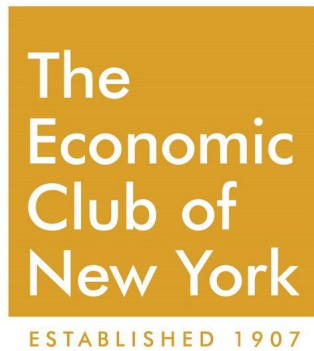




The Economic Club of New York

119th Year
837th Meeting

Chris Bradley
Senior Partner
McKinsey & Company

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In-Person/Hybrid Event

Moderator: Rana Foroohar
Global Business Columnist
Associate Editor
Financial Times

Introduction

President Barbara Van Allen

Hello and welcome. This is the 837th meeting of The Economic Club of New York. I'm Barbara Van Allen, President and CEO of the Club. I'd like to extend a warm welcome to students joining us virtually today from the NYU Stern School of Business and the CUNY Graduate Center.

The Economic Club of New York is proud to stand as the nation's leading forum for discussions on political, economic, and social issues. As you all well know, we always do this on a nonpartisan basis. We are a 501(c)(3) charity. For more than a century, we've been doing this and we are so lucky to have a tradition of excellence that continues up to and includes today.

As part of our Author Series, we'll be welcoming our distinguished guest, Chris Bradley. Chris is a Senior Partner at McKinsey & Company. He serves as the director of the McKinsey Global Institute, where he leads research on the economic and business issues that are most critical to the world's companies and policy leaders. He previously led McKinsey's Strategy & Corporate Finance Practice across Asia and developed many of the firm's modern strategy frameworks.

He helps bring insights from a wide repertoire of industries and over 25 years of McKinsey experience. His recent client work spans software, media, banking, retail, consumer packaged goods, and telecommunications. With MGI, Chris leads research on productivity and growth, industries of the future, demographics, and the energy transition. In his home market of Australia, he is at the forefront of the debate about how to restore productivity growth, a topic that I'm sure will come up in the interview.

Today's discussion is, again, part of our Author Series. We're delighted to explore Chris' latest co-authored book, *A Century of Plenty: A Story of Progress for Generations to Come*. This evening's format will begin with opening remarks from Chris followed by a conversation moderated by Rana Foroohar, the Global Business Columnist and Associate Editor of the FT, the *Financial Times*, whom we're honored to have with us right here.

There will be an opportunity for questions as well from the audience. Please note in the program, we're going to conclude promptly at 7:00 p.m. This discussion is on the record. We actually have quite a bit of media that are tracking it. So now, without further ado, please join me in welcoming to the stage, Chris, for some introductory remarks.

Opening Remarks by Chris Bradley

Well, thank you, Barbara. It's a real honor to give this talk here at The Economic Club of New York. The Club is famous as a place where debates happen on the most important topics by the world's leading thinkers. And I'm hoping to deliver at least two out of those three tonight.

For those who aren't familiar with the McKinsey Global Institute, we're an independent, fully self-funded research arm of McKinsey & Co. and that's a real privilege. It's been going since 1990, which is interestingly a time that was in some respects not dissimilar to today in terms of the world entering a fundamentally new era, and where we all had to arm ourselves with new ways of thinking to confront with new forces. And the strapline of the McKinsey Global Institute is going from micro to macro. But tonight's talk is as macro as you're going to get because I'm going to talk about the world over 200 years. But let's do some work to get back to the micro implications of that.

Alright, so we started, this book was inspired by the fact that this year is the 100th year of McKinsey, and in that spirit, we started the book by looking back. And one of the devices we used for that was to think about what was life like for our grandparents. As soon as I start talking about my grandparents, the thing is – having given this talk a number of times – that I know is that every single one of you is immediately thinking of

your favorite grandparent.

My maternal grandfather, Douglas, grew up in the depths of the depression in Dundee, Scotland. He fought the war in North Africa, where he married a Greek woman from Alexandria. That's where my mom was born during the war. And he got off to a great start with his career. He was thriving as a young school principal for the British community in Suez. But this thing happened called the Suez Crisis. That was in 1956, but the British were getting the hell out of Dodge well before that.

So in 1952, with absolutely nothing at all, my mom stepped off a boat, age nine, in Sydney, Australia, moved into a house that had outside toilets, no car, and had to start a life from scratch, and it ended up being a great life. But when you reflect on it, in the spirit of micro to macro, the events that shaped our world – coups, revolutions, wars, depressions – they also shaped each of our families in small ways, but they added up to the mosaic, to the big picture, and a big picture of progress.

Now, as MGI, of course, we had to put numbers on that. And when we looked back we saw a century of incredible progress. You know, the world of 2025 is 24 times bigger economically than the world of 1925. In 1925, even the U.S. was poorer than South Africa is today. And the world, you know, if our grandparents could have time-traveled themselves to the world of 2025, they would think it looks very, very strange.

So a century of incredible progress happened. Not only, by the way, did we get six times the income per capita and four times the population, we also added 40 years to human lives. But that led to a second question of if that's the experience we had reflecting on our grandparents, let's play the movie forward. What will the experience be for our grandkids? Looking back, you know, touch wood, but in 2100, I'll have grandkids. They'll probably be in their 70s. What will they see? Will they see the plateau of humanity? Will they see what's written in the history books about a planet that's choking, that's divided, that's in persistent demographic decline? Or will they see what we saw, which is another century of plenty?

