# UNIVERSITY OF LINCOLN

# THINKING AHEAD

*Exploring the challenges and opportunities of the 21st Century*

#C21stLab

# Contents

We would like to thank all of our contributors for sharing their time, insight and perceptions of the future and for working with us on this first stage of #C21stLab. All of the pieces included are edited versions of transcripts from interviews.

Edited by Liz Shutt and Vice Chancellor Professor Mary Stuart CBE of the University of Lincoln

# Thinking Ahead: Exploring the Challenges and Opportunities of the 21st Century

This publication is not futurist.

It is not predictive.

It is a document designed to provoke debate. **It is about now** and our lifetimes. It is about how our world is **rapidly changing** and how **disruptive and unpredictable** our lives have become and will continue to be in the foreseeable future. It is not exhaustive in its coverage of the issues and challenges we are facing, but it does draw out how different the 21st Century is proving to be from the 20th Century.

#C21stLab has been investigating different perspectives on our age and its future. In this publication the Lab articulates the challenges and opportunities for universities in our age. We believe that **first and foremost they should be for the benefit of society** and should seek to support development, inclusion and the enhancement of people's lives while respecting our planet and its diversity. The project hopes to provide a provocation for the sector to look beyond its current preoccupations to future needs that education and research should address.

Based on edited interviews with different leaders from across the globe, this first publication **does not seek to find one voice or perspective** but rather to present different views on our world, providing a starting point for what universities need to address at this time.

It is therefore the first part of a project to examine **the purpose of universities in the 21st Century.** It is a project that is desperately needed given that the sector is still relying on, at best, 20th Century thinking to shape its future.

We have deliberately drawn on different voices not usually heard in the sector. It is global in its intent as, if any nation is to address the challenges we face in our world, the solutions need to be addressed by **creative and innovative** ideas which draw on and value a **mixing of cultures and ideas.**

Bringing together diverse ideas will help us to develop better solutions. This project is also, importantly, about local and regional issues. People experience those global challenges in their locales, not in some amorphous global village which no one inhabits. It is therefore relevant to us all. It is urgent and vital and the contributions all address and set out why it is so important.

The contributions highlight how work and working patterns are evolving. They argue that the **old certainties of Western power are being challenged** and new powerhouses are emerging to challenge old authorities.

As technology changes and develops, employment and daily life are being radically reshaped, with whole categories of employment being created while others disappear. New skills are needed, but more importantly, **a greater ability to understand and embrace change** along with the ability **to adapt** and **think creatively** will be necessary.

Historically revolutionary changes in the world of work have usually taken time to take root but this process seems to be speeding up. Changes in work have usually reduced opportunities for manual work but this revolution will reformulate many middle class roles, roles that are currently filled by people - many of whom are highly educated and skilled. Change of this nature also involves **a re-thinking of our past and how we represent ourselves** and understand culture and history in order to the shape the future.

Along with the changes to work, there are many other indicators of the changed environment that the 21st Century is providing. There is of course **rapid technological change**, as well as a growing and **powerful legitimation crisis** where experts, leaders and institutions are challenged and found wanting, where global warming and **environmental degradation threaten our current way of life and the planet's ecosystems.**

Shifting economic geographies are **creating anger and frustrations in so called 'left behind places and people'** as capital has shifted from its old centre. Old beliefs and values are being re-invented and redefined, often with unexpected consequences. Global risks and rapid transmission of ideas and peoples are creating unexpected and dangerously divided communities. All of these factors mean that we need something different from our universities who will themselves be transformed or swept away.

For universities the challenge is twofold: we need to develop new forms of knowledge creation and teach new subjects, moving away from a limited first cycle only skill development model and to embrace continuous development; we also have to transform ourselves in the academy itself and re-imagine our role in society.

Fundamentally the role of the expert as a gatekeeper of knowledge is being challenged. This has significant implications for all producers; arts and culture, politics and political systems, organisational structures, and the world of work and financing, and, of course, for all forms of education but in particular higher education.

Universities have been responsible for creating the knowledge which is making our world. We now have a responsibility to find ways to support our societies to live well in this changing world. This publication is the first stage in addressing that challenge at #C21stLab.

The next phase will be the establishment of a university thought group from institutions and policy units that will work through the questions and ideas articulated by our contributors. We will then seek to produce recommendations on **the purpose of universities in the 21st Century.**

If we are to stay relevant we need to anticipate and prepare for change and work with our communities to shape and drive the 21st Century as it continues to unfold. Knowledge is no longer created in ivory towers but it is shared and developed in multiple partnerships. Universities need to engage with these different centres of knowledge. Their melting pot of research, knowledge exchange and teaching activities puts them in a unique position to provide the thinking, talent and workforce that can ride the wave of change. Not only that but, crucially, it can inform its direction to create positive outcomes for our world.

**Professor Mary Stuart CBE**
**Vice Chancellor of the University of Lincoln**

# There Needs to Be a Societal Response to Cushion the Consequences of Transition: Multiversities are One Solution

*Andy Haldane, Chief Economist and the Executive Director of Monetary Analysis and Statistics at the Bank of England*

*"We should learn the lessons of history which is that there needs to be some governmental/societal response to cushion the consequences beneath the transition, especially if this wave is as big or bigger than any of the previous ones. These are the things we need to start thinking about and doing something about now."*

*Andy Haldane is the Chief Economist and the Executive Director of Monetary Analysis and Statistics at the Bank of England. He is a member of the Bank's Monetary Policy Committee and has responsibility for research and statistics across the Bank. Andrew is an Honorary Professor at the University of Nottingham, a Visiting Fellow at Nuffield College Oxford, a member of the Economic Council of the Royal Economic Society, and a Fellow of the Academy of Social Sciences. He is the founder and a trustee of 'Pro Bono Economics', a charity which brokers economists into charitable projects and a trustee of National Numeracy. Andrew has written extensively on domestic and international monetary and financial policy issues and has published more than 150 articles and four books, including 'Fixing Financial Crises in the 21st Century,' published in 2004. In 2014, TIME magazine named him one of the 100 most influential people in the world.*

"This century has been such a rollercoaster. Going into the century we had that long upswing prior to the global financial crisis, which we economists termed the 'great moderation'. It appeared that the economy was stable, the financial system was stable, everything was going great guns. Until of course it wasn't. And then, in the 10 years since, we've seen the downswing of the rollercoaster.

"Globally the current challenge is to try to maintain and restore growth in living standards. We have seen most economies recover, but the recovery has been pretty anaemic in a number of countries so finding means of speeding up the rates of recovery in living standards remains a near-term objective for most countries around the world. On a longer fuse, looking into the middle distance, some of the bigger issues will be structural. They will be about coping with issues such as environmental and ecological damage and doing something about those problems becoming ever more acute. It will be about looking for ways to boost productivity amongst companies and therefore pay among workers as the longer-term means of securing those rises in living standards. It will also be about dealing with the consequences of the next wave of technological innovation to ensure that as many people as possible are the beneficiaries of that technological wave.

