Transcript ACC1

Interviewer (Ir): Ok so today's date is [redacted], that's just for my records. So thanks again for agreeing to take part in the interview. It should take not longer than about 45 minutes as long as we don't go off topic and this kind of thing

Interviewee (Ie): I can't guarantee that I'm afraid!

[laughter]

Ir: Feel free to talk as freely as you want! OK, so the interview basically starts with a few questions just to get an idea of your job role and the company you work for and that kind of thing, and then it kind of goes into the main body of the interview which is about using policy instruments to drive energy efficiency in the data centre industry, that's kind of roughly the structure.

Ie: OK

Ir: OK. So to start with then, if you could just give a quick description of your job role and your responsibilities.

Ie: I'm senior consultant at [redacted]. Specifically for the data centre practice. My responsibility is to provide a raft of consultative services, erm...so erm, anything from data centre strategy, procurement, migrations, due diligence, and ongoing operational effectiveness. Erm, and efficiency. My particular strengths are around the erm, the operational side of the data centre practice. And also around the strategic side, so those 2 areas I specialise in. I'm a member of the [redacted].

Ir: Yeah I've definitely heard the name...

Ie: Yeah, I know Jon's been involved. But erm...yeah so I've got a pretty good handle on policies and regulations around the data centre industry. So...

Ir: OK. Erm...I think [redacted], well you mentioned before that you also used to work at [redacted]...

Ie: [redacted] for 7 years, data centre manager there. Erm, we had a...just funded, partially funded, project to essentially create a green data centre. Whatever that meant at the time...2008. And erm, our project has won various awards, so yeah I think we did a good job! We also...we didn't just win it for its efficiency, I mean it saved, in a very small data centre, saved over £580000 a year, year on year in terms of power cost, so...erm pretty successful in that respect really. Just as a measure of...for that...

Ir: OK, that's good, that probably covers that...erm, OK...so yeah some of these questions are kind of geared towards er...yeah in fact we've covered that anyway...but...so at the moment presumably you work with quite a wide range of different data centre customers, some co-lo, do you work with any enterprise or...?

Ie: Er mainly enterprise at the moment. Yeah, so erm, at the moment it's been mostly erm, organisations that are erm, at a decision point with their data centres, so they've...they're getting to a point where their capacity is...they fill the...they're gonna run out, and they need to know what to do. Quite often their data centres are...disorganised is an unkind word, but kind of probably accurate. They've experience rapid growth, organic growth, and people have just gone ahead and done whatever's needed to be done to get the business up and running in the data centre. Various services they need to deliver. And because of that they've not had a control over the way the data centre's grown. And they've got inefficiency because of that. So they got to the point where they're running out of power, they're running out of cooling. And they've got a decision to make as to how they overcome that. That's when they ask us to come in and help them out!

Ir: Ok. Erm...

Ie: So we do a lot of due diligence stuff as well. Which means essentially that...well due diligence comes in 2 forms. One is that we ensure that the people who are paying for the data centre, whether that be the company who owns the data centre or the people who are investing in the data centre are getting what they pay for. That's one part to due diligence. The other part to due diligence is that the data centre does what it says on the tin. So if it says that it's erm, a tier 3 data centre, with fire suppression, erm operational factors, all this kind of stuff...we have a...a specific methodology that we employ, [redacted], and we use that to assess data centres.

Ir: Ah OK.

Ie: To see whether they live up to the claims.

Ir: OK so you do that on an ongoing basis so it's not as if you come in and make recommendations and see that through and then...you tend to have a more ongoing involvement?  
Ie: Well...depends. If we do that as part of a procurement exercise which I'm doing at the moment for a bank, and we're assessing it at a point in time, to see whether the marketing is backed up by actual reality. And we give them a score. Normally we go, if someone wants to do a [redacted] assessment on their own facility we would give them a score based on what we see, and can discover, but they would have a particular goal in mind, so they might say well, actually we think we've got this kind of facility, but this is where we'd really like to be. Or we think we're there, can't you tell us we're there? And so we rate them, say well you're here and there's a gap here, and we'll do that gap analysis, and say in order for you to improve and get to here, then you need to undertake the following changes, so we'll give them an improvement plan. At the moment the [redacted] process doesn't include operation efficiency.