So in this book we wrote, *A Century of Plenty*, you know, spoiler alert, we charged a good path. We charged them to see a world of, an amazing world. And we thought, well, how would we describe that world? Well, it would have universally really high incomes. They'd be above \$80,000. You'd have high civic engagement and a strong sense of democratic identity. You'd have incredible pristine nature, but also bustling and thriving urban life full of culture. The trains would run on time.

And oh, oh, I just described Switzerland, didn't I? I did. That's Switzerland today. And the reason we like starting with Switzerland is it's real. Who has been to Switzerland? Many of you will have. It's real. I don't need sci-fi to get there. I don't need some mystery intervention from the Gods of technology or productivity. It exists. But it exists

for nine million people – one in a thousand. It exists for one in a thousand. So that leads to the question. What about the other 999?

And what about if we imagined the other end of the barbell, the nine million who are on the complete other end of the world's economic scales? And that's a country called Burundi, a country of about the same population and exists at about a one-hundredth of the income of Switzerland. And none of the things that make Switzerland great today are there. They don't have ubiquitous power. They don't have plumbing and roads and high education levels and great institutions.

But the thought experiment we had is let's not just talk about abundance as a concept, but let's quantify it. So would it look like for Burundi by 2100 to be as rich as Switzerland? To do that, it would need to grow every year, income per capita, at 6.1%. That sounds insane. Countries have grown faster than that, by the way, but it sounds insane. And then what if, hang on, we don't want Switzerland to be in stasis either because we've all seen stasis. It's really bad. So we want the rich world to keep growing at about 1.5% per capita. And then all other countries, let's just fill in the blanks.

So we'll get a world where we have an absolute minimum standard of living of Switzerland. And, by the way, MGI likes people, so we had more people in the world too. We have 12 billion. We'll come back to that maybe because demographics is truly

one of the really big challenges we've got. But the reason we have 12 billion people in our model isn't because we are super-optimistic that we can suddenly flip the switch of fertility, but we wanted to show that there's enough stuff, you don't need to prevent people having children to have a world, a really great world. We wanted to show sufficiency.

So this world will have a GDP that is 8.5 times bigger than today's world, 8.5 times bigger. And as soon as I say that, a lot of people's heads explode, and I instantly turn into a...I never thought the most rebellious thing I could do at McKinsey was to say, hey, there's a really bright future and the world economy can be way bigger than it is now. But it turns out that's just a very triggering thought to many people, because there's a visceral reaction because it goes against three big ideas that have become pervasive in our society. And one thing we'll unpack later is actually the job of this book is less about science and more about hearts and minds because we've got to undo three ideas: that growth is not good, that growth is not for everybody, and it's not for me, and that growth is not possible. We've got to undo those three ideas.

And so we start with possibility. We think starting with the idea of possibility, that it's possible to have a world that's that good, is the opening to a new kind of conversation. That's not left/right but about exploring possibilities and then talking how to convert that into probabilities. So we had to do the math.

So in good MGI fashion, we did the bill of materials for the world. Is it actually possible to have a world economy that's 8.5 times bigger? Would that be a good place? And so you need a bill of materials, you need enough stuff. You need five things. You need enough materials. You need enough clean energy. You need enough food, growing on a small land surface so that we're not straining the world's biodiversity. We need enough clean air. And we need enough new ideas. So you have to believe those five things to believe in possibility. So we kind of systemically did that.

So let's think about materials for example. We need about eight times more copper to get there than we've ever pulled out of the earth so far. So that sounds like a lot. And when I first gave this talk it was to a group, esteemed group, and one person raised their hand...Chris, I'm a scientist, I'm a biologist. He actually was a very eminent biologist. You don't understand that if you've got a culture in a petri dish, the culture is going to grow really quickly and it's going to get to the edge of the petri dish and then it will stop growing. And I was like, I didn't think of this answer on the spot, but I thought of it on the way home, so I'll give you the good answer, not the one I bumbled through on the day.

But the good answer is the world, yes, it might be a petri dish, but it's magic, and it's magic in two respects. First of all, it's huge. More than half of the world's economic activity happens on way less than 1% of its surface. It's really, really big. There's a lot of

stuff. There's not one material we have uncovered where we don't have enough, at least in resource. And the second thing about a magic petri dish is it doesn't stand still. It's an expanding petri dish. And the magic, what did Einstein say, the most powerful force in the universe, compound interest – 1-1/2 or 2% per year changes almost every equation or limitation you have in your mind.

Let me bring this to life for you. So copper, we've pulled 800 million tons out of the ground since 1950. That's a lot of copper. If it's a cookie jar, we had a lot of cookies. But we added 900 million tons into reserves. So this is a pretty darn magic cookie jar because I go back to it and it's got more cookies in it at the end than it did at the beginning. It's a kind of good magic cookie jar.

And that gets me to kind of a broader point around zero-sum thinking. And what's the real enemy here? Because if you do any thorough economic history of the world what you discover is the big idea is the world is not zero-sum. It's positive sum. But every bad economic idea and bad political idea has actually stemmed from convincing people that it actually is zero-sum. And that's why you have places like Venezuela that started in 1950 at double the income of Spain, and ends later, one-eighth the income because they took zero-sum thinking to an absolute extreme.

So I won't go into as much detail for everything else. I would say food is pretty easy, by

the way. You just need to be, take rice for example, if we're as good as Vietnam at rice. The ability of human beings to improve agricultural productivity is well documented and all prognostications about running out of food have been completely wrong. So we can easily feed these protein-rich diets on way less land. That's pretty easy to sort.

