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**Armageddon in Cyberspace:**

**The Happiness of the Half-Cyborg**

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Good evening, everybody. As has just been said, I have lots of slightly ridiculous job titles. I am also the Prime Minister’s Ambassador to TechCity, which, for those of you who have never heard of it, is Shoreditch. But mostly my job is working as a futurist. A futurist is somebody who is paid to live a year or two in the future and then come back and explain what it is going to be like. For those of you who do not live in 2014, as I do, you will know that, in January next year, PowerPoint slides will be made illegal under the International War Crimes Tribunal. So I do not actually have any slides; you are just going to have to listen to me instead – I am sorry about that!

The reason that this job exists and the reason that I work around the world talking to audiences and to boards and to Cabinets about the future is really down to a quote by the science-fiction writer William Gibson, and he said: “The future is already here, it is just not evenly distributed.” This, I think, is a very important point when we are talking about cyberspace or when you are listening to somebody like me speak is you have to bear in mind that I am going to – everything I say in the next fifteen minutes is absolutely 100% true to at least ten million people. It is just not necessarily any of you… And so, I am going to make some generalisations, and some of you will be sat there going, “What are you talking about?!” Believe me, I could give you case studies, or fly you to San Francisco and just let you lose, but just go with it for any of the examples that I give.

Because of that fact, that the future is already here and I can find case studies for pretty much anything I would like to say and tell you about the modern world, it means that somebody like myself, somebody who is called a futurist, is capable of basically saying anything. You can go to a lecture about technology, you can pick up the technology press, you can go onto the web, you can read any of this sort of stuff – you can read “Wired” magazine, for example, which I am contributing editor to, and you will find an infinite number of stories about what the Internet means or what smart phones mean or what they are going to do in the future, or any of these things, and because they are all absolutely true to at least ten million people, and of course absolutely false to everybody else, it is very difficult to really take any lessons away, unless you get right down to the basic level of understanding.

I am going to just take you very quickly to the three main things that I think you should understand if you are going to understand the future and the Armageddon of Cyberspace. There are three really major movements to understand for the 21st Century, and if you do not understand them, then the world is going to be incredibly confusing.

The first one is Moore’s Law. Now, of course, everybody here knows what Moore’s Law is, but I will just remind you. It is a rule of thumb in the microprocessor industry. It was invented by a man called Gordon Moore, who is the co-founder of Intel, the people who make the microchips. In the early-‘60s, he looked at his sales brochure and he realised that, roughly every year to eighteenth months, the number of components on an integrated circuit, for the same price, would double, roughly every twelve to eighteenth months. He wrote this down in an internal memo, and in the ‘70s, they looked at it again, and they realised that this trend had remained the same, and indeed, it remains the same to this day and we think it will remain the same for another twenty or so years. Simply stated: every twelve to eighteenth months, for the same price, computing power doubles; or, conversely, for the same amount of computing power, the price halves. Now, this has been running, as I say, since at least the ‘60s and continues to this day, and the mathematicians amongst you will have noticed this is an exponential curve – it is doubling and doubling and doubling and doubling again. This is really the first time in human history we have had technology that gets twice as good every year or so. So, previously, we would have had, say, swords or horses, and swords do not get twice as sharp every year, you know, horses do not get twice as fast every year. The reason for it is really, there are many reasons, but one of the reasons is you use today’s technology to design tomorrow’s technology, and so that is where you get that doubling, because you do not use today’s swords to make next year’s swords as sharp. I mean, you do use today’s horses to make next year’s horses, but we have reached the pinnacle of horse technology at this point – they cannot carry any more songs, you see.

The reason that this is a very important thing to understand is because it really sets the underlying tone for the century.

