

Global Shocks, Global Solutions: Meeting 21st Century Challenges

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Chair: Professor David Held

Chair

Well good evening to you all and welcome to the third lecture in the Ralph Miliband lecture series on sustainability, social justice and the global order. The first lecture in this series was given by Sir David King, the second by Lord Giddens, they're all titled, and today we have it so happens a French knight, so it's an oddity, but one thing this marks out of course is that they have all been distinguished in many ways and served in an extraordinary capacity both in the private sector and in the public sector as well.

Tonight, of course, we have Ian Goldin speaking on global shocks, global solutions, meeting the 21st century challenges. Ian Goldin is the first director of the 21st Century School at Oxford University taking up his position in September 2006. He was before that Vice-President of the World Bank from 2003-6 and prior to that the Bank's Director of Development Policy 2001-2003. He served on the Bank's senior management team and was directly responsible for its relationship with the UK and other developed countries, all in fact the developed countries.

He was born in South Africa, took a BA and BSc from the University of Cape Town, a MSc from a really good university, the LSE, and then a PhD from a not so good university, the University of Oxford. He has received wide recognition for his contributions to development and research including, as I mentioned, having been knighted by the French government for his contributions in this area. He has published many books, numerous articles, but the two best known books probably are: *Globalisation for Development: Trade, Finance, Aid, Migration and Ideas* and *The Economics of Sustainable Development*. Please join me in giving him a very warm welcome.

[Applause]

[SPEAKER NOT CLOSE TO MICROPHONE FOR A LOT OF THE TIME AS HE IS INDICATING SLIDES. DIFFICULT TO HEAR WHAT WAS BEING SAID]

Ian Goldin

Thanks very much, David, and it's great to be back at the LSE and in this new building which I think wasn't dreamt of when I was a student and it's also an honour to be speaking in a lecture series which is named after Ralph Miliband, someone who I admired greatly and who contributed many, many original thoughts and helped us in critical thinking.

What I hope to do today is to provide you with some perspectives on the future and to hopefully stimulate a conversation which will help I hope all of us to think about how do we begin to understand systemic shocks, how do we begin to understand what the future may bring and of course the future is always unpredictable and anyone that thinks they are able to foresee the future are certainly wrong and many of you will be familiar with the financial commentators that up to weeks before the latest financial crash were clearly absolutely unable to foresee what was happening.

So we are unable and I'll explain some of the reasons why we aren't unable to see the future and this problem is getting worse but it's not a new problem as this quote from the US Patent Office in 1899 shows, "At the forefront of innovation believing it had ended" and we've seen this repeatedly from people who are very smart and people who are absolutely on top of their game as were the leaders in computing, as were the people in the Patent Office and certainly Maggie Thatcher had MI5 and MI6 informing her when she said this, it will be 3 years before President Mandela was released and was cleared and was going to become the future president.

So this isn't because people aren't smart and it's not because they don't have information systems. It's because of the complexity of change, the pace of change, the way that change always surprises and so what we can do is simply begin to understand how these surprises are likely to manifest themselves and how we can prepare ourselves for them, how we can seize the opportunities and meet the challenges of the future.

Let me begin by taking a long look back to begin to think about how we look forward and the important thing to stress, particularly for young people today, is that this is a most remarkable time in history, a time unlike any other and that's of course always true but it's true in much bigger and more different ways I think than has been the case in evolution. There is more opportunity, there's more integration that was imaginable even at 30 years ago and this is simply a two thousand year sweep of GDP and population and it shows another remarkable trend. Note that these are exponential growth rates on the Y axis so this is a period of exponential change in both population and income and there's only been one other period in history with income growth exceeded population growth and that was about a thousand years ago, a period of great innovation, a period of great migration, a period of integration, a period when the east came to the west, where the inventions of Islam and China were brought into western civilisation and you have this explosion of what the economists now call indigenous growth through innovation, through creation, through kind of new ideas by people sharing their past experiences and all of their past histories of innovation.

Then we had great setbacks, I won't give you a history lecture now, but another remarkable period, a period of about the last 30 years, with for the first time again income growth has exceeded population growth despite the fact that population growth has been extraordinarily rapid and this is a phenomena which is unprecedented in history. So I believe if you were looking out on earth and saying what's happened over the long time you would see this period as a very, very unusual time in the earth's history, a period of most remarkable development and opportunity.

So it's a period in the last 50 years where life expectancy at birth has grown by about 20 years, has increased by about 20 years, and it's taken at least a thousand years for that sort of improvement to happen. So it took over a thousand years, indeed it might even take longer in many regions. Illiteracy has halved on earth and the number of poor people living under a dollar a day has gone down by about 300 million remarkably despite the world's population increasing by about 2 billion over this period. So these are remarkable times.

If you don't like these measures and I certainly have great reservations with all of them, crude as they are, sublimic as they are, and subject to change, find other measures and which ever measure you find, if you go for example to the UNDP's Human Development Indices and look at connectivity to water, look at other measures that matter to you and you'll find similar rapid change over these years but don't be blinded by averages because, of course, for

individuals what matters is their individual experience and the devil is rarely in the detail for many people. It's been a period of expanding inequality as well. So while you have these massive leaps you've had a great number of people, including what I've termed 'the bartered billion', stagnating behind, living in ways that have not changed remarkably over this period and that has led to a widening in equality, the Gini coefficient going up very rapidly and without Africa over this time, and so you get these vast disparities again on virtually any country one should look at, widening disparity between achievements of those that have and have not. So the average is a remarkably happy story, the inequality means in that the distribution is very, very <?? – 8.28> but still the period of amazing leap forward for humanity as a whole over this period.

The question is looking forward where are we going? Is this going to continue? Is there to be a period of unprecedented opportunity in the coming years or are we going to revert or is this inequality going to mean instability and an inability to manage <?? – 8.53> intellectual <?? – 8.56> over recent years and what are the constraints on that? The remarkable thing about looking forward is you'll see from these UN projections is the uncertainty even in things that we used to think were rather measurable. So we used to think, for example, that demographics was one of those things you had a handle on, social scientists used to think that, and if you could project populations out and have some sense that the remarkable thing about this set of graphics is the range. So we are about here now, we are just under 7 billion people, it's unclear by 2050, only 40 years away, whether there's going to be close to 12 billion people or under 8 billion people, a range of over 4 billion, less two-thirds of the current population of the earth. That's the range of uncertainty going forward and this has massive implications for resource use, for economic growth, anything you can think of, and of course for climate change and other constraints, environment degradation and so on.

So why is there so much uncertainty? Looking up when you just aggregate this by region you begin to get a feel for what's driving this uncertainty and the growth rates and you see that the growth uncertainty is particularly great and that's really the range. The dotted lines are projections from current trends; the shaded area is the range that we expected, with the dark line being the mid point. You'll see that particularly in Latin America and in Africa you have a very wide range. But what's underlying this is uncertainty regarding the two key drivers of demographics, the one being fertility and the other being life expectancy. You put those things together and you basically have demographic change. But just looking at life expectancy first what we see, and this is from the Institute of Aging, which is part of the 21st Century School in Oxford, what you see is a projection of a very steady increase in life expectancy at birth over all regions, plus a convergence between the different regions over this period. This is about three months per year increase in life expectancy, three months per year. Anyone born next year has a three month greater chance on average of living for longer by three months, that's amazing, it's two years per decade. These are of course averages again <?? – 0.11.28> discrepancies, in some countries like Botswana, life expectancy at birth has gone down from 67 to under 40 years over this period because of HIV and AIDS, but that is an exception, the overall trend is massive improvements. How accurate are these? I think they are rather conservative, I think we will see a more rapid acceleration of life expectancy on average over this time due to the medical changes that are happening, and we'll come to those in a few minutes. There are those that talk of the lucky generation, those that enjoy public health and so on as being part of this explanation, it's a very complicated story, but it's a story for those of us that think that how long you live is an important determinate of well being and that is a very positive story. Of course the quality of life is important to and we'll come back to that.