Ir: OK.

Ie: Effectiveness, but not efficiency. So erm, but we are a [redacted]. But then that's all in my areas of expertise so that's something that is fairly easy to do so...erm yeah.

Ir: OK, that gives us a good idea of what your kind of, roles are and stuff. Good. OK so in which case I'm gonna move on to some questions centring around the EU Code of Conduct. So...erm right so first of all I suppose was [redacted] part of the data centre...did that precede the code of conduct...

Ie: No, it was built based on the EU code of conduct for data centres, we used that as part of the RP criteria. And although we didn't at the time because the...the EU code of conduct didn't have the formality around endorsement/participant status. It kind of just had...they were there but you couldn't really get a badge or anything. But we effectively, through the RFP process, were looking for someone who was kind of endorsing the code. We didn't say it in as many words but it's what we were looking for. And we awarded to [redacted], who are actually endorsers of the EU Code of Conduct, and they helped us to go through the process immediately afterwards in order for us to become participants.

Ir: Ah, so you did...

Ie: So we were the first [redacted] to do that.

Ir: Yeah

Ie: I think there's still only about [redacted] on the list. [redacted] But er, yeah.

Ir: Could you explain a bit about what your reasons were for wanting to be...to work towards being participants of the code.

Ie: Well I don't think that was actually an intention. I think when we originally, when we were trying to think about how we were going to undertake the project...yeah I have to admit we knew nothing about green IT. Ha! Erm but we'd got just money to find out! So we had to spend it, and we had to get best value for it, cos it wasn't a huge amount of money. So we thought first of all that we'd get people like [redacted] or [redacted] to come in and help us build the project. Erm, and they were gonna charge us £10000 just to think about starting it. Erm, and that was about 3% of the project funding gone in a blink of an eye, and we thought, we won't do that. So erm, instead we went on a data centre course which at the time was in its infancy [redacted]. And in there were quite a lot of best practices, mostly from a US perspective, so tier 942 standard which is an ANSI standard. And so we based a lot of the design of the data centre on that. But then we became aware of the EU code of conduct. And it seemed that it was a good thing in terms of it had energy efficiency guidelines in it. So we said oh, OK, let's stick that in there as well and hopefully we'll get something that's not just best practice from a data centre perspective but also best practice from an energy efficiency perspective. It's probably the best thing we did actually. Because it really helped...I think it really helps the companies who are trying to put proposals forward concentrate on the fact that we wanted not just an effective data centre, but we wanted one that was efficient as well. And you don't necessarily meet that the same...those 2 things aren't necessarily aligned. Particularly when you talk about...obviously the higher the tiering a data centre has, the less efficient it is. So you need to make a lot of decisions around what is the business requirements of this data centre, what can you swallow in terms of redundancy and availability. How much do you have an appetite for being the organisation. And so those are kind of a lot of the key questions we had to think about giving in order to ensure we got the right solution for us.

Ir: OK. Erm, do you in the course of your work now, do you discuss the EU Code of Conduct with people you work with, do you recommend it...

Ie: Absolutely, we're an endorser company here, so we'll discuss it quite a lot with our clients whenever energy efficiency comes up. Erm, the great thing is the EU Code of Conduct will soon be a technical report under ISO standards. Which...and it's already part of EN50600, Cenelec's standard. Erm, which means that...but because it's a technical report it'll be a living document, under that standard. Which just gives it formality, also gives it credibility and weight. And in fact I used it very recently in an RFP put out for a [redacted]. And erm, it was accepted that criteria was accepted because it was part of the european standard. I think we'd have struggled to get it included if erm, if it had been kind of sat in its own line. So that recent addition of it becoming part of EN50600 I think has really gained it a lot of credibility.

Ir: What would your key reasons for recommending that a customer does try to become a participant of the code?