"Technology often takes longer to take root than you might expect. With the industrial revolutions of the 18th and 19th centuries, the path from idea inception to widespread diffusion as general purpose technology took at least 50, maybe 80 years. In the 20th Century it was probably more like 20 to 30 years. With the Fourth Industrial Revolution, it may be shorter still before you get the real tipping point. Nonetheless, we will still be talking decades rather than years. The rate of adoption and the intensity of use following adoption of technologies are strikingly different between those companies at the frontier and those in the long, lower tail.

"It has been clear from every wave of technological innovation historically that it delivers some significant winners. The earlier adopters are the biggest beneficiaries of those new technologies. Equally, for a period at least, it leaves behind a tail of losers. It is difficult to know for sure how the burden will fall this time.

"The thing that we can say with confidence this time around is that the casualty rate will be every bit as large as previous industrial revolutions for the very simple reason that machines will be doing a much wider range of tasks than previously. In particular they will take on cognitive tasks, affecting a wider range of jobs from across the skill and wage distribution. The part of this equation that is least certain, and this is a point of contention between the tech-optimists and the tech-pessimists, is the question of how many new jobs, jobs that we would struggle to even conceive of, will be created by this new great wave.

"What you can say with a fair degree of certainty is that the consequences of this will be far ranging, economically and socially, and will require some societal response if we are not to find ourselves with a difficult set of problems. What the past few years have taught us, especially in a world where the income pie itself isn't growing very fast, is that how that income pie is sliced up really matters to people. Even if people are absolutely better off than they have ever been, it rings pretty hollow if those same people don't feel that the fruits are being shared fairly. It builds social mistrust and discontent - and we have seen this pop out in various shapes and forms over the past decade or more. This is a pretty important lesson of history and it applies however high your living standards.

"This is why I have spoken about the need for a new wave of institutional innovation. We have had that previously. Sometimes it occurred as part of a government response, sometimes it occurred as a broader societal response, sometimes it took quite a long time to happen which meant that some of the pain was prolonged.

"We should learn the lesson of history which is that there needs to be some governmental/societal response to cushion the consequences beneath the transition, especially if this wave is as big or bigger than any of the previous ones. These are the things we need to start thinking about and doing something about now.

"As one such institution, the future university may need to be a very different creature than in the past. It may need to cater for multiple entry points along the age distribution, rather than focussing on the young. It may need to cater for multiple entry points along the skills spectrum, rather than focussing on the cognitive.

"In a world of 100 year lives and therefore 60 or 70 year or even longer careers, we will be in a world of needing to train and re-train, skill and re-skill several different times through the course of a career. This has never previously happened and it will beg the question, who is to carry out the skilling and re-skilling, who is to support it? Are we leaving this to the individual worker to fend for themselves, do we have the infrastructure necessary to support that skilling and re-skilling, and who will pay for it? That's one bundle of issues. It boils down to the changing social norm that education is something done to young people.

"We then need to look at what they might be skilling and re-skilling in. What is it that machines are likely to find hardest to replace easily, costlessly, equivalently, to humans? There is definitely something at the higher technical, higher cognitive end of the spectrum; so tasks requiring a significant degree of originality and creativity or great logical leaps of faith that are difficult to programme, even with a very adept learning algorithm. This is likely to require less narrow specialist knowledge and a greater willingness to leap across disciplinary divides in coming up with novel, creative, intuitive solutions to pre-existing problems. We should also look at tasks where there is a premium put on human interaction in various ways, shapes, and forms such as in social care or education.

"I have suggested that one response to increased complexity, plurality and uncertainty could be the development of a multiversity, rather than a university. A changed institution that is able to work across divides both to support the lifelong re-skilling of the population, as well as the issues of uneven adoption of technology in the long tail by developing further the role of technology diffusion in their work with local businesses. This would be a significant contribution towards stabilising the disruptive forces of innovation and helping to spread its benefits."

# Poised on the Edge of a Momentous Inflection Point

*Sean Cleary, Chairman of Strategic Concepts (Pty) Ltd, Executive Vice-Chair*
*of the FutureWorld Foundation and Managing Director of the Centre for Advanced Governance*

*"There is a risk of sharply increasing disparities of wealth and class, which will combine in a whole variety of ways with the developments in technological transformation now underway."*

*Sean Cleary is founder and Executive Vice-Chair of the FutureWorld Foundation, based in Zurich, which conducts research programmes on global governance needs. He is a Faculty Member of the Parmenides Foundation, which researches cognitive capability in the context of complex decision making. He had a diplomatic career in the Middle East, the United States and Namibia, and later helped facilitate the National Peace Accord in South Africa. He is Chairman of Strategic Concepts (Pty) Ltd, Managing Director of the Centre for Advanced Governance, and a Director of companies. He is a Strategic Adviser to the World Economic Forum, and Chair of the Advisory Board of the Global Economic Symposium. He is a Guest Lecturer on global corporate strategy at business schools in South Africa, the UK and the USA, and on the strategic challenges of globalisation and conflict resolution at defence colleges, universities and institutes.*
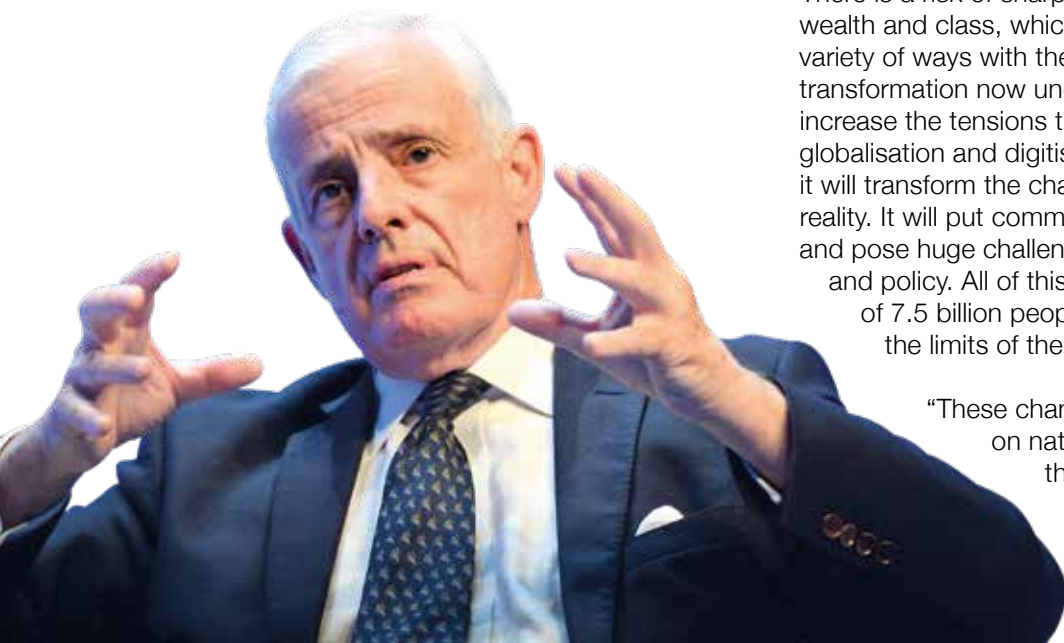
"The real challenge is that our existing systems of representative democracy don't meet the demands of the present era. We face different challenges today to those of the post-World War Two era, and our responses need to be different. There is a fundamental structural problem in that the instruments of the global polity aren't fit for purpose. They can't square the circle between a fractured global society and an integrated global economy, characterised by digital linkages, global financial systems, long value chains and social networks that have created virtual communities on a global scale. So, we need a radical redesign.