The other key driver of demographic change is fertility and this is where the most unexpected and rapid changes are happening. So those older people they still tend to think of the biggest problem of the world being global population really aren't up with the data. The biggest problem is likely to be under-population in many parts of the world, lack of workers, lack of skills, particularly for the <?? – 0.12.42> who are going to need that help, not least to pay for their pensions and to do their healthcare for them. This is the uncertainty, dramatic declines in fertility projected over this period, absolutely dramatic particularly in the emerging markets. We did a convergence under 2 and in fact there's now thinking that this might be optimistic, optimistic in terms of lots of youth coming to the labour markets in the '40s and '50s, because fertility rates are climbing even more rapidly than expected and you see this in one generation so that in Taiwan for example, fertility rates have gone from 7 to under 2 in one generation. I was in Hong Kong recently, life expectancy at birth is 104 in Hong Kong, fertility is .9. You put those things together and you have a very serious demographic change going forward, you also have major physical problems and other economic problems of course going forward.

So fertility changing dramatically, coming down everywhere sharply, particularly in emerging markets and we're beginning to understand what lies behind this, it's woman's education, it's urbanisation, and it's jobs, employment and when women get an opportunity to do a decent day's work, to engage in ways of other than child-rearing in society they have less kids and then society is able to provide an infrastructure, which will allow them to do it and even social security reforms and other reforms there's an utterly dramatic decline in fertility; and of course this can also be very uneven, so in certain provinces of China where you're beginning to have, because of selection at birth, which is another problem rising very aggressive gender discrimination, 1.3 males to every female and that will lead to an even more rapid decline in fertility over time, which means too few women in those provinces. So these are very dramatic trends and they are the reason why the population graphs are so unstable and so uncertain; and they also of course will lead to massive implications for labour markets, for pensions, for housing stocks and so on, and everywhere is going to end up with this sort of pyramid, those are the pyramids that we still might find in the text books around the corner in the bookshop, that's the past, this is the future, inverted pyramids, or skyscrapers. China by 2050 will have a skyscraper, virtually the same amount of people at each <?? – 0.15.20> of the population with little peaked cap at the top in the '90s as people die.

So, this is... and you see major imbalances as well in, in many, many different gender balances in many other societies. So this is simply up because it's indicative, it's not particularly unusual going forward, and of course what you do with this when this is... that's where you retire, up here, and you have so few people supporting you in terms of your pension structure and in the labour market, dramatic implications for labour markets and that's why I said a few minutes ago people will be worrying about under-population rather than overpopulation in the future, certainly based on economic and social factors. Climate change of course is a different story.

Could migration solve this problem? Perhaps in certain localities at certain times, but not in aggregate because the scale of possible migration is simply too small relative to the scale of the deficits in the labour markets, which will be coming up. There rules of magnitude are insufficient, so this is, for example, rich countries' labour markets, number of workers going down from 800 million to 650, migration you can maybe imagine 100 million migrant that

would 4/5 times current levels, but it's difficult to imagine migrant levels which are 10 or 20 times the current levels and of course the other part of the question is where will the migrants come from, because their societies will also be demanding labourers much more aggressively. So the ability of, or the desire of people to migrate will be changing dramatically over this time. Indeed we've already seen that over time with the net <?? – 0.17.09> migration for example of Poles from the UK. So a trend might be to continue. So a lot of the migrant events we have now, over time are rapidly going to be done very, very different, discussions on migration will be <?? – 0.17.25> I personally believe that migration is absolutely vital, particularly for <?? – 0.17.29> growth for the reasons I hinted at earlier.

Looking east to India and China over the long term, this is predicted to be by most commentators and I certainly would be one of them, an area of continued, wonderful opportunity and growth. These are the World Bank projections, actually produced when I was there, so they're out of date, but the baselines are rather similar. This is 2010 and 2030, between 2010 and 2030 growth rates base and high projection and you see projections of around 5-8% for India and China, will the current crisis affect this dramatically? I don't think so, these are long-term projections, I don't think they change, these are <?? – 0.18.19> long-term trends in a very significant way. The remarkable thing about this graph of course looking forward to 2030 is it looks rather like the past. If you... if I presented to you what the last 20 years it would not look very different to this. So an expectation based on comparative advantage, technological change, demographics and so on, the next 20 years in terms of the relationship between emerging markets and the rich countries will look broadly similar. They will be pulling the world economy along, they will be the stabilising force, that's where the growth is gonna be, not in the mature markets over this period.

This is in part due to this phenomenal experience since about 1990 with the collapse of the Berlin Wall, with the opening up of China, with containerisation, with fibre optics, with a whole range of different things coming together to create a supercharged globalisation phenomenon. This supercharged globalisation is reflected on multiple dimensions, you can look at many, many indicators to see this, people moving, telecommunications, traffic, but you can also see it in goods and services traffic, but you can also see it, of course, in investment flows, and these are simply the flows of foreign direct investments, remittances, equity and <?? – 0.19.42> investment and aid, everybody sees aid as being sort of tepid and brassed up a bit after the monetary convention but it's these other flows, remittances and FDI which have grown in a totally different way to the historical trend and this has continued, very unstable part of the equity, but at much higher levels than before. Of course, when you unpack this you begin to get a much nuance story, heavy concentration in China, India and a few other markets and a lot of these of course, but the change in trends in these financial flows is remarkable. Now, if you like take a long view of market indices, and this of course is on many people's minds at the moment, what's happening with the stock markets, when will they come back to equilibrium, where does it go from here? The extraordinary thing about the bond, about the equity markets is, note again, exponential, it's a exponential growth rate of these markets over time. These are composites of the whole world over 200 years, so it's a long view of the markets and it tells you that if you're planning to live to 100, put your money there because it'll grow at an exponential rate. The blips are what happens of course and this is what's just happened now over the last 18 years and we there, so we're back to the level we were in the, about 2002 and the overall process is not unlike it was in '97, but this, when you look at that long view, is simply a blip down here, it doesn't take us back anywhere near the longer term baselines. So equity markets are growing exponentially as well, over the long term. Now, this is... so we've seen these different phenomenon, population, GDP,

equity and what underlines much of this is the technological change which has continued to happen and which is accelerating in recent years.

So, where is this technology going and what's driving technological change, is it likely to continue? This is accelerating, it's amazingly exciting, but it also has and raises major questions, which I'll come back to. These are some of the things that I'll briefly touch on and we've come a long way of course from our ancient instruments.