Energy, you get into some headaches. Energy, we're kind of trying to bend the narrative on energy to make it more about what's good about energy than what's bad. Because there's no way to get rich without lots of energy. In fact, I would say there's a mental image I have of, you know, I was at The Met on Sunday. It's incredible, what a great heritage you have here. And you're looking at the statue of Hercules standing big and strong and conquers the lion. The statue of Hercules, we have, the platform is trust, trust in each other. And that comes through institutions and all sorts of other social capital. But the two big legs standing astride that is capital and energy.

To get rich the way we did, we needed nine times more capital per worker and ten times more energy. And it's going to continue to be true. You're going to need a lot more capital and a hell of a lot more energy. Now, do we need 8.5 times more energy? No. Because we're getting better, we always get better at getting value from energy. We need three times more energy, but it has to be electrified, because today most energy is not delivered in the form of electricity. So we need 12 times more electricity. Okay, my numbers are starting to get dangerous. But where it gets really spicy is I need 30 times

more clean electricity.

And so the advantage of this model of working back from possibilities is I'm in the real world now and I'm confronting what our real-world problem is. And so, for example, in our book we posit a scenario of clean energy abundance where 40% of all the world's energy is delivered in the form of nuclear. Now, by the way, more likely than not, there's some new technology that comes along in that time, that people will laugh about how silly we were thinking you have to go nuclear. In the same way that in 1925 people didn't have a conception that we'd make electricity from nuclear. But to get that 40% you need 26,500 nuclear plants. And then straight way, we're like, oh, oh, have we just disproven our own hypothesis?

But actually if you think about, like China, 10X'd its energy in the last 25 years, its electricity in the last 25 years. And that 26,500 plants sounds like a lot. I think there's 350 or 400 today. There's 75 under construction in China. You'd need to build about 100 plants a year and compound that up. But if we had just built at the rate France did in the 1970s – you heard it here first, I've said something very positive about France – if we had built at the rate France did in the 1970s, we would have nailed it. It's entirely possible. Think about the millions of kilometers of roads that we have now that no one would have imagined in 1925. It's completely possible.

Clean air is one we might discuss later. Suffice it to say, we see a world where it's possible to have energy abundance and economic abundance at around 2.2 degrees. It's a bit higher than 1.5. We might go into that a bit later. But the good thing about economic development is it comes with; it comes built-in with adjustment. It comes built in. Adaptation comes for free when you get, in fact, one definition of economic development is becoming weather-proof.

Finally, so I guess I've touched on, will we have enough stuff? Will we have enough clean air? Will we have enough energy? Can we have enough food? The next one is will we have enough ideas? And that's inevitably going to get us into the question of, well, how does AI figure into all of this?

And the argument I'd have is that a world without AI is quite possibly a lot more scary than one with it. Because the current modern period of kind of stagnation of productivity combined with demographics that are really tough would make the equation really, really difficult. And we'd argue kind of AI could be a real ace in the pack for actually dealing with things, and we might unpack in the conversation why a positive technology shock should be celebrated and accelerated wherever it's possible.

So that's the vision, but I've got to now crash into reality and bring it back to today. Because the reality is today there is a crisis of hope. Edelman does a survey every year

and asks people, is the next generation going to be better off than the last? And in the U.S. only 21% of people say that's true. So four out of five people have bought into the growth is not possible idea. It's quite astounding. In France, by the way, that's 6%. But in China it's like around 60, 65%. And if you track the lived economic growth of people by age, young people have actually had a far lower lived average economic growth than older people have. So we've got to wake up the dream of growth again.

And it's also true we're in a new era. I talked about MGI being born in 1990 around the Fall of the Berlin Wall. And we're at a similar moment, in our view, where our TVs are very much out of tune to what's going on in the world. It feels very noisy because there's a new channel playing. It's called the multipolar channel. It's called the humanization channel. It's called the demographic debt channel. It's called the electrification channel. It's a whole different set of forces operating, and it's quite a frightening time. And, you know, we face the prospect of demographic winter and with heightened social divisions.

But let me end my comments by just going back to 1925. How did the world feel then? What basis of hope did they have? Born between two world wars in the middle of unknown economic catastrophes, surrounded by death, and never having seen the miracle of growth before because it had never happened in human history. A world of scarcity was the right presumption you would have back then.

And what I think is amazing about that generation is they didn't have like we have, a template for growth or how it works or how possible it is. Nonetheless, they kind of pressed on. And if there's one thing we learned about progress, it's certainly not a straight line. In fact, I'd argue the opposite. The thing we learned was that the more problems you threw at it, the stronger it got. It was kind of, to use Taleb's phrase, it was kind of anti-fragile. And really the only thing that could stop growth happening and stop progress were political constructs of our own making that are rooted in zero-sum thinking.

So what's the real enemy? It's not physics. It's not science. It's not the principles of economics. It's our hearts and minds. So that's why I say, what's our real mission in writing this book? Maybe this is a bit overly ambitious for a little think tank attached to a consulting firm, but what's our job? It's to build a new story, and that story has to be a story of progress for generations to come.

So tonight I'm going to be joined by the esteemed journalist and author, Rana Forhoohar. She's the Global Business Columnist and Associate Editor at the FT, and also the Global Economic Analyst at CNN. She comes with CV literally longer than your arm so I'm not going to read it out. But I think she's got a spike in book titles. She's written three books. Great titles. *Makers and Takers*. *Don't be Evil*, I love that one. And most recently, *Homecoming: The Path to Prosperity in a Post-Global World*. There's

also a really fascinating one coming out soon.

But I'm especially excited to have her join me for this conversation because she's almost unmatched in her field, in the breadth of topics that she covers and her ability to kind of uniquely connect the dots, and together help us figure out what the hell is going on. So welcome, Rana.