"Implicit in all of this is the fact that we could quite easily have a catastrophe. Most redesigns in history have occurred after great catastrophes; Augsburg in 1555 during the Reformation, Westphalia in 1648 after the Thirty Years War, the Congress of Vienna in 1815 after the Napoleonic wars, Versailles in 1919 after World War One and Bretton Woods and San Francisco after World War Two. It is rare for humans to redesign systems at scale without a preceding catastrophe. There is no guarantee, with everything that we can see at present, that we are necessarily going to be able to avert such a disaster. We are poised on the edge of a historical inflection point and, if our political institutions don't react more rapidly than they usually do, then the risk of catastrophe is rising.

"There is a risk of sharply increasing disparities of wealth and class, which will combine in a whole variety of ways with the developments in technological transformation now underway. Not only will this increase the tensions that we have experienced due to globalisation and digitisation over the last 20 years, but it will transform the character of humanity and social reality. It will put community at risk in a profound way and pose huge challenges to political organisations and policy. All of this is happening in a landscape of 7.5 billion people and rising, pushing against the limits of the biosphere that we inhabit.

"These changes are putting pressure on national political systems. If these systems do not improve human wellbeing, it's difficult to know what their purpose is. National governments have less control over economic circumstances than before as a result of an integrated global economy.

"National economic performance is far more driven by global economic forces, and much less susceptible to manipulation by national policy, but, to get elected, politicians still promise their voters that they can make the world a better place - and that their opponents will be a disaster. Then, when in office, they confront limits and, almost without exception, disappoint their voters.

"Meanwhile, because of rising economic inequality and geopolitical threats, global migration is becoming a more prominent feature of the landscape, threatening the sense of identity of significant portions of electorates who do not feel themselves to be global citizens. Social media have also created a sense of immediacy, while governments deliberate slowly. To address these challenges, we need to shift from purely representative democracy to the use of digital instruments to enable more direct democracy with ongoing participation by citizens.

"A century is an awfully long time, and I don't have a clue what is going to happen in the 21st Century but I think one would call the bit of it we're living in at the moment 'disruptive and transformative'. Work and education are going to see huge disruption. We've seen significant displacement of blue-collar workers as a result of system planning and robotics, and we are about to see the massive disruption of white-collar working landscapes. In accountancy, audit and law you have intelligent systems capable of doing data analytics with decent computational capability. Medicine is only one step behind this. So, the world of education will have to be transformed radically, and be made fit for purpose in a world where people will need to be highly adaptive.

"The idea that one will spend years in education and be equipped for a career for life is already complete nonsense. One will have to be capable of being reskilled, constantly adapting with new skill sets, to migrate horizontally as well as vertically, to reorient oneself to engage in something one had not thought of before. Educationalists are going to have to become vastly more flexible, and maintain the highest possible degree of curiosity. Try to learn continuously and recognise that you are going to reinvent a great deal of what you think you know, recognising that many with less experience will be more attuned to the challenges of the day.

"All violent revolutions in history have arisen because institutions were unable to adapt to rapid social and technological change. There's nothing surprising about that: institutions are social anchors with formal structures. Change is inherently dynamic, radical, nonlinear, and unpredictable. So there's nothing surprising about the fact that institutions don't keep pace with rapid change. Universities are institutions in the most profound sense and the challenge for universities - not just political institutions, or the institutions of government and business – is how to engage in radical redesign before they fracture, before they become unable to meaningfully address the profound social challenges ahead of us."

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# Embracing Change in a VUCA World

*Juergen Maier, Chief Executive of Siemens UK*

*Juergen Maier was appointed Chief Executive of Siemens UK in 2014. He has been a member of the Siemens UK Executive Board since 2008, and held senior roles within Siemens in the UK and Germany. Juergen was appointed as a Non-Executive Board Member of the Government Department for Business, Innovation and Skills in 2014, and has recently led the Made Smarter Review into Industrial Digitalisation as part of the Government's Industrial Strategy.*

*"We need to create a revolution that comes from the young people and it needs to be about a much more inclusive, open and collaborative society."*

"The 21st Century is Volatile, Uncertain, Complex, Ambiguous (VUCA), and it keeps changing. This is becoming the new norm.

"I started my career 32 years ago in Siemens as a humble Production Engineer. I worked for 10 years in manufacturing and, since then I have been a leader of various technology businesses within Siemens - anything to do with innovation and technology enablement. I had been in work for three years when the Berlin Wall came down in 1989. Europe was coming together, it was a time of collaboration and hope. To experience this optimism at such an early stage in my career was important for me and I try to hold on to that, especially at the moment. In the end, especially on our greatest challenges, we will all have to work together, despite all the things currently happening in politics.

"We need far more emphasis on collaboration. No nation can really be the ultimate leader in areas like mastering climate change or the Fourth Industrial Revolution. Britain tells a good story in saying we are the world leaders in Artificial Intelligence (AI), and there is lots of great innovation happening; but if I look at my own area of engineering, I can see many places around the world that are further ahead in terms of applying AI to industrial processes. Research and Development in the UK is good but I am not sure it's at scale enough for us to be world leaders. So, in the end the only way we can scale up is in partnership with other key players in Europe, or maybe China, or America.

"I am cautious about giving advice to younger people, because I think that you have to learn through trying and doing. One thing I do advise is to try something new every week, something that throws you out of your comfort zone and, with that brings new insights and learning. And more generally; have open ears, eyes, learn, embrace, go out, try, fail fast, be curious, network. But there is no magic formula and it is important to be an embracer and leader of change - both culturally and technologically.