I don't know if you can see this very well with the light, but this is clearly time and this is an exponential growth of computing power, calculations per second per \$1000. So this is computing power organised by price and what you try to see here is what an average person can buy, not what you can do with the world's best and biggest computer, and what you see, because this is exponential growth, is this continuing trend upwards, which has continued since they were first invented. Now, $\langle ?? - 0.22.58 \rangle$ famously said in the '60s that the power of computers will double about every two years, but he also said this will run out of steam after about 3 generations of computers. He was right on the power, the what's now called $\langle ?? - 0.23.14 \rangle$ Law, derived from him, this ability to double the capacity of computers ever few years. But he was absolutely wrong on it running out of steam and we speak to the leading computer experts that are working on computer development, they will tell you that they don't see any hard barrier to this, because as we begin to hit the crunch, which will be in about 2020 of the ability to etch being defined by constraints of molecular size being so small they will get into quantum computing, which they are optimistic will happen by around that time. So and there's lots of other things that are happening as well, parallel computing and other possible technologies, which are coming on stream. So this is unlikely to be constrained and we're very rapidly approaching in $\langle ?? - 0.24.07 \rangle$ and this is why people like Ray [Kerswhile] whose graph this is, talk about something called the singularity. They talk about this exponential growth in technology overtaking our capacity to manage it and they also talk about 2020 being the year and now it's maybe pushed back 2025 when computers become smarter than humans. So when you have exponential growth, as certainly the economists and others at LSE in the audience will know, things happen extremely quickly. So the new iPhone has 1000 times the capacity of Apollo spacecraft computers for a tiny fraction of the price. The PlayStation 3 that has something like 4 times the capacity of Deep Blue, which was the most powerful computer in the world in 1997 and it beat Kasperov, for a fraction of the price. That's what you get when you run these numbers through in terms of availability, the ubiquity and the cheapness of all of this. So every 20 years to your millionth improvement in the capacity for a given price, at least $\langle ?? - 0.25.25 \rangle$ and the question is, what do you do with it, this ubiquitous computing power and I'll come back to some of that.

One of the things you do with it is you run data, 20 billion Google downloads today, this day, okay, that's what you do when you have this sort of power. This is one representation of it, which is interesting, which do you do in terms of storing information, the ability to harness, to capture, which way exceeds anything imagined before. So in every year now, this is a complicated graphic, but it's showing a number of things, every year more information is being produced than in the whole history of mankind before so we get that's one of the things that's happening and of course way in excess in a couple of months of all the documents ever written, over 40,000 years, and of course this is again the logarithmic scale, okay, billions of gigabytes and way in excess of what we can have in our minds. So the question is, what do you do with it, how do you interact with it, how do you begin to use it in ways that are useful for not only for you, but for society? What is the implication of this when information becomes so widely dispersed and so available? Is it going to be constrained by disk storage,

which some have argued and clearly this is very unlikely and you speak to the computer experts again, the rate of growth of disk storage is even bigger than the rate growth of information flows. Combine 80 gigabyte, little [NOISE] stick now for a tiny fraction of what you could buy 1-gig stick for only a year ago. So this is, this is what's happening in terms of the storage capacity and it's likely to mean that at least for the foreseeable future we will be able to continually exploding information. What use is this to people? Will this enable us to be more productive? Will it enable us to become more effective, enable us to communicate more and will this communication lead to greater or smaller divisions between us are some of the questions we're exploring and it could be either. There are new invented communities, or communities that have been re-established between an Armenian living Chicago, suddenly you are part of a global Armenian community, which was unimaginable only five years ago, because you have Facebook community on that topic and we can see a new identification, new ways of coming together and of course it changes politics, as we've seen in many countries; people communicating by mobile phone, communicating in new ways. That state no longer controls information with dramatic implications for democracy, for knowledge, for who controls what you think, when you think it, why you think it, that is a totally different game and will be much more so in the future. All of these are on this computer chip that I described a few seconds ago.

The other that's happening of course is nano, this is slightly further away, but being worked on, we have a few nano labs at Oxford, LSE because it's a social science place I imagine doesn't have a nano lab, but it will certainly work at how to use nanos and that's remarkable, so 100th of the width of a human hair, a billionth of a metre, nano, in <?? – 0.29.04> invisible to the eye; that is a nano machine – a representation – with a dust mite also invisible to the eye sitting on it. We're building these things in Oxford and again what do you do with them? You put them in your bloodstream, you deliver a drug with them, you use them to control connections in your brain and you can use them in many other things. You can go to Boots and buy sunscreen with nano in it. Why is it there? That's a good question, it probably doesn't do much for the sunscreen. There is a major issue around nano, okay, and that is what does it do to you? Is this asbestosis? These are tiny, tiny molecular structures which are very sharp and small and one of the things we're doing is trying to work out before they become widely available is <?? – 0.29.56> is this the new asbestosis, what is the apparent, or regulatory environment that one should develop for this? Do you need one? Do you need to control nano, or shall we just let people do whatever they want with nano? That's an extremely important question to ask, because we really don't understand but we know that these will be things which we will be able to control, we will be able to have nano machines, we will be able to run things invisibly around our bodies in the atmosphere, nano sensors will <?? – 0.30.25> tell you where a toxic material was and enable people to know where things were and to follow, cos again, extremely important.

Amongst any major technological changes that are on our doorstep, and many of them are of course in our labs and are happening are these. Stem cell research dramatic, we've just created a fantastic new group, again in Oxford, but there are many others around the world, the ability to create virtually any part of the body from scratch, from a single cell. I saw for the first time in my life a throbbing heart cell and a nerve cell created from <?? – 0.31.09> stem cell, but it was one of the most moving moments of my life, cos if you know anyone that, for example, got a spinal cord injury, you begin to get a sense of what this could do; this will revolutionise therapy and if the reason why I said rather provocatively to the Chinese when I was in China at the Olympics that I don't think there will be a special Olympics in 2050 because those sorts of people that can compete in that area are likely, young people are

likely to have benefit from stem cell surgery. So that's where disability will increasingly be something people, they can't benefit, and that raises massive implications for social inclusion and for inequality. It's the newly inequality of the future and the inequality of access to new technology, an inequality where in 2050 the only people to still have and to live with the spinal cord injuries will be people that can't afford to pay for the new technologies which will be able to stem cell and that of course applies across the board to the benefits of new technology. You can do anything with a stem cell in terms of making into a <?? – 0.32.22> for body over time. Of course there are major questions which still need to be resolved, including rejection questions, but this is a phenomenal technology, but only one of many medical technologies; so genetics of course and what's happening around genetics is similarly exciting.

Tremendous possibility with genetic engineering to identify pre-natally sequences to engage to ensure that people aren't all the things that might severely disable them, disadvantage them in future and that is true of many of these. The question of course is where does this go and I'll come back to it, are we heading for a new eugenics <?? – 0.33.05> we are? As these technologies become more widely available people can increasingly create people in their own, of their own breeds, they can create people who are in what we would think of now as superhuman; but this will not be something which everyone will be able to afford, at least not for the next 30 or 40 years. This will something which only the privileged, maybe the Swiss, maybe people in Hampstead, but certainly not people in the suburbs, the poorer suburbs of Glasgow will be able to afford, because the National Health Service will not offer this I don't think in the short term and that's true of the National Health Service, it's even more true of the health service in <?? – 0.33.51>.