Conversation with Chris Bradley

RANA FOROOHAR: Well, thank you. Thank you so much for that, Chris. And thanks to everybody for being here. I have to say I was intrigued by your book because it's kind of contrarian to be an optimist these days, and it's a hard thing. And I'm curious actually just because this is, not just an economic conversation but a book talk, how you thought about that thesis and putting it out there at this moment when it's just tough to be an optimist? Tell me a little bit about that journey.

CHRIS BRADLEY: It's funny. We didn't purposely be optimists. We just, I'd argue, at MGI, we just followed the cells on the spreadsheet to reach the logical conclusion, which says the rational, empirical take is to be optimistic because, you know, take my copper thing. You might be concerned about copper but we've got a pretty repeatable habit of doubling copper reserves every 30 or 40 years.

But then, you're right, it is kind of counter...one of the most interesting things, one of the great experiences of writing it with MGI, it's very collaborative place. We work with people from all different walks of life, different generations, and different locations. I think there was like ten countries involved in writing this book. And the experience of our team grappling with this, I think, was more interesting. Because for me, I was always like, I'm kind of just wired to believe in growth and the success of the human experiment.

And it's not like, oh, I needed to teach our young people a thing or two, it was a journey of discovery we all went with together because we all had to, well, hey, can we really solve this carbon thing? And is it really possible to have that much electricity? And going through that process was remarkable, but what we found was the thing that got us through was possibility thinking. And it wasn't making predictions; we actually let ourselves off the hook completely from making predictions because I don't think the world needs another prediction. There's plenty of those.

What we did was liberate ourselves to go, just show it's possible. Just show there's one viable scenario and how might that change the way we think and talk with each other, the interaction when we have a possibility framing around what we're talking about. And then work back the physicals. Okay, 26,500 nuclear plants. That sounds like an awful lot. Okay, let's get our pencils out or spreadsheets or Claude codes or whatever we use

and work it out. Is that possible? Is there a precedent for it? And time and time again what you find is the power of compound interest takes care of many, many, many things.

RANA FOROOHAR: That's interesting. You know, one of the things I've always liked about MGI is your data points. You're really good. You have a lot of data points and your reports are very rich. And oftentimes when I'm going through them, I'll find something unexpected and, you know, even contrarian. And I'm curious, as you were coming to this thesis and trying to craft the story of possibility, were there data points that you thought, you know what, this is being overplayed possibly as a story right now? Or data points that you said this is underplayed or we need to think about something in a different way?

CHRIS BRADLEY: Probably one of the most challenging places to bring the facts to is, remember, I talked about, like the three stools of the growth argument or the anti-growth argument. Growth is good, growth is for me, and growth is possible. I didn't have much problem with the growth is good idea. You just need to visit Sydney Harbor versus Dakar and Bangladesh and say you don't want to stop at Dakar; you want to continue through to Sydney. And, you know, basically our argument is mostly progress is a solution to the problems, not a cause of it. I don't have a problem with that.

But it's the growth is for me, it's hard because there's lived experience, and people do it tough out there. And just coming with a pure factual view, because the facts are actually pretty harsh on this, is that the world has never been more equal in human history than it is today if you remove borders.

RANA FOROOHAR: Right. That's quite a crucial point.

CHRIS BRADLEY: Yes, but how does God look at the world? I don't know. That's a good question. But the world has never been more equal, and we'll come and talk about geostrategic competition and geopolitics.

RANA FOROOHAR: I'm going to push you on the world is more equal.

CHRIS BRADLEY: That is a very good thing. And the fact we have geopolitical rivalry is an outcome of success. And, in fact, it's the only model of success. A world where we continue having a Third World and a First World, that was not a good world to be in. So two First Worlds, then it's getting jazzy though, and we've got to learn how to play in that environment. It's not, I'd argue, it's not bad. Different, not bad.

But within-country inequality does go a little bit of a U-shape. Now it's very informed by media perceptions and culture, which is therefore very American-centric. And so the

global conversation about inequality is kind of, I would argue, overly informed by America because, you know, in countries like my country or whatever, especially once you take taxes and transfers into account and income and spending, there's not much evidence of a big inequality problem. And even in the U.S., inequality is pretty flat, it seems the last 15 years.

RANA FOROOHAR: Well, wait a minute. I'm going to push you on that. The Gini coefficient in the U.S. right now is almost .49. That's Latin American quality. So I've got to take issue with this idea. First of all, I would agree with you that we have a U.S.-centric story, and I think that that is informed by the fact that the Gini is so high here.

I also want to draw you out a little bit more on this idea that the world is flat, the world is more equal. Well, we do have borders. And to your point, the world is fragmenting. We're living in a more multipolar world. I think it's really hard to even talk about possibility without taking into account that we're living in a world that's very bumpy and that flat story is over. So how do we think about that possibility and draw the political economy in at the same time?

CHRIS BRADLEY: I told you. This is where the fact space enters spicy reality. That's right because that Gini coefficient is true. Now, of course, people who have a message about inequality use the most extreme form of Gini coefficient they can, which is kind of

pre-tax and pre-transfers, etc. Actually liberal democracies are remarkably good at sharing the pie. But the most unequal places in the world are actually poor. In fact, there's a negative correlation between inequality and wealth. Like South Africa is the most unequal place.