"That is the approach I have tried to take in response to the Fourth Industrial Revolution. We are seeing industrial processes disrupted by a fusion of new technologies such as AI, data analytics, the industrial internet of things, and robotics. The ambition for the Made Smarter Review is to position the UK so that it can gain more value from these technology changes than we created through the Third Industrial Revolution. We left too much of that value to others.

"I believe this fourth technology revolution gives us a better opportunity to be a strong part of the race. In the previous industrial revolution, the UK didn't have high enough ambition or the right mechanisms. And the capital investments for the large scale automation that went with the Third Industrial Revolution didn't suit the UK well; Japan and Germany did this much better. Other countries such as China, Vietnam and South Korea did well through low cost labour.

"The Fourth Industrial Revolution means that we can automate, personalise, drive productivity, and be competitive without the same level of capital investment because, although these digital technologies are complicated, the cost of them is relatively low. So the technology driving this Fourth Industrial Revolution allows you to be very agile and allows a real flexibility between the human and the automated element. It is not so much about replacing the human with a robot or AI as enabling the robot or the intelligence to assist the human.

"In the Made Smarter Review we identified two key things that needed to be done to support the UK. One is to create the Intellectual Property and two is to create the new technologies - the AI platforms, codes, algorithms to create the new robotics systems and the new additive manufacturing solutions. With that, you are creating new companies that don't exist yet and hence new and exciting jobs.

"The real prize comes from adopting IP properly and at scale within industry. This will support existing companies to take advantage of all the gains that technology brings, allowing businesses to scale up and create more jobs. Many of those jobs will of course require different skills, so we have to prepare our people much better for this. In the manufacturing sector there will be very few low skilled jobs by the time we finish this Fourth Industrial Revolution. This is why skills and education are so important and that is where universities have a massive role to play.

"I wouldn't entertain the conversation around universities not being needed in the future. Have a look at the cities which are thriving in the UK and in the world and you will not find one without a university at the centre of it, because universities create the research, the intellectual property and the education. Beyond that, universities have an important role in providing a broader education, increasing the diversity of voices that are heard in society.

"These movements often start in universities. I feel I was part of a generation that created a revolution in the 1980s which, especially as a gay man, engaged me in fighting against discrimination and equal rights for all. Now we have had a decade where this younger generation has less earning power than their previous generations. That is creating unrest, but unfortunately it is the older generation that is leading the revolution and, in many cases, with very populist ideas and trying to solve new problems with old solutions.

"We need to create a revolution that comes from the young people and it needs to be about a much more inclusive, open and collaborative society. It needs to be about responsible globalisation and responsible capitalism, finding new solutions to these issues, which is not what we are currently hearing from many populist old generation leaders.

"You cannot prepare thousands of students to be leaders of large corporations or political organisations, but everyone can be a leader of their technology or of a social movement or in the community. We need to prepare this generation better and give them more confidence on how to lead and thrive in a world of VUCA.

"I went to university as a naïve kid and through university your eyes open; to the massive opportunities in business and society, but you also see the pitfalls, the risks and the challenges. For me it was a period that motivated me massively to be part of a new generation that embraced technology and changed in a modern way to create value for society. I am very much looking forward to this new generation doing the same, but from my interaction with them, they are much smarter than I ever was and they have much better technology and tools at their disposal, so hopefully they can have a much more positive impact!"

# Thinking Beyond the Linear: Technology the Great Leveller

*Dr Najam Kidwai, Managing Partner at Edge Venture Capital, serial entrepreneur, investor and venture capitalist*

> *"There is a lot of innovation that's being driven by countries like Kenya, South Africa, and Nigeria. They are developing digital models which are driven by smartphones for $20 or less."*

*Dr Najam Kidwai is a venture capitalist, entrepreneur, board director and private equity investor in technology, artificial intelligence, digital media, consumer and business internet, and digital health sectors in the USA, UK, China, and India. He is a partner at AlpView Capital and holds several Board and Advisory Board seats including 23&Me, Infomedia, Equidate, Boxed, EQUIAM, Fusion.Org and G3NiU7. He devised the online strategy for Egg.com before co-founding two companies that went on to successfully IPO – launch onto the stock market. He has previously held investment roles at Edge Venture Capital ($100M Early Stage Fund), Princeville Global ($300M Global Growth Fund) and Stanford Research International.*

"The 21st Century is hectic. The world has become a very small place. You have the ability to get anywhere in the world within 24 hours and instantaneous information is 24/7. If you're a global citizen, China wakes up, then the middle of the world wakes up, then Europe wakes up, then the US wakes up. You could find yourself never going to sleep.

"If I could give my younger self some advice it would be do what you love, be passionate, be hungry, never give up, and dream big. If you fundamentally believe in something, then go for it. A lot of the times that people tell you no, they'll tell you no because they've never done it, they've never experienced it and it's always easy to say no. It's much harder to actually fulfil your dreams.

"Taking a company public is really challenging and hard and I won't do it again. It's financially rewarding but exhausting from a compliance standpoint, from a risk standpoint and from a legal standpoint. What stands out is to have had the opportunity to have worked with some absolutely amazing people around the world, to understand different cultures, perspectives and different ways of looking at problems and doing things. The ability to inspire, lead and learn from other people has been so important. I think the biggest lesson is that if you're not learning you're not living.

> *"If you're a global citizen, China wakes up, then the middle of the world wakes up, then Europe wakes up, then the US wakes up. You could find yourself never going to sleep."*

"India and China are really driving the next wave of innovation; these are not copycat models anymore. China is becoming a cashless society; their systems are being taken across the globe. There are billions of people who are unbanked in the world; solutions are now being built for people that provide access to mobile money eco-systems like Alipay - a mobile payment system affiliated to Alibaba that now has more than 700 million users.

"In India companies are being created around consumer internet, payments, mobile commerce, and SAS (software as a service). In South East Asia the economy is being driven by non-legacy systems. They don't have laptops, everything went to smartphone. The next generation of growth will also come from Africa. There is a lot of innovation that's being driven by countries like Kenya, South Africa, and Nigeria. They are developing digital models which are driven by smartphones for $20 or less.

"In the 21st Century, technology is a leveller for everyone. Smartphones mean that everyone is smart in the room. It gives people access to information which may in the past have been controlled; the more inputs you have the better informed decisions you can make. There are a lot of things that you can do to educate based on this device; you can give farmers weather information, you can give them pricing information. It's a leveller because it makes that information readily available, you're not hiding it. What makes you smart now is whether you are able to ask the right questions.

"I co-founded a company called G3NiU7 focussing on early years' education, particularly around the ages of three to seven, when you are forming your personality. It's when your cognitive learning is at its peak, you're like a sponge, you absorb everything. We focus on getting children to develop a love for learning. Factual learning will come but if you don't have a love or curiosity from a really young age, it becomes very hard to meaningfully contribute to society because you won't know the questions to ask.