So we really need to begin to think about where these technologies are growing and what we think about them because we know that, at least in the early stages of them, they are not likely to be widely available and it raises very difficult questions, because if we decide, for example, in the UK that we don't want to do it because it's not equitable, but what if our competitors or neighbours decides they would like to do it because they think it's a jolly good thing, what happens to us relative to them? And this applies not only to these technologies, but the ability to manipulate and cognitively enhance people as well? So the potential for example, to sprinkle something on your workers' canteen food to increase their productivity by 10% will be with us in 10 years time. If you were a CEO would you do it? And if you don't and your competitor does, what will you do? And if you were the CEO of a truck driving company and you knew that a high share of your accidents were caused by people falling asleep at the wheel, what would you do then? Wouldn't you see it as a social good? So these are very difficult questions, questions that need to be asked, questions that need to be understood as we go forward; a bio-ethical issue of huge significance.

So, the mid-term from some of these forward-looking issues to some of the big risks, and I've touched on some of them. The problem with risk is that it's impossible to measure except with hindsight and this is becoming more so, so we have all the risks we sort of know about and then we have a whole lot more and these are risks which are happening anyway. Now because of globalisation, because of the success of the structure that I briefly pointed at, which has given cause to this immense explosion of growth and well being on earth, because of that we also have much greater vulnerability, because we're much more integrated than ever before, we're much more interdependent than ever before, we're much more complex in terms of the system structures than ever before and all of that means that when something happens it has a much bigger implication than ever before. So, I live in Oxford, the day after a

strike in Portugal the [Cowley] factory closes in Oxford, that's <?? – 0.36.19> just in time and ability of things to move very quickly <?? – 0.36.23>. But equally in financial markets, did you see the pace in which the sub-prime crisis went around the world? That is only because of globalisation, the pace of interdependence in all areas, it means much more vulnerability, and of course the asset values are much greater, we're much richer than we ever were, the population density is much greater as well; all of those things together mean when things happen they have very different implications from before. So what's going to happen, well, you know, as a social scientist <?? – 0.36.57> draw a little matrix and that's everything from something pretty serious to something even worse, like a <?? – 0.37.10>.

Now what's the probability of this happening to humanity? The terrifying thing, this is what's called existential risk, okay, the probability of civilisation not surviving into the future. It doesn't mean homosapians, there might be outposts of homosapians surviving, but civilisation as we know it not surviving. Lord Reece, some of you might know of Martin Reece, I think he's the smartest person in Britain, President of the Royal Society, he was Astronomer Royal, he puts a 50% probability on civilisation not surviving the 21st century, others have put different rankings. I don't know what it is, but let's say it's 5%, that's enough for all of us to make this our Project Manhattan and make sure that we manage these risks going forward. This can either come from a natural cause, like an asteroid hitting the earth or something like that, that's what could happen and that's what has led to mass, mass not extinctions but virtual extinctions of species in the past, or what's called anthropogenic, in other words we create the mess ourselves, like we blow ourselves up with the nuclear war. It could be either of those two things, whatever it is we need to get a handle on it; but in getting the handle on it, the problem is that the data is very, very different and changing all the time. So you have this phenomena, which is becoming much more like a physics phenomena where things just change state and they're tipping points and they're unpredictable tipping points and they're unpredictable tipping points. We also know, this is a hurricane prediction, that we're always wrong when we do complex modelling and I've been a complex <?? – 0.39.03> in my economics days as well. So this is hurricane predication, this is about a 50 billion, \$50 million a year prediction system, modelling system in the US, mass technology, the best there is and it's always wrong, okay. The other interesting thing about it is it all <?? – 0.39.21> is wrong, so these are three different prediction centres, they're always too low, they're always too high, they, they, you know, they readjust their models and they go too high, but on average they are always wrong. So, we can't predict a day before a hurricane hits the US coast, as was seen in Katrina, when it's going to hit, how it's going to hit, what's going to happen, let alone predict something much more complex like the global weather system or anything of a more global phenomenon.

The other... so that's one thing, another way to find out about risk is to ask people, CEOs love this, they do fill in tonnes of risk surveys every year, they ask each other what do you think <?? – 0.40.02> risk study and this <?? – 0.40.05> they have a committee and they come away from it and they say what the biggest risks are. They of course are always wrong, except when they're lucky, you know, there's a probability then if you have 10 things, something is going to happen on that list, most of the lists are actually 30 or 40 things, which makes it impossible to do any planning and the interesting thing this is the World Economic Forum, they've also been involved in a risk analysis every year, this is how quickly these things move around, and they move around because people think of risk informed by hindsight, in other words risk isn't really risk, it's yesterday's news. So if there's a terrorist strike and you ask people what's going to happen, they'll all say there's going to be a terrorist strike, but they don't think about the probability analysis should tell them and this is of

course what people do, they also think about how the impact on them, so the risk I worry about going home tonight on my bicycle is being run over by a car, because I know that is most probably the biggest risk, and the question can we handle multiple risks in our minds? Climate change clearly is a major risk and you've had two presentations, one by my colleague, Dave King, and another by Tony Dillons, and you had an <?? – 0.41.17> so that really wouldn't be right for me to talk about climate change now, I worry about this a lot, I think that the projections are conservative, I think we're likely to end up at the high end of the zone and I think there are likely to be tipping points, but that is someone who's really outside the <?? – 0.41.38> and this is a major risk, particularly if you live in Bangladesh or the Maldives or wherever, you know, living in Oxford I'd love it if it was a bit drier, so that's not a personal risk to me, but it's certainly a risk for humanity of a proportion that will likely lead to many hundreds of thousands of deaths and sorts of numbers that Nick Stern and others have outlined, and how do we begin to manage this? Is it possible to govern these risks? This is an interesting graph, this is from a forest group and what you see is the red is if you do nothing how much the forest in the Amazon is going to be destroyed, just business as usual, carry on as you are and this if you put in place a governance structure to control that very aggressively and what this highlights is that you can make a huge difference through your actions, this is managing the risk, there are lots of other ways, of course, to manage the climate change risk, this is just illustrative of one, but the important thing is do it quickly, do it now.

Pandemics is another major risk, this is actually the biggest risk I think facing humanity at the moment, you know, we forget that the 1918 the Spanish flu might have killed 10 times more people than the First World War, which was happening at the time. We didn't have information systems on it, people, for some reason have got very, very complacent about pandemic risk, but this has historically always been the biggest killer, we know that as Londoners, the amount of people that have died in the plagues of London and so on. But this is not only true of London, because of this integration complexity, interdependence and travel its implications would be much greater than in the past if it was to strike. So how do you manage this? Well, you do very complex modelling, you distribute drugs and you work out how you're going to nip this in the bud. So this is an interesting question, what do you do in terms of a drug distribution programme? Do you give it to the nurses, to the young, to the old, to the vulnerable, or do you distribute all over the country and the emphasis based on discussions we're having with the British government? The answer is distribute it to everybody you can as quickly as possible, give it to everyone when it strikes and don't try and have a strategy which selects, because that's the way the <?? – 0.43.58> of these pandemics is likely and in that way you might save millions of lives. So you can engage with these things, I mean this isn't the only thing you can do, you can do many other things, but by beginning to think about these risks and expecting them you can do things. By risks, another major risk the Canadian government sees this as the greatest risk facing Canada, it's in this top right-hand quadrant of this risk map. The scary thing about this is it's grown dramatically every day, why, because biochemists now can sequence their own DNA, or are getting to the point where they can begin to sequence their own DNA. Why would they want to do that if they were crazy? Because they can find on the web a small particle in Ebola and sequence it, okay. So the need to find one in a store underground in the middle of the USA or Russia, wherever they keep the small box is going away and this is extremely scary, what do universities do? What should biochemistry department do? Should we screen out people that we think might misuse the intelligence they get? What about DNA sequencing manufacturers? Should we make sure that there's only a small number of manufacturers and

those machines are controlled, because they can be so lethal in what they do? I think the answer is yes and it's a governance area that we need to get on very quickly.