But the U.S. one is complex though. Because as I said, we want to have empathy and there's lived experience, and the U.S. has chosen a model which has a little bit more inequality in it. But my analogy is it's like an apartment building where some people live on the 20th floor and some people live on the 80th floor. But for someone outside the system who lives on the 5th floor, you all look pretty high to us. So the bottom quintile worker in the U.S. is way better off than the bottom quintile worker in Germany. And, in fact, the bottom quintile worker in the U.S. since 1980, if you account for taxes and transfers, has more than doubled their real income.

Now, people in the top quintile have grown faster. That actually reflects differential productivity. It's not some, you know, demon sitting on top of the system. It's that some jobs got a lot more productive than other jobs did. And, in fact, in my kind of overall theses that the solution to everything is productivity, a huge solution to U.S. inequality is how do we make teaching, healthcare, construction productive? And not in a productivity shutout, because otherwise there are always going to be dragged up by the...so in some ways that income inequality debate is really a productivity inequality

debate.

So the U.S. situation is complex because there's different models that society is going to choose. And, you know, the one luxury again of MGI is I don't, I'm not allowed to commentate politically, and I use it as a luxury because whether that choice of a .49 Gini coefficient is good or not, what I'd argue is it has created a high level of prosperity. And, you know, like Mississippi, for example, now this is a crude measure, this is GDP per capita, is wealthier than most European countries, and it's the poorest U.S. state. Now, of course, that's a very crude measure of what it's like to live there and there's other things so I don't want to belabor, blame that statistic.

So when you asked me the question of where did the MGI, hard-nosed, fact-based, come in with a book that's about narrative and hope, the discussion about inequality was probably the trickiest. Again, I come back to the adage that the solution to problems is progress. Progress is not the cause of the problem.

RANA FOROOHAR: So let's go back to this point. I mean we could drill down into the U.S. but this is a global story and a global book, so I don't want to get too overly focused on the U.S. But let's take this idea of global growth and the idea that growth isn't good, which, again, I would push maybe a little bit on that as a narrative. It seems to me that the narrative, if we look at the politics, not just in this country, but in many

countries, the narrative has been growth in the neoliberal model has not been good for some people. That the capital labor balance has been off, that we've had growth at all costs, you know, which you get into sustainability, inclusivity.

It seems to me that what a lot of people on both the left and the right are looking for now is a new definition of growth, growth that is both inclusive and sustainable. And that's something that you heard, you know, in the U.S. you heard the Biden administration talk about. You've heard a lot of people in emerging markets talking about this. How does that figure into your calculations, your algorithms?

CHRIS BRADLEY: Well, I just think you've got to ask someone who lives in a country with no growth, how their life is going versus somebody who lives in a country with growth. And we saw this year some really important milestones. Like Poland overtook Japan in GDP per capita this year. And, you know, Poland started out much, much, much poorer than many countries. So growth is good.

Now, someone doesn't wake up in the morning and think, my Lord, I hope I get some economic growth today, or I hope I make some GDP. But they do wake up dreaming about a whole host of things that are .99 correlated with economic growth. They think about quality healthcare. They think about opportunities for their children. They think about ledger time. Americans work 30% less than they did 100 years ago. They think

about high quality roads and infrastructure. And the reality is we've thrown every number at the book. Growth brings more goods and less bads. It is unanimously good, and living in a low growth economy is hell.

RANA FOROOHAR: But do we need to change the definition of growth going forward though?

CHRIS BRADLEY: No, that's what I'm arguing. No, GDP is a great measure because it's 99% correlated with everything we care about.

RANA FOROOHAR: And it doesn't need to be cleaner and it doesn't need to be more inclusive?

CHRIS BRADLEY: So, clean, well, this just comes down to if growth is possible, can you grow within planetary limits? First of all, from cleanness, the main environmental issues we have, like the plastic in the oceans ain't coming from the Mississippi. It's coming from the Ganges. Right? It's not coming from rich places. It's coming from places that can't afford municipal waste collection. And the deforestation is not happening in China. In fact, China is re-foresting at an incredible rate. It comes in places that don't have modern energy systems so they need wood or don't have modern farming practices so need more acreage than we do in the west. So, on the

whole, and by some measures, by the way, the level of ecological decline now is, by some measures, is the lowest it's been in 500 years.

Now, there is one “but” on this, which is the carbon. Because on nearly everything you can just see as countries develop, they care more about, like I went last week, I had a lovely vacation in California. I went to Joshua Tree National Park, which if you haven't been, please go and enjoy your amazing country. I did. But this was, this is a child of the enlightenment. This was a place where it was farmed and they had cattle running. They even tried to build dams. And now it's this pristine, incredible protected park. That's what wealth brings.

But climate is the hairy one because there is no such thing as wealth without energy. Just absolutely no such thing. There's no poor country that has lots of energy and there's no rich country that doesn't have much energy. And the dirty, little secret in some climate modeling and forecasting is perpetuation of global poverty. It's the only way to make the numbers work because if you give everyone all the stuff they need to be rich, it kind of can blow the lights out of the model.

And so one of the toughest things in this book was confronting the reality, and I've got Suhayl here, and we had many debates about this, is should the benchmark of progress in our book – to your point about how to measure growth – be 1.5 degrees? Should it be

net zero by 2050? And this was a delicate argument because it shouldn't. And the reason is that scenario is not available in any world. So we should work on, we're in the Economics Club, we should be in the world of second best? Like what's the best achievable outcome?

The world we're on, if we just keep trucking as we do, is about a 3.2, 3.3, somewhere in that range. It's not the disaster scenario. In IPCC it is tailing up, but there's still emissions in 2100. It's about a 3.3 degree. Well, don't forget we're already at 1.3 now, right? So we asked ourselves, well, what's the best scenario we can get our heads around that has some physical reality to it where we can actually back it up?