The first thing it sets is it makes it basically impossible to plan, for pretty much anybody, and specifically for politicians and for generals. In the twentieth century, there was a grand fashion for five-year plans. They did not necessarily work out, but it was quite the fashionable thing. A five-year plan today has to take into account that the technology that we will have in five years’ time will be 32 or 64 times as powerful as it is today. Now, we cannot really conceive of what that will do, and that is in an easily plannable time period. If you are the Prime Minister, for example, and you walk into Downing Street, as David Cameron did a few years ago, with, I imagine, an iPhone 3GS in his pocket, now let us just imagine that he gets re-elected Prime Minister. At the end of the second term, he will walk out of Downing Street to go on holiday and will have an iPhone fifteen in his pocket. Now, that will be an iPhone 256 times as powerful as the one he had in his pocket when he started the job. Or, conversely, he might have an iPhone 3GS, still, because he really likes Angry Birds and he does not want to give up the thing, which means that, going by Moore’s Law, and again, you can hand-wave around this, but going by Moore’s Law, at least the electronics inside will be one-256th of the price as it was before, which means that iPhone 3GS will have been free with a packet of cornflakes.

We have gone, since the iPhone has been available, from no smart phones at all in the country to, the end of this year, 75% of the population having a smartphone. Again, to put it into context, the modern iPhone is three times as powerful as a Cray-3 supercomputer, which, for those of you who saw Superman 3, was the cool black one with the sofa built into it, the cool supercomputer.

We have unimaginable amounts of computing power in our pockets, and deeply unimaginable five years ago, which means that, if you are making five-year plans, or if you are making ten-year plans, or you are making a twenty-year career plan, you are really making it on the basis of complete fantasy because there is no way now that you can make a genuinely good prediction about what the future is going to hold because the world is being driven by technology we cannot really predict. I mean consumer technology, just random stuff you can buy at the Apple Store and Dixons. I do not mean alien technology held under the mountain in America – I mean just stuff you can buy from Amazon.

So, Moore’s law continually drives this thing on, which leads us to our second issue. The second issue is that we are all half-cyborgs. Everybody here, to a certain degree, is half-robot, slightly rubbish robots, but half-robot nonetheless. Let me explain what I mean…

Everybody has – who has an iPhone or a smartphone in their pocket?

So, the main thing about these is unevenly distributed future, so there are some people in the room who are going like “I have no idea what you’re talking about!” There are plenty of people who do, right?! If you have got somebody sat next to you who is shaking there head and you are desperate to check Twitter. If you are the person, nudge them, okay!

There are many of us who has these devices. They are never more than three feet away from you anytime in your existence, right? It is in your pocket, next to your skin, for the entire conscious waking day; it is probably on the table next to your head when you are asleep; it is probably on the shelf in the bathroom when you are having a shower.

These things have become so much part of your life, such an intimate device, that to all intents and purposes, it is part of you. In the old days, in old science fiction, we used to talk about people having the Internet plugged into the back of their brain, a little scar, skull-jack - you know, there were lots of science fiction films with that in there. That will never happen because of Moore’s Law, because nobody wants to be the person with last year’s model of plant, the upgrade would be very embarrassing, for one thing, and you would not want to be the person who had to have like the ugly adaptor, “Oh, you’ve still got a serial port, oh…yeah…” So, those plug things will not happen, but it does not matter because we have these devices that are incredibly intimate to us.

We have not only gained superpowers from these devices: we know where we are on the planet to within three feet; we are able to magically put our thoughts into other people’s heads using these things; we have access to all of the world’s knowledge. I mean, in the olden days, if you could not remember something, you would scratch your head and it would eventually come to you; nowadays, you scratch your robot brain and it eventually comes to you – it is effectively the same thing.

Not only have we been given superpowers by these devices, but they have become entwined in our minds. Now, we know this – there have been at least three studies, and the last one was out of Harvard last year, which shows that we give a certain proportion of our brain to monitoring our robot brains. Now, you know this, those of you who use smart phones a lot, because 90% of you who use a smart phone a lot, sometime in the past week will have felt your phone vibrating in your pocket when it was not vibrating. This is called a phantom vibration and it shows that your brain is going wrong a little bit, as brains do. 45% of you – you do not have to admit this, but 45% of you who use smart phones a lot will have felt, in the past week, your phone vibrating in your pocket when you were holding it in your hand! Many studies have shown this. This means that we are deeply entwined with these things.

The first two things is the future is that the technology doubles and doubles and doubles in power, you know, every year or eighteenth months, and we get to be much more entwined with it as we go along, which leads us to the third and most important point to make about these things.