Ie: Well, this is a difficult one really because to become a participant...becoming a participant is a bit tortuous because there's one man in Brussels who administers the scheme and he never answers his email...erm, he doesn't put much time into getting people pushed through the process, so it can be quite longwinded and painful for people. But I think, for us, I mean we were already complying with the EU Code of Conduct for data centres, we were doing the things that it suggests that we do. And I think that's true for a lot of organisations, not just for [redacted] at the time. The problem is they don't take that final step of getting themselves to become a participant because of the process, the complexity of it. You've got to fill in a spreadsheet, and you've got to send it off, and you don't hear anything. So if someone was coming to me and saying, you know, do we want to be a participant, I would say, well, it depends what you want from the code. Do you want to just, erm, do the best you can in the data centre in terms of keeping it as efficient as possible? Because you don't need to be a participant to do that, you can apply the code. Erm, if you want to demonstrate to yourself and to the industry, and the wider market, that you are somebody who takes it seriously, and it's underneath your CSR banner, then er go ahead, get participant status. It gained [redacted] a lot of kudos, because we were the first [redacted] to do so, and we put that in presentations, and on the website, to demonstrate our credentials, you know, to [redacted]. Erm...but yeah I recognised it's not for everybody, some people prefer to do it quietly, rather than shout about it. And banks are probably in that...yeah in that corner.

Ir: OK. Erm, let's see, so we covered a few of these things...

Ie: However, to say to...to amend that slightly because, now it's part of the standard, it's very different to when it was just guidelines in its own right. Because if you get audited particularly in the financial services sector, and you comply with 50600, that covers all of audit ground. Because the EU code of conduct is a part of that standard. So you are protecting yourself, and protecting your shareholders. And so, that's...that's a real difference since it became part of the standard, whereas before really it was just part of CSR.

Ir: OK.

Ie: Corporate Social Responsibility.

Ir: Yeah.

Ie: Just checking you knew the acronym!

[laughter]

Ir: So yeah, so you touched on the kind of administrative burden if you like, of joining the code. Do you think that the code would be more attractive or more, have more impact in the industry if it was a bit smoother in that respect.

Ie: Hmm, absolutely. It's difficult to argue for somebody to become a participant, and then they go to the effort, it is a fair bit of effort to do it for the first time, only to hear nothing back for months. You know. The whole process can take 6 to 9 months somebody get back to you. And that's just unacceptable. So the industry is wrestling a way of changing that and the answer we think is based around this becoming a technical report. Essentially then we get an ISO committee dedicated to improving it. But from an administrative perspective we still don't know, if we're really quite sure how that'll be managed. So...so it only really covers it from a technical perspective in terms of keeping the code relevant. It needs to come out of the department it's in, the JRC. It needs to go somewhere else... in the commission. But...

Ir: OK. Was there anything else about the code of conduct, any other ways in which it could be improved, apart from the administration?

Ie: Well it needs to be in various languages. That will now happen, when it becomes a technical report it will be translated into French and German. The French have been arguing a lot about that. In fact some French people went and got it translated themselves. But the translation is based on an old version, the 2011/2012, and we're obviously up to 2016 now, that's gonna come out soon. So it's way behind. Erm, so it's better to have a body that can translate that in flight. Erm, the thing that's been holding it back a lot in the past is that everybody sees it as a UK document, because it was written here in the UK. Erm, and the majority of participants and endorsers are UK, UK-based. But it's supposed to be a European standard document. So, erm, but they just don't, particularly the French aren't happy that it's in English. Germans to some extent. Dutch don't care. But yeah it's been difficult to push it in other countries, it's been holding it back. So once it gets translated I think that'll be a lot easier.

Ir: OK, well I think that covers most of the stuff on...yeah so I think that's most of the stuff on the code of conduct. I was just gonna ask you a few questions more broadly about other kinds of policy instruments and things. Erm, so well yeah, I mean, are they any other approaches to policy that you think might be more effective, or might be helpful as complementary measures to the code of conduct?

