That's fine.

There's also sort of since these are like these are perspectively might become a big trunk or economically relevant and stuff. So they also tend to become that culturally relevant to these activities and I think the point with the quantum mechanics and in the status of quantum mechanics is slightly different from electromagnetism in a sense because in we can't really build machines that are I mean, we have the transistors and stuff, but they're not relying heavily on careers, so

establishing some of this

working machines that are sort of unquestionably coherent.

Is culturally very relevant in the way, you know quantum mechanics.

To establish the state doesn't have the mechanics not only as a fundamental physical Theory but also as an engineering feat. Yeah, I think that's about a sort of like an in a sense. I mean we know when we all know those are the proper thing that no theory is true blah blah blah sort of the theory becomes true when you build a machine with it sort of yeah in a way sort of so I think and and device Independence is very instrumental to this because it tells you this machines can only be quantum

That's in the end what it is.

So do you think that's happened that in the machine has been built that that makes it a theory as it were but makes it an established Theory or it's that to call me.

There's only I mean, okay. So Random is not quite a gift sent of device Independence as related to nonlocality and because no look at it is one of the ingredients that you need to prove something Beyond any because I think random number generators they work but they are local so they might be they could be explained by some hidden variables model.

Cryptography is but I don't know that we have a Quantum device real proper device Independence at this stage drink the beer but it's very difficult. I never understand security proofs in people because they're too I mean I know a few of them, but

See they seem to be very circumstantial. So I mean that's I don't know that and I think it has happened. But I'm not the person to ask the person is who's the person to ask about that? Yes, device Independence expert definitely picked up on that. This is a list I gave you. Yes.

Just outside the double dough or between the two dosage. Yeah, actually nice and easy, you know if he's about this week, but I don't see any but in my be so yes, at least I give you some useful information, which is absolutely have you seen. I don't know. Did you send someone at the copper mine in that first interview questions? We've I think we've made our nation, but I think yeah we addressed what issues might arise when you scale up.

My problem young man, very optional. Are there any other approaches to kick it in any of the major right competition? Oh.

No, I say device Independence is Ultimate.

The other the drawback I say is that maybe you can't prove it you'll be Securities. Like if you don't prove it within a certain framework, then I don't you don't know anything. Then you have to relax your assumptions. So make them or the other way around so make them more specific. So but the most the ultimate in the sense of being the most generals, you can't beat it if you happy, what do you think the next steps are to achieve mation theoretical secure global net.

Me too. I will tell you something conventional. Do you think you could do that much. I mean I got but I guess satellite stuff is what all right, that should be the next steps you I mean, this is the steps that I actually taking Rachel question for I reckon satellite you think UK diesel?

Okay, so

Yeah, that would be used. I think how long

I mean they already use in specific situations transactions banks. It is a in a sort of general public. Where is my I had the impression think there have their own networks. Yes. Yes. Okay, but I think that that's the one part of quantum technologies that big Market. Yeah, because I don't see

I'm not sure. I mean, I'm not an expert thing, you know the process of the steps that go from

being able to do something to exploit and it in commercially or because that is very specific. But I guess they want something is out there then.

He picks up whole system's to I mean costs go down because of you know becomes more common. Yeah, I would say five ten years. That was that's an educated. Guess that nobody comes from but my own yeah, I think that's pretty much because they re I'm really not an expert. So I mean that's really really helpful and I'm really helpful with everything else. I think we were going to ask a question. But again, I suspect it may be for someone who really is a specialist in that button that was isn't on here which is about the interim period that's fine because it's 2016 and think the publication so I think we were going to ask a bit about anything that's happened in the last few years that might have thrown a new light on that situation. But now I know ask her.