And that is, McKinsey has a scenario called sustainable transformation and that gets to 2.1, a bit of a slower track. We just asked ourselves the question, what world is more likely to get onto 2.1 versus just drift along as we are? Is it a world that's divided, that's got terrible government finances, where there's very little money to invest, where the relationship between business and government is broken? Or is it a world that's optimistic, growing, has lots of investment dollars? And you can see where I'm going.

The idea that growth, growth is the thing that's more likely to get us onto the 2.1. I'll get to the punch line. By the way, we do not believe in the perpetuation of ongoing global poverty. We think everyone should be rich. And so we don't get to 2.1 in our model. We

get to 2.2. You have to add 0.1 degrees to make everyone rich in that world.

RANA FOROOHAR: Let's move away from models for a minute and kind of ground this in the news of the day. And one thing, I keep looking for silver linings in pretty bleak headlines at the moment. And one silver lining – I wonder what you would say to this – might be that the fact that America seems to be becoming a bit of a petro state and we have a war in Iran that is driving oil above \$100 and lots of geopolitical shrapnel from that, could be, it seems to me, that China will push harder on clean energy. Would you agree with that?

CHRIS BRADLEY: Well, China's already pushing hard on clean energy because it has two big imports and they're both exactly the same size, by fluke – chips and oil. And China is electrified at about 50% more, like about 30% versus 20% in the U.S. Partly because it's newer stuff, so the newer stuff is more likely to be electrified, but also because they have, their only captive source of energy is coal. And if you do the math on a coal-fired EV, like when my friends buy an electric car in Australia, which is also on a coal grid, I tease them for having a coal-powered car.

But in China, the climate case for buying an EV in China versus a petro car is not positive because it's been powered in the coal network and built in a coal-powered...so the reason China is doing that is not clean. It's a technological race and it's also an

energy race. I would argue that the oil shock of the 70s, again this idea that progress is pretty anti-fragile, drove a lot of incredible things. It drove an incredible increase in energy productivity in the U.S. It drove the adoption of the cleanest, best baseload power source we have which is nuclear energy. And it drove an absolute bonanza of finding new awesome forms of oil in places like the Gulf and the North Sea and other places like that. So they're accidental spillover effects of these shocks.

So we're all going, oh, geopolitical fracturing is bad. And I listened to the speeches that Merz and Carney and Trump gave at Davos, and I'm sure many of you listened to those speeches. You know, they were so different, the style, they all sounded different. But I saw total unanimity because they all said in different words, the same thing. Re-arm, re-energize, re-industrialize, and realign.

And I would argue, I don't think that's necessarily bad because Merz gets up, this is the Chancellor of Germany, and says like no chancellor has said for the last 20 years, my number one defining project is not battling China or battling the U.S. or making Trump go away, it's getting my bureaucrats to stop over-regulating industries. And for an economist, I hear that, and I go, imagine a Germany unleashed, imagine how great. Like think of how great the German economic miracle was. Think of the French industrial might that they had in the 80s. And I imagine if they get their mojo back again, how amazing that is for the world. And suddenly, I've got Merz standing up in front of

the world saying my number one political goal and existential ambition is productivity growth.

RANA FOROOHAR: So it's interesting, I'm glad you brought up Europe and industry, and I want to give everybody the kind of five-minute heads-up, we're going to go to questions, so have those in mind. It seems to me – I agree with you on Germany and France and there's a lot of possibility there – what Europe doesn't have is tech, an AI industry, an AI giant. And you can argue that maybe that's potentially a good thing. We could use a little more diversity in the AI space. But let's talk a little bit about tech and how you see it as a transformational force but also how, if we look at kind of a tri-polar world, U.S. and China having different stacks, Europe being somewhere in between, what's your take?

CHRIS BRADLEY: Well, obviously, America is undergoing an incredible revolution. And I think just seven companies last year in R&D and CapEx spent \$743 billion. For a little Aussie like me, by the way, that's 3.5 the CapEx bill of my entire country, so that's pretty amazing. And that's creating a first order effect of an investment boom and a second order effect of all the AI technologies. But that happens in a geostrategic reality. This is a space race. Whoever controls the AI controls the world. And so again my view is actually what was bad for the world during the kind of WTO era, whatever you want to call it, was excessive alignment and insufficient competition.

And what we're saying, the silver lining to me is geostrategic competition is very stimulative. And if you've got a situation where, like China builds 10X electricity that the U.S. does every year. The U.S. can't win the AI race unless it gets really bloody good at electricity. And to get really good electricity, we have to get good at building. And that is incredibly stimulative to the U.S. economy. To the extent that you believe electrification is like win, win, win, great for the environment, great for the economy, great for efficiency, this will create, this kind of AI arms race will create a lot of positive externalities. Now what happens, the same thing happened in the nuclear arms race is countries that can't keep up kind of opt out and stayed behind. And that's what's happening in Europe at the moment.

And we just released last week a report called, The Race Takes Off in the Next Big Arenas of Competition, which is all about the kind of mega-firms and omniscalers. And we do make the observation that 90% of the market cap in these 18 industries that we identified as being the kind of ones to watch is in China plus the U.S., 90%.

RANA FOROOHAR: Bad spot for Europe.

CHRIS BRADLEY: It is. But one of the messages in our book, as a way of wrapping, it's like every good book has a hero in it. And no Hollywood movie has ever had Mega Corp as the hero. Mega Corp is always bad. In our book, if there's a hero, it's actually Mega

Corp. Because who delivered the R&D, two-thirds of the world's R&D happened in about 250 companies. Almost all of the capital investment happened by large companies, almost all the scaling investment. In fact, the work of McKinsey Global Institute, we even surprised ourselves with this finding in the piece that we called, The Power of One, was that even in the U.S. it's like 20 to 30 companies explain like 80% of the productivity.