Ie: Well, the problem we have at the moment is that a lot of the policy measures that are out there, such as the CCA, erm, for data centres, Amsterdam's tax codes, which are supposed to encourage better PUE...they're all based around PUE, and PUE's very simple, a lot of people understand it because it is simple, it's been adopted widely...but it's, in terms of a designator for energy efficiency it can't be trusted. And you shouldn't trust it. It's a way of erm, measuring how well you're doing, but even then, even if you measure against your own data centre and against nobody else's, you still have to be careful, because, it's only really measuring the IT load and the IT load could include, for instance, power over ethernet, it could also include fans within the servers, so depending on those, they could make you look like you're really efficient, when actually you're not. Erm...so...there's been a lot of talk, especially in the standards bodies, and the Japanese and the Koreans are really into this, which is about providing a kind of silver bullet. Which is one measure that you can use, one key metric say, that you can use to identify an energy efficient data centre. And you can compare them, data centre to data centre. But they all founder on the same basic issue, and that issue is, what does a data centre do? What does it produce? Well the answer is it produces nothing, OK?! It doesn't produce anything physical, it produces digital services. And digital services are notoriously difficult to quantify, to measure. Erm, because a digital service to you may have a different value to digital services to me. Might be the same digital service, but it's got 2 different values depending on who the receiver is. Erm, Ebay being one of the, the few exceptions, in terms of being able to, erm, directly measure the efficiency of their digital services. That's because they only do one thing. They transact, and they measure their transactions, and therefore they can stick a value on it, they can watch it go up and down. But most, I mean how do you measure for instance, a key one that Ian Bitterlin uses a lot, you know, how do you measure social care? If you're running a social care application from a data centre, how...what would you do with it? Is it erm, watts per baby saved? Watts per child not going into care home? How do you measure that, it's impossible! OK? So trying to define a silver bullet is a waste of organisational time to be honest, and they keep bringing it back to the table and we keep trying to shoo it away, and they keep bringing it back and we shoo it away. But they're desperate to find one. It's never gonna happen. Erm, so I think the key is that the, the raison d'etre of data centres, data centres are there, primarily because they provide digital services, OK? Those digital services are split into 2. Erm, the first thing is that they replace manual services, so, we see that a lot with the government. Governments have been pushing for many years now to basically digitise everything that they do, so they don't have to have people shuffling pieces of paper. And they've been mostly successful at doing that you know? Erm, of course they, what they don't realise, they're kinda getting it but they're struggling, is that they see no contradiction in the fact that they think data centres consume far too much energy, and yet they're one of the biggest erm, providers of services within data centres, in terms of what they're trying to do in driving end user usage of digital services. They don't see that contradiction. And erm, the other thing that data centres do of course, is they drive new and innovative new businesses, because once you appreciate that there's a digital landscape out there, your innovation has very few limits, and so new services pop up. So Uber is a great example. Air BnB. I mean you know, would these services exist without data centres. No, that's the frank answer, they wouldn't. But they're incredibly highly valued...over-valued I'd say. But they exist because of data centres. Because data centres are there. So you basically, the more you digitise, the more you make erm, data centres efficient, effective...unfortunately it's been shown that the Jevon's principle kicks in. People say wow! We can do this now! Couldn't do that before because it was ineffective, inefficient. Now we can, and so they use more and more services, take up more and more power. Erm, and eventually you know, we are gonna reach, there are physical limits to data centres, eventually we're gonna reach the physical limits. Erm, if you look at the way that data centre growth is driven, the majority of it is video, and still pictures. So it's social media driven. It's also pornography driven, but that's the same thing, video and still images! Erm, a lot of the companies that have based their business models around video, such as your youtubes for instance, and facebook, they don't charge consumers for storing. And so data growth has just ballooned, but also network growth. Networks use more and more as a proportion...as you make your data centre more efficient so you've got a network consumes more and more of that data centre power...and therefore you need to look at the way that the charger models for storing videos, pictures, I think the only way you're going to manage that is if you, instead of your average 14 year old taking video and pictures of everything around them and loading everything up straight into their tumblr or instagram or snapchat or whatever it is...although snapchat's not supposed to stick around but it does, especially when someone takes a photo of what they've received, or facebook or whatever account, there's no cost for them to do so.

Ir: Yeah.