"The future leaders of the world have to be able to ask the right questions. We did a lot of research, we spoke to a lot of graduates that went to Cambridge, Yale, and LSE and we asked them: what made you smart, were you a prodigy? Most of them said no, our parents gave us exposure, they took us to museums and art galleries. We just tried a lot of things until we found the things that we liked.

"Education in the last 200 years has been very linear and boring. Fundamentally it hasn't changed since the industrial revolution. I think a lot of teachers don't understand how to get the best out of their students. You have a generation of teachers who are still very linear in their thinking and not global in their outlook and that's a weakness.

"There is a big question of how relevant universities in the traditional sense will be in the 21st Century. The fundamentals of what a university is won't change, it's more about the substance; the courses that you are offering and how relevant those skills are. Are universities doing block chain courses, crypto currency courses, are they doing stuff around biomedicine, and the internet of things?

"When we were kids, we learnt the ABC, today all children need to learn coding. You need to understand software and coding and how that works because software is now ingrained in everything we do. Traditional learning is sort of dead, and it's more about how do you deal with situations and how do you deal with certain environments, how do you work collectively? Teamwork is a lot more important, global collaboration is a lot more important. Universities need to be the bridge to bring likeminded people together, to share the best experiences from the world.

"This is just the beginning. For the next generation of students and universities we will see much more focus on technology and collaboration between all stakeholders going forward."

# Making Global Links in a Collaborative Economy

*Lake Dai, Partner at LDV Partners, Adjunct Professor at Carnegie Mellon University and co-founder of Shinect*

*For 20 years Lake Dai has led product and engineering teams globally at Alibaba, Apple, Yahoo! and for start-ups. She is a recognised expert in search engine, ad platform, marketplace analytics, mobile platforms, and applications. She holds seven USA patents in search algorithm, search tokenization, mobile data analytics, and mobile monetisation. In China, Lake was employee #84 at Alibaba, launching the first generation of profitable marketplace and travel products. At Yahoo! China, her team launched the first generation of web and vertical search products, tripling Yahoo!'s market share within one quarter. As Adjunct Professor at Carnegie Mellon University, she teaches artifical intelligence, blockchain, and product management courses at Master's level. She is a co-founder of Shinect, a non-profit acceleration program connecting Silicon Valley's entrepreneurs to China. She mentors start-ups at various incubators, and is on the Advisory Board of Women In Technology International (WITI).*

*"It is much more common for corporations and start-ups to have a global reach of contributors from different backgrounds, working from home, with flexible schedules. There are many new opportunities to explore in this collaborative global economy."*

"My first job was at Apple when Steve Jobs had just returned as the interim CEO. I was one of the first 15 employees in Apple China, bringing new products such as iMac G3 to market. In the late 1990s, China was just introduced to the internet. While I was working at Apple, I started a chatroom and blogs in the evenings which became very successful in a short period of time. It started as a hobby but soon I realized how the internet could change everyone's lives, not only in how people communicate but how they connect and work with each other.

"My family and friends thought I was crazy when I decided to join Alibaba, a small start-up at the time, and move from Beijing to Hangzhou. I was really fascinated by Alibaba's vision and mission. In the late 1990s China was one of the largest manufacturing countries in the world. Many small businesses manufacturing small little things like buttons and candles were facing a great challenge of finding buyers. The trade agents were able to take advantage of the businesses and charged up to 50% of the sales price as commission. It was very hard to survive and be successful as a small business. That's why Alibaba's mission was, and still is, to build the best platform and products to help them.

"When I joined Alibaba, Jack Ma asked if I wanted to manage the marketing initiatives but I chose to be a product manager who builds products. I didn't have any technical background but I asked for three months to teach myself. The internet was new for everyone, right? I thought if the engineers are learning new technologies, so can I. Jack is very open minded and encouraged me. In six months I was head of the Alibaba product team in China. Today my products still generate over $1B yuan revenue for Alibaba annually. I have never

*"When I joined Alibaba, Jack Ma asked if I wanted to manage the marketing initiatives but I chose to be a product manager who builds products. I didn't have any technical background but I asked for three months to teach myself. The internet was new for everyone, right?"*

felt limited by my academic background or past experiences. The world is changing so quickly, if you don't continue to learn then you will be left behind.

"I would use the word acceleration to describe the 21st Century. We have observed how technology accelerated economic and social changes, for example, with the internet and then the smartphone. In some regions in India, China, and Africa the young people skipped desktop and went directly to mobile. With voice command you could have a generation that doesn't type. The changes we are seeing not only affect how we live, but also the types of jobs people have. In the 1930s, rickshaws were the primary 'fast' commuting method to get around in China. In the 1940s the rickshaw workers went on strikes when cars became popular. They protested and blamed the new technology for taking jobs from them. But soon they realized that they could be manufacturer workers, technicians, or a chauffeur. You can see the similarity today in the concerns that artificial intelligence will replace jobs. For example, there has never been so much information and so much unstructured data available. The data needs to be normalised, annotated, and interpreted. Who's going to do this? Who is going to train the machines? So a new type of job is created. It is everyone's role as an educator, as a technology leader, as a policy maker, and as a technology investor to share the prediction of possible job opportunities, and to contribute ideas and resources to help people building capabilities to prepare for the changes.

"In universities we need to focus on transferring knowledge and skills as well as helping students to build the capabilities to adapt in this fast-changing environment. We also need to connect students to real-world problems and solutions through deeper collaborations with industry. After four years at college we expect the students to be work-ready. However, we have more work to do to prepare students for the transition.

"Collaboration is critical. Think about how cars today are made of components from different vendors in places all around the world. Content and knowledge are the same.

"Wikipedia is built and maintained by people from across the globe. Open source software is open to developers who use it to build applications serving people all over the world. The online education platform Coursera is breaking courses into smaller pieces that users from all over the world can access to learn specific knowledge and skills without going through school admissions. The Coursera contributors are based globally.

"Educators need to think about how to bring all of this collaborative information and knowledge together, and how to work with different thinkers from different backgrounds. This mirrors the trend in the business world - it is much more common for corporations and start-ups to have a global reach of contributors from different backgrounds, working from home, with flexible schedules. There are many new opportunities to explore in this collaborative global economy."