Now, I mentioned some of these health and humanity things and the need for a much deeper ethical conversation; but it's not just that these things are negative, it's also important to recognise in all of these technologies the upside potential. So this is, for example, the social scientists here would rightly raise very, very significant caveats about this sort of data and I only present it as one sort of glance at this, because clearly it's a much more complex story, but the basic fact is that enhancement isn't necessarily a social bad, you could deal with a lot of social problems if you were able to give people chemicals which would deal with many of their concerns, which might lead to criminality and to other things.

So the question is where do we go? Are we going to enhance ourselves, use the technologies, become more effective at managing them and manage these big risks, some of which I've mentioned? The ethical risks, the social risks, the technology and go to continue to evolve, as this graphic stylistically suggests, or are we going to go down? Are we going to become this sort of human where we totally enhance or are we going to stop it? Are we going to be more like that one, which we will still are? We haven't evolved that much and we're still governing the planet in many ways, which don't reflect huge degrees of sophistication on <?? – 0.46.56>. So when you look at governance in multiple areas you see major, major problems and the governance structure we have now is largely out of date, this is just one indicator, this is displaced people, refugees, displaced people, <?? – 0.47.13> and refugees and that's the number of conflicts, particularly interstate, it's interstate conflicts which have gone up the <?? – 0.47.22> over time. The question is how are we managing these? Are we any better able now to manage these challenges than we were say 30 years ago? So we become much more interdependent, globalisation has led to massive improvements in the quality of life, they're major concerns because of inequality in access, there's all sorts of things that are happening outside state control, including pirate actions and many, many other things; but we have this basically, this extraordinary growth in integrated challenges, challenges where no one country or one community can be the solution. Challenges where there has to be a global decision-making and these are from the bioethical challenges up to the broader ones of climate change, of nuclear biological weapons and so on. So we need a global conversation and an ability at the global level to manage the planet in a way which I would suggest we simply don't have. We have a series of institutions, many of them coming under previous crises, many of them at least 50 years old, coming out of the Second World War, which are unfit for purpose. They're fossilised institutions, I've worked in a number of them, I've been on the UN Reform Taskforce, there are libraries full of books on how to reform the UN. There are certainly organisations who's life it is how to reform the World Bank. But the problems are different, the problems are not simply ones of poverty and the sorts of issues that are being dealt with <?? – 0.49.08> The problems are much more urgent, they're much more integrated, they're more complex, they require rapid decision making, they require much more legitimacy, because that has to be applied much more widely. So you throw the problems and the challenges that I've been talking about into the system and I'm afraid what you get is a succession of crises. So the biggest challenge facing us all is to, I think, ensure that the global governance system of the 21st century is up to these global challenges and that will determine which way we go from there.

Thank you very much.

[APPLAUSE]

[BOTH CHAIR AND DR GOLDIN STAY AWAY FROM MICROPHONE, MAKING THEM HARD TO HEAR FOR THE NEXT SECTION]

Chair

Well, thank you very much for a huge survey on the <?? – 0.50.03> issues which raises towards the end a <?? – 0.50.08> question mark, that is do we have the capacity to create coalitions, the politics and so on for the institutional change that now virtually everybody agrees is essential. The problem has always been of course is that human beings require <?? – 0.50.25> actions to deal with their problems, increasingly these are global-created problems and yet our ability to do this and our record of collaboration across borders is very poor and now of course we see a rebalancing the world power, a shift away from the west to the east, and why should the east suddenly engage in a discussion and collaboration and a partnership when the west clearly for the last 300 years has sought to <?? – 0.50.50> world in its own image, according to its own rules, according to its own interests. So, in fact, moving forward, many of the trends we see in social <?? – 0.50.58> are not ones that sort of increasing integration, but from a bipolar world of the cold war to an increasingly plural world and one of increasing possibly fragmentation and diversity of power centres, a <?? – 0.51.12> economic world, emergence of a complex rich civil society and communications, soft power and so on.

So the big question I want to start with before I put it to the audience <?? – 0.51.24> is given that the institutions, the global institutions we have are frozen on 1945 power structures and markets and so on, where do you see the <?? – 0.51.36> the kind of institutional initiatives emerging that might begin to address these or we talk about, you know, the little dialogue and <?? – 0.51.45> dialogue and so on and of course that's right, but in a world that's quickly rebalancing after the end of the cold war and with many of these trends evident, you can also see increasing tension, pluralisation, decentralisation and one of the things that it's distinguished from, it seems to me about the past two or three decades, by the way when I sat down I didn't plan to say any of this, is we generally have a model of change at the global level that one size fits all, for example economic models of the so called Washington Consensus said if you do x, y and z it'll work for you across diverse circumstances. We now increasingly see, in fact, that one size doesn't fit all, one size global solutions don't work for lots of countries in different kinds of context. So doesn't that add a further complicating rich factor? So it's about politics, not just technology and that's the sticking point?

Ian Goldin

Thanks, Dave, <?? – 0.52.41>. A number of things. I think this is, you know, obviously the very difficult question and one that I have no easy answers to. There's one sort of scenario and that is that we... that this existing system sort of muddles on and what comes out of it is explosive crises and in response to those who get institutional change and that's the way it's worked in the past, the big institutions we see now have been institutions which have come out of crises, they come out of the ashes of the Second World War and those crises have to really be devastating and I hope and I work for ensuring that that's not the way that new better global governance arises, which is out of the ashes of the crises; and it's interesting seeing this financial crisis, there was a brief flurry of discussion on <?? – 0.53.41>, the new global financial system, and that's already been pushed aside as the existing interests and others have reasserted themselves and as the economy stabilises and since the crises wasn't big enough to lead to that impulse, although maybe the jury's out. It's also very interesting to

see, and this is I think evidence of the point I was making about how technology and globalisation has overtaken the system, that existing institutions, the IMF, the Bank for International Settlements and the Financial Stability Forum, which was set up to manage the global, the financial system and crisis were unable to predict it, to see it coming, when it happened they were unable to manage it and now that it's happened they are unable to do anything about it. So, that is I think just, you know, again, evidence of the absolute fossilisation of the system.

Interestingly enough the Financial Stability Forum was only set up 10 years ago, but it was captured by particular interests. Now, the other thing I think, so that's the sort of the bad new story that will happen in response to crisis.

A much more optimistic story I think can be told around climate change, where you see the other side of globalisation and technological change really driving this. What's happened on climate change I think is a grassroots up, mass mobilisation of people power around the world, certainly in Europe and in North America and indeed in other societies, facilitated by this explosive information age, computerisation explosion of information and connectivity through virtual communities, the web, Facebook and other things. It hasn't come out of the dominant media and it certainly hasn't been led by politicians, they've all now have jumped very quickly on the bandwagon and <?? – 0.55.24> #1 is their priority but populations are way ahead of them in pressing for it and it's interesting it's across the political spectrum, you know, so the different parties in the US, even McCain was trying to outdo Obama and Cameron is trying to outdo Brown on their climate change credentials. So this is a very, very new and positive, interesting new development in global governance because it's being pushed, not by the old forces, but in new ways by a new collective of people who have recognised through the new information systems they have what the threats are and that is very optimistic.