Ie: So there should be some kind of...if you want to manage it, you seriously want to manage the growth of the internet, then you really need to put some kind of economic cost model in for people who want to store things in the cloud, which essentially is in a data centre. How you do that, I don't know. Because you can't force a company really. You can't force them to charge their customers. It's kind of ironic, everyone looks at Amazon as being one of the forefronts of the digital age. Pioneers. They've got a wide ranging business you know they sell everything now, not just books, electronics to home equipment, furniture and all sorts. But they've never turned a profit! Never turned a profit. Erm, so what can you do? You know, if you start to put a tax on storage, data storage, you'll probably just put that storage overseas, and most companies will probably just soak it up. Because they know that people don't wanna pay for it, people have got used to not paying for things. So your average teenager will find a service that doesn't charge, and then they use that instead. So it's a really tricky one, how do you drive efficient behaviour, but once you know what the highest demand is, within the internet space, you realise that you can't really drive...maybe education, maybe education's the way. Just explain to people what impact it is, but you still, you're still gonna get people who'll think twice perhaps before loading a picture up into the cloud, that's not that great, I don't really wanna keep that...and then you know, their friend gonna be somebody who puts up everything. Everything down on their phone is gonna go up into the cloud and then they just leave it there. So, yeah, it's interesting, erm...where d'you wanna go with that, because it's almost become philosphical!

Ir: Yeah it has a little bit!

[laughter]

Ir: Well perhaps we could just come back to...you mentioned the climate change agreement, and you talked a bit about, well you talked about you know charging people for digital services and things in a way that we don't now, but I mean do you think that something like the climate change agreement or CRC and CCA...how do you feel about that kind of approach, charging at the other end I suppose, charging for the electricity consumption of the...

Ie: Well the CRC is much more wide ranging than just digital obviously, cos it's the scope 2 emissions you know start to look at diesel engines and all sorts. And for [redacted]. And CRC started out as well meaning I think, where the savings would be ploughed back into the best performers. However it was written pretty badly, because it kind of penalised early movers. And then they scrapped the rewards anyway and it just became a tax. And then for the data centre industry, certainly for the colo industry, they were fortunate that at the same time Tech Uk were lobbying hard for the industry to get George Osbourne to include CCAs...include data centres in the CCA. We don't know how long the CCAs gonna last for, and it might actually be disbanded in a couple of years, they're looking to rationalise the carbon taxes. And I think...there was always a time limit on that anyway, so...a lot of the colos have now moved across to the CCA. I've just read the latest report from Tech UK...

Ir: Oh, I was reading that on the way down.

Ie: Yeah, and they say, you know, broadly they think there's been improvements, but you've gotta remember that those improvements are based on PUE. Can you trust PUE? No. And Tech UK say that, they do caveat it with, be careful how you read this cos...the problem is the demand's still going up so you're obviously gonna still be using more energy...perhaps the marginal cost of that energy becomes cheaper and more energy efficient more...I think ultimately that the market is almost the best regulator in this case. Co-lo providers are providing too much space, there's an excess of supply in London, as there is in Frankfurt, Paris, and some data centre providers will get subsumed and some will go to the wall. Because if they can't keep their costs down, so they can't offer good value deals to their clients, they can't stay in business. And the way, since the energy is by far the largest cost data centre providers have...you know, if they're energy efficient then they're going to be more sustainable in the long term. How do you regulate that? You can't because everything you do is designed to take money out of them, you're probably going to send them to the wall that bit quicker. Erm, do you want to do that? I suppose if a lot of them went to the wall the price would go up, supply would...demand would go up rather than supply, which would go down. But yeah, it's a tricky area and remember that it's international so if you're gonna put any policy instruments in place, you really have to do them from a European perspective rather than a local perspective. Unfortunately the European ETS scheme is not particularly good. The credits are too cheap. Not driving the right behaviours, people don't care they just buy more credits. So you've got to set a carbon price appropriately. But you see again, it depends who's being impacted by these policy instruments, because if you're penalising the co-lo providers, they'll just charge it back to the customers. And the customer's model would have to change, but they're reluctant to change their model cos they're...their business model usually is around free to use, or very cheap to use. So it's a really difficult one. Does it constrain innovation the more expensive it becomes to use the cloud, the more it constrains innovation around the cloud. Essentially...I mean, OK, I'll go off on a tangent...

Ir: Yeah, that's good. I think that covers that. I was also gonna ask about...a few years ago the department of energy in the US had a big workshop with loads of people from the data centre industry, trying to come up with ideas for how to drive efficiency in the industry. A lot of their recommendations were around things like subsidising energy audits, and subsidising design services and things like this. And training programs and that kind of approach. Do you have an opinion on whether you think that might be helpful?