# The Funding is There for Those who Can Create, Connect and Continuously Learn

*Asar Mashkoor, Managing Director and Head of Corporate Finance at Emirates NBD Capital Ltd*

*"You have to have the ability to move around markets, industries, and potentially geographies to be able to keep reinventing yourself, because no one country will remain a big market for the entirety of one's career"*

*Asar Mashkoor is the Managing Director of Investment Banking at Emirates NBD Capital, the investment banking arm of Emirates NBD Ltd, one of the largest banks in the Middle East. Asar has worked in investment banking since 1998 after an early change in professions following his degree in information systems engineering at Imperial College London and qualifying as a Chartered Accountant (ICAEW). He has worked in numerous locations around the world including Japan, Hong Kong, Qatar and the UAE.*

"My father worked in the same job for almost 40 years and then retired. When I was graduating and applying for my first job that paradigm had already shifted. There wasn't a nine to five stable lifelong job with a defined benefit pension scheme at the end. That was very much over in the 1990s. I've had to change multiple jobs, move countries and be much nimbler in how I've built and navigated my career. I found myself at crossroads in my career many times - when the Russian financial crisis happened and when the Asian financial crisis happened, when the dot.com crisis happened, when the 2007 global financial crisis happened, and when the Dubai financial crisis happened. Each time it has been my track record, reputation and relationships with people that either have made me secure in where I was, or given me the ability to move to somewhere secure. So personal brand equity is very important.

"I have learned how to carry on working and carving out a career despite these disruptive world economic events and, to a certain extent, I think that is what we all need the ability to do in the 21st Century. The level of disruption in the 21st Century is a greater order of magnitude in my opinion, the frequency and amplitude of change intensifying with each turn. Employers have access to global markets and pools of labour. Technology enables better communication and collaboration. English is the common standard of communication, which levels the labour playing field. There

*"The level of disruption in the 21st Century is a greater order of magnitude in my opinion. The frequency and amplitude of change intensifying with each turn."*

is the gig economy and rapid technological change. All of this means that you are no better off sitting in the UK or in the US compared to India, Thailand or the Philippines. That is not to say that connections don't matter and it is still the case that if you come from a more privileged family then you are more likely to have a privileged life. But today I think you've got more chance of breaking through class and geographic barriers than you ever have before.

"Today it is possible to come out of Mumbai and "LinkedIn connect" with somebody in Silicon Valley to pitch an idea. If that idea is good, there is capital there to fund your ticket out. Capital is not scarce anymore, money chasing investable ideas has gone up tremendously. More money is going in to research and development, more money is going in to moon-shot ideas. Today, if you have a good idea and you want to get funding for that, whether it's debt or equity, then you're much more able to raise capital than at any time in history.

"A lot of industries are seeing disruption and there is a significant level of automation with artificial intelligence replacing human touch and talent. This is what worries me. Large near-term disruption could occur in transportation and logistics, manufacturing, basic services etc. This will lead to large scale unemployment globally. This has an impact for the next generation and also for the working generation. For example, if I have a nest egg which is equities and real estate rental income, then who will be renting these properties in future? What will be the stock valuations in that new world order?

"In my own industry, new developments such as crowdfunding and artificial intelligence replacing human risk or credit risk assessment are still quite marginal. Crowdfunding became a big thing two or three years ago and there was a lot of publicity about it, people invested in it, some people lost a lot of money; but it constitutes a tiny proportion of total loans. Now we hear that banking will get decimated, cryptocurrency will take over, central banks will get decimated - this is a new world order. But it is all based on trust and I don't think consumer trust is there to start putting all their wealth in Bitcoin or any other cryptocurrency and the size of the crowdfunding market is dwarfed by the size of conventional lending.

"These FinTech initiatives will have a place but it's not going to replace the global financial system, not anytime soon. Also, the financial industry is very regulated, governments need to know who is conducting what transaction. There are money laundering, "know your customer" etc. rules so you get governments intervening heavily, which will restrict growth in alternative financial sectors, at least in the short-term.

"So how do you carve your own path in the 21st Century? The access to information, opportunity, people, connectivity and capital is unprecedented. But at the same time so is the competition and there is a large but undefined threat from technology/AI. It is not going to be good enough to be a good student. It is about who is street-smart, who is hungry, who can connect with people, who can come up with ideas and be flexible.

"You have to have the ability to move around markets, industries, and potentially geographies to be able to keep reinventing yourself, because no one country will remain a big market for the entirety of one's career. Regardless of what the degree course is, there needs to be a core level of technical and softer skills that all graduates have; the kind of things that mean you will have a basic grasp of how the world works. I don't think it is fair for students to graduate with a degree in Art or History without having a basic set of maths skills, or global trade knowledge, or law, or even ethics. In addition, training in how to be internet savvy (on-line profile, manners etc.) is very important.

"Students today should realise that whatever you leave university with, it is likely to become obsolete and new challenges will arise on a regular basis. So universities also need to change, they need to be more focussed on creating relevant graduates for the 21st Century which includes core technical skills (maths, IT etc.) and soft skills (collaboration, multi-disciplinary knowledge, self-profile management etc.) as well as enabling and providing a platform for continuous, lifelong learning. This probably means that we need a cheaper model that is accessible for people throughout their lives and also a model where graduates can contribute from their experience out in the world creating a continuous learning loop. Life is more collaborative and less siloed now and universities should be too."

*"If we are to stay relevant we need to anticipate and prepare for change and work with our communities to shape and drive the 21st Century as it continues to unfold. Knowledge is no longer created in ivory towers but it is shared and developed in multiple partnerships. Universities need to engage with these different centres of knowledge. Their melting pot of research, knowledge exchange and teaching activities puts them in a unique position to provide the thinking, talent and workforce that can ride the wave of change. Not only that but, crucially, it can inform its direction to create positive outcomes for our world."*

*Professor Mary Stuart CBE*
*Vice Chancellor of the University of Lincoln*

# Seeking Depth in a Fast-moving Environment and Creating Space for Dialogue

*Hilary Carty, Director of the Clore Leadership Programme*

*Hilary Carty was appointed Director of the Clore Leadership Programme, the foremost provider of leadership development for the arts and culture sector, in September 2017. She started her career in the performing arts, specialising in dance and becoming General Manager of the Adzido Dance Company, before being appointed as Director of Dance for Arts Council England. Following this she was appointed to senior roles in policy development in the Arts Council and contributed to the formation of the cultural programme of the 2012 London Olympic Games. She is well known for her period as Director of the £22 million government-funded Cultural Leadership Programme between 2006 and 2011. She has also run her own leadership development consultancy, working with a range of arts and cultural organisations both nationally and overseas.*

"The 21st Century is ambiguous and complex. Nothing stays fixed for long. Almost everything is negotiable and many of the old norms are now up for grabs. The 'things we know' are all shifting so quickly that you can't quite keep up. So it is helpful to get yourself into a 'ready' state rather than a 'steady' state - you have to be ready for anything and everything.