Now, where's it going to go? It has to lead to some structural change, you can't manage <?? – 0.56.02> change by, you know, by 6 billion people in the world playing with their computers and internet access, it's got to be strict control over it, but hopefully the politicians are mandated to do that. We'll see what happens coming out of <?? – 00.56.16> and the successor to Kyoto. So those are two very different models I think of the way it has evolved, but I agree with you also on decentralisation, the important thing about global governance is not to say everything's got to be managed globally, on the contrary, everything should be managed locally, it's those things that cannot be managed locally, or nationally, or regionally, should be managed globally. So I would start at the bottom up and say only those things where there's such externalities and such needs that you have to <?? – 0.56.45> should be, but I think the ones are identified <?? – 0.56.49>.

Chair

Well, the audience should now continue the discussion. So we've got roving mics, so over to you.

QUESTION 1

Yes, my question is on the subject of what you mentioned about risk, the ethical implications of something say, for instance like nanotechnology and how is that in terms of global governance, what is going to happen in terms of the individuals rather than nation states who, in the past century have continued to control the whole process and create a more even

playing field in terms of individuals accessing that technology without being harassed and oppressed by the old world order of governments and international institutions.

QUESTION 2

Enlightening presentation, thank you very much. My perspective is that there seems to be quite a few, well if you look at the examples you gave, that you can regulate some of those, you know, to manage them more really, but some of those issues could be more integrated and I'm wondering from your perspective whether we need a broader way of actually looking at some of these problems, not just say looking at climate, but we look at sustainable development or methodologies for applying sustainable development that would actually hit most of the things that we're trying to look at, so in terms of global governance actually having a better way of moving us forward into more of a sustainable society.

QUESTION 3

Your presentation is very good in terms of trying to <?? – 0.58.59> what is likely to happen in the future, I'm interested about the political implications of all these happenings. I think it was this week or last week I saw something on the press, in the press, a report came out by the National Security Intelligence I think of the US indicating that their power is likely to diminish somehow and powers in Asia are likely to come up by 2025 in various significant economic, political, military, diplomatic, etc. So my question is do you foresee a scenario where like say the next 20, 40, 50 years the power of the United States is likely to diminish and if that happens what is bound to happen, are we going to go back to a bipolar world where two powers, or maybe three, are going to share dominance in the world?

QUESTION 4

So my question is about the associations you talked about on Facebook and things like that. With the growing strength of grassroot organisations like in climate change, is it possible that we could move towards, that societies could move towards more of a virtual association having more strength or more power than like a local political organisations? So would there eventually become a period where the associations that I give my, you know, that speak on behalf of my rights or whatever, I associate on like a global scale as opposed to like a local scale?

QUESTION 5

You downplayed the risk of global warming by suggesting that grassroots and <?? – 1.01.12> are going to minimise the problem, but it seems to me that the number of people involved in reducing this problem of global warming is very, very tiny. The average person walking down the street really doesn't care hardly anything at all, there are very, very cyclists and I myself was knocked off my bicycle just a few weeks ago. What's needed is a much stronger leadership, a morale leadership from people who are financially well off, such as people who are financially well off can much more easily afford insulation and solar power and expensive equipment, which poor people can't do and if those rich people were to pay for these things and give a morale leadership then it would be a lot easier for the poor people, but that's not happening at all.

Ian Goldin

Well, I think the questions on technical change and nanotechnology access are absolutely essential, so the question of access to new technology, who benefits, who loses, does new technology <?? – 1.02.42> growing inequality or does it facilitate the overcoming of the equality is an extremely important one and there are major debates on this, for example

debate on the digital divide is one of them. Very big debates on these new technologies, should we be pushing the frontiers of medicine, like creating stem cell opportunities, if not everyone can afford it and this certainly applies in many other areas. Nanotechnology itself is still too new, it's, you know, is it going to be something like a computer chip which really benefits everyone, because it's so ubiquitous in all technologies or which I think is likely, now, or is it going to be something which only helps <?? – 1.03.30> but certainly I think that issue of access to technology is crucial. Of course, technologies can be used to overcome inequality and I've seen that myself, I'm engaged with that very often, where you can have in the remotest rural areas of Africa access to technology which, for example, will allow you to diagnose someone's sickness and treat it, because it doesn't matter where the doctor is, you can have virtual doctors now sitting in India or sitting anywhere who can diagnose things, from mammograms to other things. So, there's opportunity but it's, you're right, it's a crucial question, I wouldn't like to predict whether the new technologies will lead to widening inequality or not, I think again the devil in that will certainly be in the detail.

The question of whether one can have a broader integrated sustainable development strategy is absolutely right. Clearly what happens on climate change, what happens in other areas needs to be part of a broader social vision and it needs to be something which is about social inclusion, about the way that the economies are growing and I think there will be a reversion and a revulsion to growth as an end in itself in coming generations. So I think there will be seen to be a particularly turn of the century phenomena, partly because in the rich countries people will be so rich that they, you know, they won't really need much more, what do you do after a certain level of savings and disposable income with the extra resources and like might I hope push down that dimension. The other side is that there'll be a recognition that it's ruining the planet and so there is the cost, internalising the cost of this growth will be recognised, and thirdly because inequality will be growing more and more widely, people will recognise that that's ethically, morally and also politically unsustainable. So I think there will be those driving forces, how and when it happens is an interesting sort of obviously <?? – 1.05.52>.

The question of the changing power balance, yes, I mean I hope so, I hope the US gets off its pedestal very quickly, I think it's much healthier for the world if there is a more balanced power distribution although I would argue it's <?? – 1.06.09> political scientists that actually it's going [to be a superpower], I don't subscribe to that. The... it's already happening, it's impossible for... and it depends on the area, I mean part of what, part of what's happened in climate change is the recognition that you can't do it alone, for any country, but certainly for the big superpowers, but it's happening in other areas, there's already becoming a balance and I do see a world in which we basically have three superpowers, Europe, the US and China, with a number of others snapping at their heels like Brazil, India, Nigeria, South Africa, but what you're seeing now as well in many areas is that inclusion and legitimacy is very important so when a very small little power can wreck the planet it doesn't really matter if you're a superpower, so it's, you know, inclusion, legitimacy and what we define as superpowers and their roles and responsibilities I think will change dramatically in the years to come.

The interesting question about virtual power and virtual distribution and is that how the new politics will be formed, I think, I don't necessarily think it's a good thing, but in the end I think politics is local, information is global and politics is local, you live in your community, you are affected by what happens there, you care about whether a juggernaut comes past your window or whenever the nasty thing that arrives at your front door step like a <?? – 1.07.53>

terrorist or something. So, in the end, you live where you are and that I think keeps all politics local. It doesn't stop you connecting, I mean the other sad thing is that you can't really affect something globally, like what's happening in Zimbabwe, no amount of virtual conversation around communities seems to be able to improve the lives of people in Zimbabwe, because there is still no ability to engage, you can do sanctions, you can isolate them, you can do whatever you want, but without it being physically <?? – 1.08.32> impossible, so I think virtual power will grow rapidly, information will grow rapidly, there will be no secrets, there will be no such thing as state secrets and there will be mass information spread and people will mobilise and inform each other very, very quickly of things, but I don't know if that's going to get rid of a politics, I think it increases the power of local as well as global, I mean this is multidimensional.