Ie: Well...I think...there is actually a government policy...it's a bit obscure but it's to do with energy management in organisations...I don't know whether it's compulsory yet, I think it's still being trialled...but the government are thinking about making it compulsory because they need to save energy because the capacity of the energy supply in the UK is gonna come under severe pressure in the next few years...I think 2017 we lose 40% of our capacity when they switch all the coal power...get our coal fired power stations off. So how do you cope with that? Erm, and I think that's how they think they might do it. And that's a combination of requiring certain roles within an organisation to be educated to a certain level, and if they're educated to a certain level, they will get discounted energy. So it's a bit roundabout, but they're hoping that those educated people will transform the organisations that they work within, to enable them to use less energy and therefore get cheaper energy. It's kind of the reverse of the way it's been in the past because the more energy you used the cheaper it became. Now they're kind of saying that if you use less energy it becomes cheaper. Like I say I don't think that's...that's not written into policy yet, but it's an interesting way...and if you apply it to a data centre, you could say well have you done, are you accredited to ISO 50001? If you are then that gains you some energy credits that enable you to get cheaper energy. But it's difficult to know whether organisations would just get the accreditation for the sake of it. I've worked in...I'm a bit sceptical here cos I've worked in a lot of organisations who have ISO accreditations, and the most they do is point to them when the inspector calls. Point to the documentation, and actually ignore them for the most part. So it needs to have a cultural change that's backed up by something that's really valuable to the company. Now, it's difficult to tell a bank that it's important to save energy in your data centre, when latency and availability are the 2 main criteria that they need in order to be effective within their industry sector. Because they can count lost transactions in the millions of pounds, you know! Every second costs them x million! And I've worked in the banking industry, and if the system went down...I used to manage a [redacted]. Every time it went down over night, next morning I'd get in and the manager had stuck a note on my desk saying you just lost me, you know, x hundreds of thousands of pounds. Now, it's not my fault the system's rubbish, I didn't even choose it! But I had to manage it...and that's the same, you know the different sectors, the [redacted] would be very open to those kind of instruments because they are...some of their funding, [redacted] have insisted on them reducing their carbon footprint over a period of time. And also there's the... [redacted] leagues and stuff like that [redacted]. But it's different sector by sector. You know, if you've got a company that's particularly...sees a lot of bad press because it's seen to be quite wasteful - your Googles and your Facebooks - you know they love to boast above how low their PUE is, and they take CSR seriously. So for them it might be something they'd really wanna do. Coca-cola probably the same, you know, something they really wanna do so they can boast about it. Because ultimately their business models could come under attack from various organisations, such as Greenpeace, and what have you. But yeah, some of the biggest consumers of energy, in data centres, you're never gonna touch.

Ir: Hmm. Cos it's not their...they've got other concerns.

Ie: Exactly, if they can go out of business, as we've seen. One bad transaction can cause them to lose their entire business...and...so they pay a few extra pence on the kilo watt hour for their energy...big deal, you know. But there you go.

Ir: OK, I think that covers that. Could I also just, a lot of the other work I do besides these interviews - the experimental and modelling work - centres around cold aisle containment.

Ie: OK.

Ir: Did you have cold aisle containment at [previous employer]?  
Ie: No, we used hot aisle containment.

Ir: OK...

Ie: Good reason for that, I mean to be honest it doesn't matter which one you use, hot aisle, cold aisle, both are trying to achieve the same ends, which is thermal separation. But for us the big benefits for hot aisle containment was the ability to re-use that hot air...we had re-use of hot air into the domestic hot water system.

Ir: OK.

Ie: Because if you're using cold aisle containment, your hot air is less directed. And it's only low grade heat anyway, so the less directed it is, the less you can get out of it, the less useful it becomes. Erm, the...I mean it does cause challenges in the hot aisle, cos the hot aisle can be very hot, uncomfortably so for anybody who's got to be working in it, but that's not very often. Cold...for me, I'm not a fan of cold aisle containment only because it involves pressure monitoring. Which involves a kind of...a degree of control between the equipment end and the plant. And I just think there's one more thing to worry about. Whereas with hot aisle, you just contain and that's it, you know. Don't really worry about it, as long as you're getting cold air up in the rest of the data centre...you accept that there might be a few degrees difference between the bottom of the rack and the top of the rack so...so not much use to you in terms of a model.

Ir: Was it...obviously it's part of the code of conduct, so presumably that was your main reason for installing it at [previous employer]?