RANA FOROOHAR: So I'm going to ask you, your concentration research is great. Actually people should look at the McKinsey superstar work because it's pretty terrific. Let me push, though, a little bit and ask one final question before I open it up. Tech, we know, always a net job creator in the long run, but in the long run we're all dead. And there's a lot of concern right now of the depth and breadth of the transformation. You can already start to see, yes, productivity gains, but also job losses in some important areas. That gets to this balancing of theory and reality.

I personally think, I'll go back to the U.S. because I think it's indicative of a larger global trend, I think you're going to see a Democratic sweep in the midterms. I think that you are going to see a young group of more economic populist voters on both sides of the aisle that are simply not satisfied with the system as it's been in the last 50 years.

You've made a different case, but if you were going to try and speak to, let's say the

young college graduate who is now \$100,000 in debt and can't get a job in a white collar firm because it's being done by AI, what would you say to them to make them feel a little better about their situation? And what would you say to policymakers about how they could help bridge that divide?

CHRIS BRADLEY: Well, the reality is that AI is also accompanied with a massive release of supply side constraints, so we're not getting less coders, we're just getting more code. And business startups have never been higher in the U.S. than they are now. So this lump of labor idea that, you know, because even MGI says one-third of all human activity done today is automated in ten years. That's a huge displacement. But you can't forget that the wealth effect that that creates, the productivity.

So the analogy that I have is that AI is like a super car but it's only got three wheels and therefore it has zero economic value. The technical term for it is a jagged technology if you want to use it. But if you come along and you've got the wheel, you're suddenly like, you provide all the economic value. MGI's research would suggest that it's highly complementary to human output and therefore highly complementary to wages and therefore to demand. And we can't even begin to imagine all the problems – like a world where suddenly we can solve cancer, how much wealth is created in that world is nuts.

To the inter-generational point, this is really the crux of it. And I can't wave fingers and

lecture it at young people, except to say I think we've got to be honest and say the economic system has been, the inequality I think we should be talking about is inter-generational. And that's because if you look through the Baby Boom, the era of low taxes, high economic growth, and being able to buy house for a few years of your salary, and go to a cheap university. Although less people went to university, and maybe that's, by the way, one of the solutions to our cost of universities. If it's expensive, do less of it. That's like an economic idea.

But now if you go forward, and we looked a lot at this in our report called, Depopulation Independency, where we really took on, took on the demographics issue, is a young person today has to buy into an asset market that's expensive, has a lifetime tax bill that is unbelievably high. Because not only you've got to pay for the fact that we haven't reformed our government finances now, but it's only going to get worse, and has the prospect, because of demographic drags, of less income growth. And so I always think, you know, how do we get young people on board?

And I've just seen a recent piece of research in Australia actually looking at like deep demographic, ethnographic profiling of young people. And what we found is that young people don't want different things. They want economic empowerment. They want agency. They want to buy a house. They want to have a family. All those things that are normal. But what the short-term fix of that is to take away their agency with more

government programs, more X,Y,Z.

And I think the real solution is how do we enroll young people in that project of growth?

In order to do that, we've got to solve a real problem because pessimism is like super self-fulfilling. And if you don't think anything should be built or could be built, things don't get built and therefore houses are expensive. So finding a way to enroll everyone in that idea of economic progress, I think, if I think back to the Baby Boom, what was in place in the Baby Boom, lots of economic optimism, lots of high automation that made life better and easier for people, and growing and almost ubiquitous home ownership. So if I could kind of talk about where our policies need to lean to, I think there are three pretty good, they'd be three pretty good things...

RANA FOROOHAR: Okay, I want to open it up because we've got about ten minutes left. We've got a mike here. Question, a lady right there.

QUESTION: Hello, hi. Thank you so much, Chris. My name is Denise. I have a question just following up a little bit on what you just mentioned about governments. I would like to know; what do you think about universal basic income. I know that McKinsey has done some experiments in this in Europe. And just thinking about that generational displacement in terms of jobs, is there something that would be more feasible, especially for a transition period while the economy and systems, you know, rearrange?

CHRIS BRADLEY: Well, we've yet to see any evidence that there will be displacement of jobs. So that's the first point. I think if the technology is really that good, our problem will be dealing with an economic boon. And the best analogy for me is not coding, because everyone gets all excited, look, I can code. But that's a very special case where everything is written down. It's a very closed loop system. It's kind of the perfect AI kind of hotbed. Of course, what's happening is not less coders. We're just writing more code. Like GitHub commits, Claude is doing a lot of commits, but the actual human commits haven't gone down. So we're just going to get more software.

But I think Waymo is better example because you can go to San Francisco and jump in a Waymo and you experience this miracle of being in this car that's got a ghost driver, and you're kind of wowed. But equally, you look out the window and you go, hang on, it's still San Francisco. Because the superhuman technology had to come into a human world. It still has to obey the traffic rules. It still makes mistakes. It still costs money. It's not free. Actually it's almost the same, as expensive as a car. It's got limited scope. It can't do every job. It can't do every, etc. etc.

So the real-world diffusion will be a little bit different. So I'm not sure I believe, I don't take it as a given. To the extent that young people are doing tougher in the labor market, I've got a much better theory of that, which is work-from-home is very bad for young people's productivity. It's very good for productivity of...So there's other labors I'd

look at.

