud of the work I did on gender diversity from quite early on, but really never got into ethnic diversity, and I did wonder about that. So I was spending a lot of time thinking about should I have done more on that and could I have done more on that earlier on in my career. I think that's one thing. In the end my kids would say why didn't I spend more time with them, and that's probably fair. I was very much a person who was very engaged in his work and maybe I'm enjoying spending a lot more time with my grandchildren than I spent with my kids, that they never fail to tell me.

*You're lucky you've got the opportunity.*

Exactly, they are all good friends, so all's well that ends well in that sense. But, you know, there are always things like that that you can think about and regret, there are occasional situations where you wish you'd had better communication with individuals which didn't go very well. Very often I think I let people stay in jobs for too long for their sake and my sake, and maybe was a bit soft on those things, most people think that, I think, about their career. But generally I just feel so lucky, I have to tell you, I feel so lucky. I look back on what things I've done and think, it's great to be involved in those sorts of things, it's lovely.



*Yeah, well, it's not just accident, I mean you obviously steer, you did steer your direction of growth quite effectively. So looking into your crystal ball and, you know, it would be interesting to know how you see things panning out in the next ten or fifteen years? I mean you've already mentioned that you are very optimistic. So what do you see as being the sort of the real challenges and what might be useful kind of ways to – because part of what we're doing here is thinking about advice to younger people too and...*

[01:03:58]

So in terms of advice to younger people, I think being involved in tech is still a great thing to do. People talk about AI and other things overtaking all of this. I don't think that's the way it will work, I think there'll be new skills and new ideas keeping... whatever you do, don't get stuck in one place when you're early on in your career, you know. That was the great thing about Shell, they moved me around. And you want a variety of experiences. The edges of the creative industry and the tech industry I think are going to be absolutely a minefield for very interesting things to happen, and then this green revolution. Where do I think the next big seven will come from? They will come from people who really solve some of those problems. And we will, I mean that's why I'm optimistic, that we haven't made all the breakthroughs yet, they will come. And I think the other thing is, you know, the world never stays evenly. You know, I'm very amazed how well Microsoft are going through one transition to the next. But, you know, IBM haven't really made it. Lots and lots of companies that I can remember the names of: Dell, other things, are no longer the great companies - Cisco - that they were, the behemoths. So the current big seven are not going to be the big seven by the time you get to being twenty years on in your career, the world will change. And that is important, some will survive and some won't, and whether they do or don't will be to do with their culture and their adaptability and their ability to shift from one phase to another. I think the other area which I'd speculate on is this sort of, how are we going to enhance our own capabilities in ways using technology, you know, this is something that Musk has made a big thing about this last week or two. But there's been a lot of thinking and talking, how will all that play out. I mean you think we've got some really serious ethical issues with the way, you know, social media operates today, well, we get into a

whole lot of other things, other ideas there, so you know. But really exciting, I mean absolutely amazing. I see no end to the possibility of change and, if we're careful, change for the good in the way that I believe in the end you'd have to say the technological revolution that we've been through over the last thirty, forty years has been for most people's good.

*Well, that seems like a very good place to finish it. So thank you very much, Andy, it's been fascinating to talk to you and I look forward to watching where you go next, because...*

[laughing] Well, I may be going to my bath chair quite soon, but who knows? Anyway, look, lovely to talk to you. Really nice, thank you very much indeed. Bye bye.

*You're very welcome.*