Ie: Yeah. In our older data centre...I say older data centres, it was only 2 years, not even 2 years maybe, a year, maybe 2 years, 2 or 3 years older. We put that in retrospectively. And again we contained the hot aisle, because we wanted to do it cheaply. And we used butcher's curtains...because they're flexible and cheap. And you don't have to worry about a pressure difference, so. And that's very effective actually.

Ir: So, presumably your reasons for doing this would have been for the energy efficiency? Or...?

Ie: Yeah and also for availability, because what we found was that the hot air would travel around the sides, because there was no containment, so it would go round the sides, and then the end cabinets were actually warm to the touch. And it would also go over the top, so it was quite hot at the top of the cabinet. Particularly with, we were moving much more into blade systems, so you've got high density equipment. Yeah, so it's uncomfortably hot to stand behind some of that equipment. So yeah, having it in the containment was vital to maintain both the energy efficiency and the availability of the data centre. Because it gives you more capacity back as well, because your cooling's more effective, it gives you more cooling. So there's lots of good reasons for doing it.

Ir: Aisle containment is obviously becoming increasingly widespread. But do you have any ideas about why take up of it hasn't been faster than it has been, if you like? What do you think stops some data centres from putting it in?

Ie: Erm, lack of flexibility. If you want to stick an extra cabinet in, if you've got fixed containment it's quite a lot of work to change that. Particularly in an older data centre, [inaudible], probably you know, you don't have zoned off space, so you're not creating pods of cold aisle containment or hot aisle containment. So the addition of additional cabinets is actually quite difficult. Well not difficult but it requires a bit of thought and a bit of work in order to do that. Whereas organisations, particularly if they're fast moving, just want to bang in a cabinet, populate the servers and get connected up and, money. I've seen ignorance as well. People thinking that they're doing the right thing and they're actually doing the wrong thing. And actually I have seen corporate arrogance, where you kind of get the data centre manager, who is probably data centre manager in name only, cos he's got very little sway over what goes on in the data centre, he's kind of just managing the operational team that supports him. Erm...tries to inflict some kind of discipline and structure around what gets put in the data centre, but fails because something turns up on his doorstep, it's gotta go in, and the people who are the main users of the data centre, so usually the technical teams, don't understand why the guidelines in the EU code of conduct, cos they've never looked at it, or don't know what it is or they haven't even heard of it...so they don't abide by them, because they don't know them, and they just force the data centre manager to do what they want him to do. So I've seen for instance, an attempt at hot and cold aisle arrangement, and then there's the network cabinet that's round the wrong way. And the reason being is they wanted the connections on one particular side. So rather than turn it round, and take the connections round to the back, or through the cabinet, they just turn it round the wrong way. They could have put baffles in, in order to get the air, reverse the air back the way it wanted, but they never got round to buying them. So, I've seen that way implemented, so they're just sat there, the wrong way round. I also see...because of the...such a vast gap usually in a lot of organisations between the facilities management, and the IT management of the data centre, IT operations. And the data centre management role is all things to all men. You get 2 data centre managers in a room, ask them what their responsibilities are, and they're both completely different. Completely different probably. When I was data centre manager at [redacted] I was very effective. The reason I was so effective was because I was managing the M&E as well as the IT operations side of what goes in the data centre. I had large sway over both. And so I could comply with the EU Code of Conduct, easily. I could determine, if somebody wanted to put something in a cabinet I told them which cabinet they could go in. I don't see that as a consultant now. I go out to organisations, I don't see that kind of control, I don't see a data centre manager being able to have that kind of sway. Often he's not even responsible for the M&E. Facilities guy is. Facilities guy's never heard of the code of conduct. He's got an M&E consultant, probably. And M&E consultant who perhaps advises him on environmental concerns, and things he can do to improve. But again, that consultant probably hasn't heard of the EU Code of Conduct either, and it's more of an IT document [in the consultant's opinion]. Because of that skills gap...you're never...organisations are never gonna bridge that. You need to bring the roles together. You need to have a data centre manager that covers the M&E and the IT, and is able to control that entire envelope, of what goes on in the data centre, data centres. And it's something I have regularly spoken about, and a few of my colleagues in the industry also talk about. So I think that's the main reason. Main reason is you haven't got a standard definition of what a data centre manager is. And the ideal role would be that they are responsible for everything in the data centre, but that's just not the case. Rarely the case, in fact. So people like I was at [redacted], you'd be hard pushed to find somebody else like me. But they do exist, there's a few people out there, but they're few and far between.