But the point on universal basic income, in a world, like what happened in the last 100 years is the wage system was this miraculous thing that delivered the benefit, like we had nine times more capital per worker. But the productivity benefit of that largely was felt through the wage system and there were ups and downs and overall reflected broadly.

So the question you're really asking is can we rely on the wage system? Maybe not. But maybe in a world where everyone owns robots, maybe everyone becomes a capitalist. I don't know. I think universal basic income and human happiness are not the same thing because I think humans were made to make stuff and to work. And, you know, if you look at lottery winners, for example, if you follow them, they all lose. They all end up miserable and lose all their money. And there's been lots of experiments actually with UBI that didn't really translate because part of being human is to strive and to create and to work. But I believe in the world of the three-wheeled super car. The person with the wheel is the king.

RANA FOROOHAR: Okay, let's take a question over here.

QUESTION: Thank you. I'm curious, your thoughts on, you know, you started with kind

of the social psychology about people need to embrace that growth is good. And I guess I'd ask you to comment like in the way in which thoughts and news is being transmitted, and we're all kind of living in these echo chambers that are somewhat individualized, how do you transmit that thought to a large number of people? And how do you kind of make that pervasive?

CHRIS BRADLEY: Well, ___ talks really well about this because he kind of says, you know, if you look at every stat, it's kind of like steadily better. Like, you know, we've almost eliminated hunger, eliminated poverty, infant mortality, maternal deaths. And we forget, like for example, in the 20s, two of the most powerful people in the world, Coolidge and Churchill, both lost children to infections. One, I think it was Coolidge, his son stubbed his toe playing tennis and died of an infection because penicillin hadn't been invented. So it's hard to imagine those things.

But news is basically, humans were evolved, quite rightly if you look at 99.9% of our existence, for scarcity mentality and threat. And so the news reports, stuff that's sudden and big, and as you know most good stuff is slow and steady and a bit boring, and most bad stuff is sudden and big. So there's definitely a bias towards that. And I'd argue social media amplifies that even more. But I have a strong view, like when you're trying to change something, don't blame the customer.

So we've got to figure out a way that we can, and I think the real empathy is, and this is a little bit the circularity of my logic, but if you draw the chart of the experienced economic growth of someone based on age, someone who is 20, 30, 40, 50, 60, if you line it up, the 60-year old has experienced much higher average economic growth in their lifetime than the 50-year old, than the 40-year old, than the 30-year old, than the 20-year old. And in places like Europe, especially the case. And you've got people coming into the labor market now who have never actually experienced a really long line of very strong healthy economic growth.

RANA FOROOHAR: Back to your demographic point, which I thought was very good. I think we have time for maybe one more question right here.

QUESTION: Thanks so much. I wanted to ask a question about your argument on geopolitical competition and that it's good for progress. In your book, do you envision a way how this geopolitical competition could still happen without the threat of armed conflicts? Like what is your solution to creating this world?

CHRIS BRADLEY: Yes, it's a good point. And there's great people like Toby Ord who have written wonderful books around the existential threats to humanity. And we kind of mentioned, there's obvious nuclear war. There's climate meltdown. There's kind of rogue AI and there's pandemics. So we kind of took that out of our exam question

because we're talking possibility, but there are real things we have to manage.

I would just say that one thing about this geopolitical fracturing is everyone has this view that trade is going away. I just want to remind everyone that this is a record year for trade. And what's happening, trade is not shrinking. It's realigning. And I come from Asia, a continent full of countries who for hundreds of years have hated each other with a depth of hate that it's hard to describe, but trade more with each other or just as much with each other as Europeans do. And Europeans have Brussels and they have all these things. So I would just argue that, you know, mercenary instincts are pretty good and powerful.

To the idea of the existential things, I do think these are really, really real. As you've probably studied this, the irony of it is that the prospect of a nuclear conflict reduced the cost of, reduced the probability of war because it made the game theory, you know, Thomas Schelling told us this. Now, in a world of drones and where you can have war that doesn't inflict human casualties and war is fought on cyber and AI, have we got lots of interesting scenarios coming our way? We absolutely do.

And that's why one observation of history is that the journey of progress was certainly not a straight line. There was a lot of bad things that happened. We had the Cultural Revolution. We had all sorts of bad things happen. But any place that embraced the

kind of core ideas of the engine of growth around energy and capital and ideas and education and urbanization, all those things, any country that just basically grappled those things enjoyed a massive dividend, a massive dividend of growth. And progress, thank goodness, turned out to be, if anything anti-fragile, and that the more shocks we threw at it, the better it got.

RANA FOROOHAR: Well, that is a good place to welcome Barbara back for a few final words.

PRESIDENT BARBARA VAN ALLEN: Well, thank you. This was just an amazing conversation, really wonderful. Thank you. So I just wanted to share real quickly that we've confirmed a number of events and we're adding every day. On Tuesday, March 31, Tyler Goodspeed, Chief Economist, will be here, and that's tomorrow. April is looking good as well. Sebastian Mallaby will join us. Lloyd Blankfein on his new book. Jenny Johnson, the CEO of Franklin Templeton, will join us down in Palm Beach. Salim Ramji, the CEO of Vanguard, will be here. Lloyd Blankfein will be joining us. And not too long after, David Solomon as well.

As we always do as we close, I want to thank members in the room of the Centennial Society as their contributions continue to provide the financial backbone for what we do at the Club. So thank you. And for everyone joining us in the room, enjoy your evening.

And for those online, thank you, and we'll see tomorrow. Thank you.