"I think one role of culture in any environment is to ask questions - to explore, to probe, to stimulate and to reflect. Culture makes us look at our society, at our world, and drill down into what it is, how it is, why it is, and what it could be. Culture asks us to consider what we think and feel about what is going on in our world. Culture quite subtly puts an element of society under the microscope and says: what do you think about that? It stimulates new thoughts, new ways of being and seeing. Developing creative minds is fundamental to any society. In other parts of Europe, where cultural education appears much more embedded, it is part of becoming an informed citizen. We need individuals who can create, innovate, test, iterate, and work in the world of ideas; and yet we strip their experience of origination and creativity out of the curriculum. Why?

"In my view culture is used to dealing with the new, so change in itself is not necessarily a challenge. But the pace at which society is moving, the pace at which technology is moving, the pace at which we are required to think, act, and respond - in very short periods of time - is a significant challenge for culture, and for all of us. There can be insufficient time for looking in-depth, because you are constantly onto the 'next thing'. But culture needs to straddle both working in depth and innovating the new - how do we balance those requirements? How do we slow things down so that we can answer the big, deep, long-term questions when everything around us is pushing the button to 'move on'?

*"Culture quite subtly puts an element of society under the microscope and says: what do you think about that? It stimulates new thoughts, new ways of being and seeing."*

"When you cannot trust society's infrastructure, or society's norms, you find your own trust networks in a community of interest. On the one hand that can be a good thing – because you are connecting with a set of like-minded people and, in doing so, you can challenge the orthodoxy. Art does that, culture does that, so the fact of challenging the orthodoxy is not, in itself, problematic. What does concern me though is how we can ensure that these communities of interest are informed, unbiased, and sufficiently independent to genuinely illuminate different perspectives. The danger is that you might end up talking only to groups of people who think like you and do like you – so the impact is that of narrowing rather than broadening your gaze.

"Arts and culture can contribute by creating spaces to review, to question, and to explore. Culture can help us to reaffirm our values and perspectives by posing questions and interrogating issues in a space where you can legitimately explore differences of opinion. When you have an idea and you discuss it with a different group of people, your idea and your focus sharpens. When things are successful they are often formed from a broad set of ideas being tested, challenged, and explored. So, you want diversity at the earliest point to just conjure with those ideas. The case for diversity isn't just about representation, it's also about creative origination.

"One of the big challenges for leaders in arts and culture today is about being in the public gaze. When everything that you do is on twitter/social media, it can make you very cautious. It can feel like leading in a fishbowl and that can dampen courage, risk-taking, and innovation. In the 21st Century we are very quick to highlight mistakes, in sometimes very cruel ways. It is absolutely detrimental to risk-taking and experimentation because you are conscious that a mistake could go viral at any point. This is a real challenge because leadership is about having a vision and driving it forward and to do that you have to take some risks.

"One of the roles of universities can be to teach us how to learn, how to discern, and how to apply the knowledge we are gaining at the click of a button. The focus is moving, or has moved, from transmitting knowledge to transmitting what to do with data - how to stack things up so you can form an opinion and then credibly assert that opinion, so that you can discuss and dispute with someone who has a different set of beliefs, have a robust exchange of views, with maturity and mutual respect. Universities are well placed to do that because they are places where you can take your knowledge and turn it upside down, inside out, and backwards. They are great environments for asking 'how do I know?'. I would love for universities to really revel in that space."

# Working Across Boundaries and Embracing Difference: There is a Duty for Collective Action

*Lord Victor Adebowale CBE, Chancellor of the University of Lincoln and Chief Executive of Turning Point*

*Lord Victor Adebowale CBE is Chief Executive of Turning Point, one of the UK's leading health and social care social enterprises. He was previously Chief Executive of Centrepoint, the national youth homelessness charity. He was appointed a Cross Bench Peer in the House of Lords in 2001 and is on the Board of NHS England. Victor has been involved in a number of independent commissions advising governments on mental health, learning disabilities, the role of the voluntary sector, policing and stop and search, policing and mental health, housing policy, the future of public services and employment/skills, and race and equalities. He has been Chancellor of the University of Lincoln since 2008 and is also a Visiting Professor as well as being*

*a member of the Court of Governors of the London School of Economics. His interest in collaboration and whole system leadership has led to a number of additional roles including as Director of IOCOM, a tech company that has developed a video conferencing collaboration tool, and Chair of Collaborate CIC, a think and do tank aiming to support collaboration across public services.*

"It is an amazing thing to me that we still have 80,000 kids in care at any one time, 6,000 that leave care and yet move from care to prison, mental health, destitution in some form or another, and we need to do something about that. We can now do things that we couldn't even dream of but we are still a long way from reversing the inverse care law, meaning that those most in need of good medical care have least access to it.

"If you are in an organisation like Turning Point, the biggest concern is that you are only as good as your last transaction with a client; and we have tens of thousands of them. Nothing is as good as the ability of a front-line worker to empathise, engage professional support, and obtain an outcome on behalf of a client. It is very clear to me that the reputation of Turning Point, my reputation, and the reputation of every single person in this business resides on the shoulders of what's happening miles away.

*"...we are still a long way from reversing the inverse care law, meaning that those most in need of good medical care have least access to it."*

"All senior leaders in public service need to operate as system leaders and engage externally. They need to be able understand other organisations and sectors, and learn on behalf of the system. They need to be able to lead teams and build confidence in the process of leadership. When I first became Chief Executive of the Alcohol Recovery Project in my late 20s, I realised that there is a difference between leadership and management and that the more complex an organisation is, and the bigger it is, the more it relies on leadership as opposed to management.

"There is a lot of evidence that diversity of thought produces success, particularly in complex situations. So race and gender, sexuality, they all encourage diversity of thought. You know it is not my skin colour that is the issue; it is what it has brought to me, experiences that I can share to create value. In a world that is more complicated and inevitably more multi-cultural and multi-variant, the ability to think collectively as a result of difference is vital. I have always been struck by people who rail against the multi-cultural society. I respond to them by saying, go to your kitchen and make yourself a cup of coffee with milk in it, then try not to mix it. You can't say that multi-culturalism doesn't work because the coffee is already made, not just in this country but everywhere.

"The 21st Century is disruptive. Politics and institutions are increasingly unstable. This is largely influenced and supported by technology as a means to create a movement driven by a sense of unease between the 'haves' and 'have-nots' of power and money. The balance is shifting from markets to morality. It is all visible now, it holds people to account and millennials know this. Social enterprise is the future of business, the future of commerce. It is not anti-wealth or creationist for the individual or society, it's just balanced with the need for other things like environmental sustainability and social value. Social enterprise is increasingly becoming a fast growth area. Young people want to work for social enterprises, they employ more women, they employ more BME people, they operate in the poorest areas, and appear to be having an impact on their local GDP.

"At the same time we are seeing this atomisation of information which means that people can surround themselves with particles of information in support of their particular world view – whatever that might be. So the more people that are educated the better. It doesn't matter what they study, the fundamental question is how do we encourage young people to think and, more to the point, how do we recognise those young people that are able to think differently, because that is what we need. We need original thinkers. It doesn't matter what the field is, creativity is going to be valued over almost anything in every field.