Did I underplay global warming? I thought I said I thought those projections were conservative and I thought they would be tipping points that I thought would be at the high end of the spectrum. I simply said in response to a question from David that I think the dynamics around global and globalisation on climate change has been different to the dynamics on globalisation in other areas and that awareness has come bottom up through virtual communities. I didn't say it was enough and I certainly don't think it's enough, I think the actions on climate change are not enough globally, but I was referring to a different dynamic. I'm, I think, as worried as you about the extent that climate change is happening and the slowness of the response to it from all sectors of <?? – 1.09.51>.

QUESTION 6

In view of the enormous difficulty that national governments have in reaching international agreements in relation to climate change I'm thinking, do you think we need to build on the grassroots mobilisation you've described by having some kind of international citizens movement, to generate specific proposals for an international agreement on climate change in order to push the politicians to overcome their inability to reach agreement.

QUESTION 7

My question is based on the assumption – some would call it a presumption – that power will shift eastwards towards Asia and these Asian countries are inherently illiberal, according to the western conception of liberalism, especially China. So will the global institution we see in the future be inherently illiberal or do you believe as Martin Wolfe does, <?? – 1.10.59> that the only major advanced democracies, advanced economies and societies is a liberal democracy?

QUESTION 8

My question is what do you think is going to be the impact on the European social welfare state of the <?? – 1.11.19> and we will have too many <?? – 1.11.21> you have said that life expectancy is expected to rise a lot, so are we going to have work until 70, 80 years old to retire on a pension, or what's going to happen?

QUESTION 9

You talked at length about global inequalities in your talk and at the end of your speech about the fossilisation of global institutions; for example from my own point of view I see the World Trade Organisation has failed to introduce some <?? – 1.11.54> trade reform globally in terms of reducing trade barriers to stimulate trade from, more from developing countries. Do you not see this as an essential area of reform in order to reduce global inequalities in

order to increase prosperity in the developing world and if so do you, how, how do you propose that this can be achieved, if at all?

QUESTION 10

I was listening with real horror to some of the ethical quandaries that you were laying out in your speech, particularly the one where we were considering whether it would be acceptable for an employer to put chemicals, unknown to an employee, into their food in order for there to be increased productivity and whether that would be acceptable if another company or another country was doing it. Where in this future do you see a role for civil rights and civil liberties and human rights and how do you see those being affected? And if I can be quite cheeky, this is a very quick second question, your original topic was the management of climate change and the moving to low carbon economy – at least according to this –

Ian Goldin

Well, that's the first I've heard about it.

[LAUGHTER]

QUESTION 10

Well <?? – 1.13.10> thanks very much.

QUESTION 11

I've a question about the global institutions and saying you worked for a number of them and being fossilised, did the structure of any of them seem particularly suitable to sort of give the reins of world government to and if so which one and why?

Ian Goldin

Okay. [PAUSE] So, international citizens movement on climate change. I think the... I mean I'm not sure what you're referring to, but, you know, I think the more that citizens mobilise on climate change the better. I think there really is a mass mobilisation that needs to be widened, particularly geographically, to emerging markets. There needs to be much stronger awareness raising in many parts of the world. Do we need more suggestions being made? I was slightly sceptical of that personally. I think we basically know more or less what should be done, I don't think getting, you know, a petition from... I think getting like 100 million new ideas on what should be done I wouldn't like to be the person trying to process them. What is action, what's needed is really tough decisions, stop this in their factories, force people to stop, you know, buying gas guzzlers, put huge taxes on carbon, etc., etc. There needs to be a millennium project on technology, what was done before the Second World War to create the atomic bomb needs to be done to create new technologies on, you know, something like 5% of the spending still on climate change that goes on defence research. That needs to be changed.

So there's lots that we know what to be done, I... having been the victim of petitions of ideas before, they're wonderful empowerment tools but actually you can't process them and then people who, people if you're not listening to them they feel disempowered, so, and frustrated, so I'd be a little be careful about telling people to write too many letters with too many ideas to people who won't get to read them.

The question of the power shift to less liberal countries, well firstly let me start with your second point, I don't think that the only way is liberal democracy, so you know, Martin's a

friend, he's a great guy, but I don't agree with him on that, so there's many ways to growth, there's many ways to inclusion, there's many ways to manage societies and economies and liberal democracy is one of those, it's a good one, it's not the only one. Do I think therefore that more inclusion of the Asians will lead to less democratic institutions? No. I mean this is totally ridiculously undemocratic, you have five countries from who were decided in 1945 running global institutions, is that democratic? You know, they account for less than 10% or 20% of the world's population, an increasingly part of the world's GDP, is that democratic? No I think more inclusion, particularly by the main actors with the main populations, with the main economies, it sounds like a democratic process to me. How you do it, what, you know, what the <?? – 1.16.36> would be and so is obviously the detail one needs to work through, that's what all the reform process is about.

European social welfare state reform in retirement, yes, I wouldn't plan on working till your 70, I would plan on not retiring, I think the concept of retirement age for anyone in their 20s will be disappeared by the time we get there. <?? – 1.16.58> if I get there, I'm not that far. I think there will be much more interesting concepts, I don't think there's necessarily bad thing, you won't sort of be working one day and stop the next, there'll be part time working, there'll be teleworking, there'll be going in and out of the labour force, there'll be lots of different ways in which the transition from working to not working will happen. If you're healthy and, you know, or totally active at 85, why shouldn't you want to work, particularly if you need to pay for your mortgage and your pension and your healthcare, because you're going to live to 110 hopefully. So things will change dramatically and one of the things that will change dramatically is your time. It's already creeping up, I mean you might have noticed I think for new entrants to the labour market it's already 67 or something, it was 60... it was 57 when I entered the labour market, so it's already moving and it'll move much more rapidly over time. That's going to have very significant implications for European social welfare entitlement, certainly, that's a whole dynamic which actually, it does have... there's a worry in all of it of course, when you look at these dynamics, one of them is sort of what used to be the academic problem, you know, before academic retirement ages were enforced, you'd meet your professor when, say, you were 20 and the professor was 40 and then you, you'd get your doctorate and <?? – 1.18.27> his job by the time you were 30, but then he was only 50 and you had to, you know, you'd have to wait another 30 or 40 years until he dies in his office. That used to be how academics kept their jobs. Now that forced retirement and so this possibility of progress in the labour market means that David can be a professor and I can be a professor, but if people stop retiring again, then young people are going to get very frustrated if you can only take your boss's job when you're 70 and they're 90, that's going to be frustrating. So, you only inherit your parent's house, you know, when they're 104 and your 85. You're going to have to work out where you're going to live meantime. So things will change dramatically in all of this.

WTO reform, absolutely, the existing trade system is economically completely illogical, it doesn't meet any economic precepts for even 1st year economics and that's not neoclassical, it certainly absolutely disastrous for developing countries who pay over all the tariffs, it's environmentally destructive, there are very few negative adjectives that can't be applied to the existing trade system and I would strongly put my voice amongst the many others behind much more radical action and I think the Doha development agenda is the right direction, it doesn't go far enough, it doesn't go fast enough, but it's better than nothing and nothing is happening at the moment.