Ir: OK, good. Well I think that covers everything I wanted to cover, unless there's anything else you wanted to ask or anything like that?

Ie: So what's the, what are you hoping to...what's the output, your thesis or...

Ir: Yeah it'll go into my thesis, we might look at trying to get a paper published as well.

Ie: With the intention of, what?

Ir: I mean...

Ie: Directing governments or policy instruments? Or directing the industry on how effective data centre regulations are, what's the...

Ir: I suppose I hope the outcome should be useful for policy type people, but, and the data centre industry as well...

Ie: So you're sitting on the fence until you've done all your interviews are you

[laughter]

Ie: This is what I'm getting from you Morgan! Waiting to see what you've got before you make any definite...

Ir: Yeah to some extent, I mean I've only done 2, this is the second one so, yeah I'm partly waiting to see what I find out. Yeah I suppose the main aim, or my initial intention is that it would be more of interest to the policy type people...and possibly beyond the data centre industry as well, like how well does a document like the EU code of conduct, you know voluntary set of recommendations, how well does that, what do people think about it, what are people's reasons for getting involved with it or not.

Ie: I mean the difficulty you know, during the 90's, and the noughties, the Blair government was very much into running the country by metrics. They had a metric for everything. The way hospitals were run, the health service, the police, education system, everything had some kind of, had to have a measure put against it in order to determine how well they were doing. But the problem is that people game them. They try and find ways that make them look as good as possible, and not necessarily for the benefit of the people who are supposed to be benefitting. You know, so if you're trying to reduce waiting lists, and you try and say well, you know, in order to get an appointment with your GP you should wait no longer than 2 weeks. So what did surgeries do? They said you can't book an appointment longer than 2 weeks away. In fact what they actually did was restrict people from booking an appointment for that week. And a lot of the time you had to call up on the day, you know. So they just gamed it, because oh, nobody has to wait more than 2 weeks, it's because nobody can book an appointment for longer than 2 weeks away! So it's a big problem. And the industry, the data centre industry suffers the same problem. How do you determine what are the best measures? And there's a lot of work going into the International Standards Organisation work, into the metrics of the data centre. I think that's a good thing. I think it's good that you have standard definitions for things. So when you say PUE, you know what PUE is. You've got a definition, everybody agrees with it. That's how you measure it, that's what it tells you. Nobody can create uncertainty or doubt around it, that's what it is. And the same is for the WUE and the ERE and all the other different metrics they're looking at. It just gets a bit...nebulous when you start trying to apply that as a kind of policy instrument. What are you trying...what actual behaviours are you trying to encourage? The only way you really have energy efficiency in data centres is shut it down. It's the truth! You shut the data down, it's very efficient, incredibly efficient! Will we get to an era where energy consumed in data centres depends on demand? A totally automated data centre? So overnight perhaps, when everyone's asleep, all the services migrate off and go to somewhere else where they're being used more heavily, maybe a different part of the world, and all the data centres shut down. If that happens in my life time...I've got another 50 years left...I'll be very surprised. It's a bit like why do we not trust aeroplanes to fly themselves. Good reason for that. They can, they can take off and they can land all by themselves. But we don't trust them because, what if something went wrong? Same with data centres. Data centres now run entire economies. Without data centres we wouldn't have an economy. And could you trust your business? If you're NHS hospital, could you trust your data centre to come back up again the next morning when you needed it so that you could run surgery that day? Who's gonna take the wrap if it goes wrong? You know. This is the problem I think. It's a big problem we face in the industry. So how do you...and I think the answer is, that you have to provide some kind of framework. Provide a framework and get people to define the value of the services in the data centre according to that framework, and then drive behaviours, better behaviours through that. Because if you understand what their business is, you can understand how much they value it, understand what they can do to improve things, then you've got a better way of driving better behaviours. It's less of a blunt instrument. I just don't think sticking carbon tax on anything is effective, some people argue differently but that's my opinion. OK?

Ir: OK, yep.