When we talk about technology in the 21st Century, we are not any longer talking about a box of electronics. We are not talking about something separate from humanity. We are not talking about a printing press that is in a room over there and we go and visit it, and it has a purpose, and we can talk about it as if it was a separate thing, separate from us. When we talk about cyberspace and the Internet and digital devices and smart phones and all these things today, we are talking about something that is deeply entwined in ourselves and in society. The Internet is not a thing; the Internet is something you do. Cyberspace is not another thing that we depend on; cyberspace is where we live now.

When we talk about the Armageddon in cyberspace and so on, when we talk about “It is going wrong”, we can have the technical discussion - and I can put your mind at rest, cyberspace will not fill up, we are all good with that – but when we talk about this, we could have the technical discussion, but really, we need to be having the social discussion. We need to be talking about cyberspace as if we are talking about the community, or society, or our family, or the air in which we breathe, the weather… It has the same equivalency these days, cyberspace. So, really, now, we have to think about why we talk about Armageddon, why are so many people are frustrated with this, why so many people are concerned about these things. Yes, it is because it is so important to our daily lives. It is so entwined with our daily lives that if you were trying to rip it away, it would be like pulling off a scab – you would rip most of your leg off with it.

But really, I would posit that this talk of Armageddon in cyberspace is yet another example of a popular cultural movement that desires Armageddon, that desires the Apocalypse, and that this talk about Armageddon in cyberspace is taking one worry about technology but is actually taking a whole load of other worries about the modern world and looking for a big reset button.

The way that the Internet works, technically speaking, means that it will not fail globally – I can put your mind at rest there. But many people would quite like it to do so…

Even if you look at Hollywood over the past few years, and the major TV shows over the past few years, the major theme of these things has been the zombie Apocalypse or the post-Apocalypse world, and there is this yearning in modern culture for a grand reset in order to basically turn off modernity because we are confused by it and want it to go away, all in one lump.

This is not going to happen, because the real issue with cyberspace is, because it is us, it will continue. Human beings are amazingly resilient people, resilient creatures, and so, when we are talking about Armageddon, we have to come to terms with the fact that not that it might happen, but that it never will happen. We have to come to terms with the fact that the Internet is not going to break, that it is not going to destroy the world, that actually we are going to have to get up and go to work tomorrow, no matter how much we might want the Internet to crash overnight.

So, if it is not going to happen, if there is not going to be an Armageddon, what are the things we have to worry about? This is where I will finish really quickly…

I think there are two genuine threats to the Internet, or to cyberspace, two threats which will make cyberspace less happy.

The first one is complexity. We have built enormously complex systems in many parts of our lives, specifically the finance sector, and this complexity means that there are whole areas of cyberspace that we do not understand. There is a theory, there is a science fiction theory called the singularity, and the singularity happens when computers get so clever that they start to design themselves, and after a while, they design themselves better and better and better, and the singularity happens when the computer systems designing themselves become cleverer than humans.

I was talking about this on stage with Al Gore, and Al Gore says, “Did you see the Pope…?” No! Al Gore says, “Well of course, that has already happened,” and he pointed out – and this is true, I researched it for my last book – 90% of all of the stock trades that happen round the corner are not made by humans, they are made by artificial intelligences doing it for us. We have now got to the point where many of our human systems have become so entwined with cyberspace that we no longer understand them, and it is our lack of embracing cyberspace which brings this on.

The second issue when we talk about real cyber warfare, as we are going to be talking about later, is a matter of public health and hygiene. We look at the problems of the Internet through the old frameworks. We look cyber warfare as if, as the cliché goes, the generals were fighting the last war. Cyber warfare and all of these things are, in my mind - and we will talk about this as I say later – in my mind, not a matter of warfare at all, but a matter of national health and personal hygiene. If we really want to prevent a slightly squelchy Armageddon in cyberspace, then we need to be teaching each other how to wash our hands, how to eat, not eat rotten food, and all the equivalent other metaphors about health as a digital thing.

We must remember, at the end of the day, that no matter how bad things get, no matter how many attachments we click on, no matter how crazy the Chinese or the Syrians or any of the other people get, no matter how much cyber warfare occurs, no matter how complex cyberspace gets, it is not going to be Armageddon and we still have to get up tomorrow and go to work, and so we must embrace these technologies because this is the only world that we have got to live in.

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