Chemical enhancements, civil rights and so on. Yes, I don't think I said that people would be enhanced without knowing it. I mean they might want to be enhanced, they might get a monetary bonus if they are able to produce 10% more of whatever they're producing; or they might, if you're a long distance truck driver you might be glad that actually you can take something to keep yourself and not kill someone while you're driving after 10 hours. Having said that, you do raise an issue, which I... which is right that maybe they wouldn't know in some cases and I think you're absolutely right that these are human rights and civil liberty issues, I think they will lead to new consciousness using the international virtual network facilitated by the web and the success of the webs, so I think that's absolutely right and I hope what came out of my talk was everything about the future is about ethics and where people stand in themselves and what sort of society they want to create, the choice increasingly is now what sort of society we want to create.

And the final points was on [PAUSE] remind me, cos I haven't written it down? The final point after that.

Audience

Which institution would you have?

Ian Goldin

Oh, yeah, that's right, yeah. The question from you, which institution. Well, I hope I don't have to choose between existing institutions, but none of them, none of the... the architecture is not meant to be comprehensive, it was designed as a modular architecture, which was meant to be <?? – 1.21.30>. The most beautiful document in the world is the UN Human Rights... the UN Charter, anyone who hasn't read it should read it. I subscribe to it and I would want the UN, but, you know, if you've ever been to the Security Council, ever been to committee trying to do something in the UN on human rights, on anything, then you don't want to be there. So, you know, I suppose the short answer is let's have the UN Charter with a UN management committee that really works.

<?? – 1.22.07>

QUESTION 12

You mentioned the <?? – 1.22.24> grassroots activities mobilising governments, but you also earlier expressed your scepticism for national institutions that have grown out of the ashes of different crises and interestingly enough you've just praised nevertheless the UN, one particular aspect of its work. Now, my measure of what's happening on climate now is most of the awareness is coming <?? – 1.22.52> the work of the IPCC, which was set up by the UN and I think it was with their 3rd and 4th report that awareness really grew, so that appeared to be a contradiction in what you described and I just wondered if you like to <?? – 1.23.06>

QUESTION 13

I think my question is more fundamental because what I think is you're concept of global <?? – 1.23.17-21> that's quite good, but the issue that I really feel that will come in the... in reaching that goal is the individual countries that will be participating in that and their national interest. You can see it from the fight for resources that we have in Iraq already or you can see the national press or <?? – 1.23.42> terrorism and I don't see how your concept will be successful in getting <?? – 1.23.48>

QUESTION 14

In this scheme you've painted for the next century or so, where do you see the evolution of the for profit multinational corporation and what role do you see them playing?

Chair

Let me just toss two final thoughts to you, just two final thoughts, which might, one of them might help. The... clearly there's a trend in decision making at a global level which is neither global, which seems impossibly difficult and neither national, which is so <?? – 1.24.21> do you know the most G-clusters, the G7 <?? – 1.24.25> and so on, but the newest one of course is to create a G20 and the significance of course of the G20 is it does represent a shift in the range of countries included, it's a much, much more all-embracing, it can have a reasonable claims to <?? – 1.24.37> reasonable claims to accountability, how significant do you think it is, do you think it's just a blip that once the west picks up again will we ignore, or do you think G20 is a significant new decision <?? – 1.24.50>.

And finally, just a brief thought on east-west, some people say that the rise of age is very exaggerated, it's highly significant at the moment <?? – 1.25.03> where the relatively cheap labour forces and the HR can be utilised, because we <?? – 1.25.08> advantages, but the counter argument and one counter thought is this is that most of the key inventions you describe going forward significant now are going forward and are cross fertilised going forward originate in the west, in American universities and European universities, but above in American universities which are several years, many years, have got their heads above others and that this technology, the nano, the IT and the genetic researchers <?? – 1.25.35> new technologies that will drive global growth and the <?? – 1.25.39> serious implications for everyone. It's just a question for you to look at <?? – 1.25.44>.

You've got two minutes.

[LAUGHTER]

Ian Goldin

Such a long time. UN and IPCC, you're absolutely right, IPCC a good example of how scientists can really contribute, I think they've laid to rest, although there's a lot of sceptics like Norman Lamont and a few others, they've laid to rest the scientific debate on it and it's been a tremendously important thing. What the UN hasn't been able to do yet is take the scientific evidence and turn it into action plans and that's what I'm, that's the institutional road block that I'm identifying.

The questions of how one goes from country to global, that's absolutely right, there's this tension, a lot of national interests are the reason why global institutions don't work and that countries don't want them to work, if they did they would work, they don't want to surrender sovereignty to them and when they have then they'll use them for their own global endeavour, so that's the reason it doesn't work. What has to happen is, and I think this will happen through hopefully partly the creation of global collective virtual communities and people have to realise that their futures are intertwined and sometimes they'll have to make a sacrifice, maybe some Americans will have stop driving SUVs, maybe even some people in the counties of England will have to stop doing that, because they're realise that they've got to give China a chance to develop and save the planet at the same time, so I think you're absolutely right, you know, going back to everything in the end in politics is global, yes, people, people move nationally in the end and can reverse.

The future of multinationals, a big topic, I mean one of the puzzles in my mind is how is it that global corporations have been absolutely so successful to capture the technology and the opportunity in globalisation? If you're Microsoft or Coke or whatever you are you run this little company, you use the technology and you can operate in a 120 countries in 120 languages, in local communities and you don't have a problem of global coordination or management. You do, but you master it, okay, there are this... they are one of the successes of globalisation, but governments can't do that. There are two sides to the questions, will corporations continue? I think so, I think they're changing, evolving, very rapidly over time. Will governments be able to learn something from them or will they be what this catchphrase public-private partnerships, in other words get outsourced to private sector some of the management of things which can't <?? – 1.28.23> public, that's all the options going forward and there will be experimentation.

The Gs, yes, I think there should be G groups on everything, in other words different groups depending on the problem. G20 or some things, an important criteria of who... is membership of the Gs, it's got to include the people that can make the difference, in other words if it's climate change, the big polluters, but it should also include those that are most affected, in other words, it's difficult to imagine for me a group on climate change that doesn't include Bangladesh, because it's going to have the most people impact. So the definition and their legitimacy, do they represent key difference <?? – 1.29.02> but yes, you can't run a global community, and I've been in the meeting rooms, trying to see how this works and trying to help but given up, you can't run <?? – 1.29.10> government 210 countries, that is just impossible. You can have ideals, but not actions and so there has to be some devolution from the global power structure to the subset and the G model is, is one of those models. The Gs suffer from one major problem, they have no secretariat to implementation <?? – 1.29.31> because they can pass off the resolutions but they can't actually do anything, they're like a police force or a regulatory authority. So that's a part of what needs to be worked through.

Invention, originate and so on, your last point, David. Again, we'll have to have a long time at the pub to discuss this, but it, <?? – 1.29.53> is it invention or adaptation and application that drives growth? Okay, so are we challenging <?? – 1.30.00> I don't think it is invention, it's adaptation and application and I think Asia is pretty good at that. So the second is I would challenge the underlying assumption that invention doesn't happen in Asia, I think firstly who's inventing in the US, it's migrants; what share of Nobel prize winners are 3rd generation or even 2nd generation Americans, a minority; who's driving Silicon Valley, it's people from Bangalore, etc. So I think that concept of who's who in this particularly constellation needs refinement and I also think it's not actually the dynamic behind growth, they're simply something determined by which nationality the inventor was, if that did matter.

Chair

Great thank you. [EXPLAINS WHY THE TITLE IS WRONG ON LEAFLET]

[END]