"This is obviously an important role for universities. It is not just about filling heads with knowledge, they need to teach individuals to think critically. It is inexcusable for someone to leave university with a first class degree in physics but not know anything about the society in which they will be applying it. Universities also need to help students develop the emotional tools to cope with stressful situations and build self-esteem. And they need to support students to build networks and know how to use them. A big challenge for future graduates is the increasing importance of networks which are creating a rigid social barrier. Universities need to make up for this by using their own networks to make sure their graduates are connected.

"The technology that is being developed in the 21st Century is going to drive out objective driven management because a machine can do that, but at the same time it's going to demand better judgement. As engines of the future, universities have to be system leaders themselves to drive this, not just through their research and graduates, but through their role in wider society. It isn't just a case of pushing out papers, they need to challenge thinking in creative ways and pose questions to society both locally and nationally. Gone are the days when universities can exist within a kind of island; I think there is a duty for collective action."

# Our Heritage is One of Repeated Patterns: We Need a New Global Vision

*Diane Lees CBE, Director-General of the Imperial War Museums*

*"If you look at some of the conflicts in the Middle East it has become asymmetric. It has become about militias or religious groups or factions who actually start to fight the state and it is being funded by diaspora all over the world."*

*Diane Lees CBE is Director-General of the Imperial War Museums, and the cultural lead for the centenary of the First World War. She serves as Vice-President of the American Air Museum in Britain, is a member of the Women Leaders in Museums Network, and sits on the Arts Council's external advice panel. She also holds a variety of trustee roles in the museum sector. Before joining Imperial War Museums, Diane was Director of the V&A Museum of Childhood and chaired the V&A's UK Steering Group. Diane began her career as an historic buildings researcher and then moved into exhibitions, education, and interpretation. She has worked on some of the most challenging and exciting projects in the UK, including the rescue and relocation of a hat block manufacturer's workshop in central Manchester, the recovery and display of the Mary Rose flagship in Portsmouth Harbour, and redisplay of the Nelson Galleries at the Royal Naval Museum. Diane has recently taken up the role of Chair for the University of Lincoln's Board of Governors, having been an independent member of the Board since August 2014.*

"The globalised communities that we see today in Europe have emerged from a diaspora that travelled and relocated as a result of empire. After the Second World War anyone with a Commonwealth passport was free to travel to the UK for example. If you look at France's relationship with North Africa, if you look at Germany's with South Africa, if you look at all of those nations that had empires, it is the same. The movement of populations and ideas has been hugely advantageous in many ways but our systems haven't caught up with how things have changed.

"Ideas aren't restricted by borders and we have created a global stage for conflict. Factions and groups work across countries and can be more powerful than states. If you look at some of the conflicts in the Middle East it has become asymmetric. It has become about militias or religious groups or factions who actually start to fight the state and it is being funded by diaspora all over the world. So this leads to different approaches beyond the state, for example watching financial transactions and tracking the money, where it comes from and where it goes. It is not state bound. These asymmetric conflicts will go on for a lot longer with a lot more civilian deaths. War is no longer about armed forces on a battlefield face-to-face, trained to kill each other. It's about ordinary people having their complete lives and communities destroyed.

"And yet state policy is still largely the same as it was in the Empire, which is that you put big footprints all over it and the problem goes away. Well it might go away but it comes back as something much more adaptive. It is a bit like resistance to antibiotics; these things do not go away. If you look at 20th Century history, you can see (approximately) a 45-year cycle on the resurgence of the same issue in a different way. So, all state policy is doing is trying to stamp it out in the short-term with what they know, rather than looking for new solutions beyond boundaries.

"There is nobody who is looking back and saying, 'these were the lessons that we learnt' or 'could we do it differently?'

They are reinventing the same thing in most state systems. Of course there are some people who are thinking differently, but they are mostly peripheral to state policy. Even if you look at the work that is about stimulating local resistance it is just a development of what happened in the Second World War. Today they can make use of social media to get the message out there but radios were used in the Second World War in a similar way. It is not a fundamentally different conversation. I think there is a lack of a global vision, and that global vision is really difficult to crack because of the multiple identities in it.

"I am puzzled that we don't co-exist better, despite having been on the planet for many centuries. I know identities are multiple and fractured across cultures and groups but I'm puzzled that given all the advantages of technology, and given all the medical research, given the fact we're living longer, despite all the good things, we continue to kill and mistreat each other. I don't understand why, given the fact we are all exposed to different ways of living, that we still think that behaving badly is appropriate.

"We are coming to the end of the First World War centenary commemorations and I've been reflecting on what the legacy of it is. I think the biggest shift has been our ability to tell the wider story and add depth by highlighting different issues in our remembering than in previous times. We have been able to achieve an understanding that when the country went to war, its Empire went to war. When we surveyed the Great British public at the beginning of 2014 they had no idea that there was anybody other than British 'Tommies' in the First World War. Through the commemorations we have managed to reveal a huge number of what we call hidden histories. It has really said to people who think that the global world is new that it is not and it has a long history.

"The work that the Imperial War Museum has done to reconnect globally has been hugely important. Just to be able to say 'we were together, we are together, this is our shared history,' has been really important in this unsettled world.

"We've had projects working in the Middle East, such as the women's project in Iraq as part of the centenary. These things help to get history embedded in the renewal of cultural identity in post-conflict countries. The

international impact of that soft power is very local. We are not doing massive geo-politics; it is very community based.

How can museums and cultural institutions stay current and connected in the 21st Century? I think there is a shared endeavour with universities and museums to grow intellectual curiosity. We have to understand who our audiences are. It is very simple to say 'deliver to your audience', but that doesn't mean that you don't stretch the audience, it doesn't mean that you don't challenge the audience.

"Engagement and working with audiences should be a university's core purpose for their students and beyond that for society. If you connect that up with research impact you can really see how this might just help to change the world. I think we can jointly influence both social and economic change, both within local communities and across the world. Universities have a lot to offer towards generating a new conversation and a new way of working in a globalised world with multiple, fractured identities."

*"The globalised communities that we see today in Europe have emerged from a diaspora that travelled and relocated as a result of empire."*

# Filling the Leadership Void

*Daryl Dixon, Executive Chairman of Dixon Advisory*

*Daryl Dixon is the Executive Chairman of Dixon Advisory. For 25 years Daryl has been one of Australia's foremost experts in the areas of tax, superannuation (including public sector superannuation), social security, and investments. Before establishing his own consulting firm, Daryl worked for the International Monetary Fund, and in the Australian Treasury, Department of Finance, and as Head of the former Social Welfare Policy Secretariat on major policy issues.*
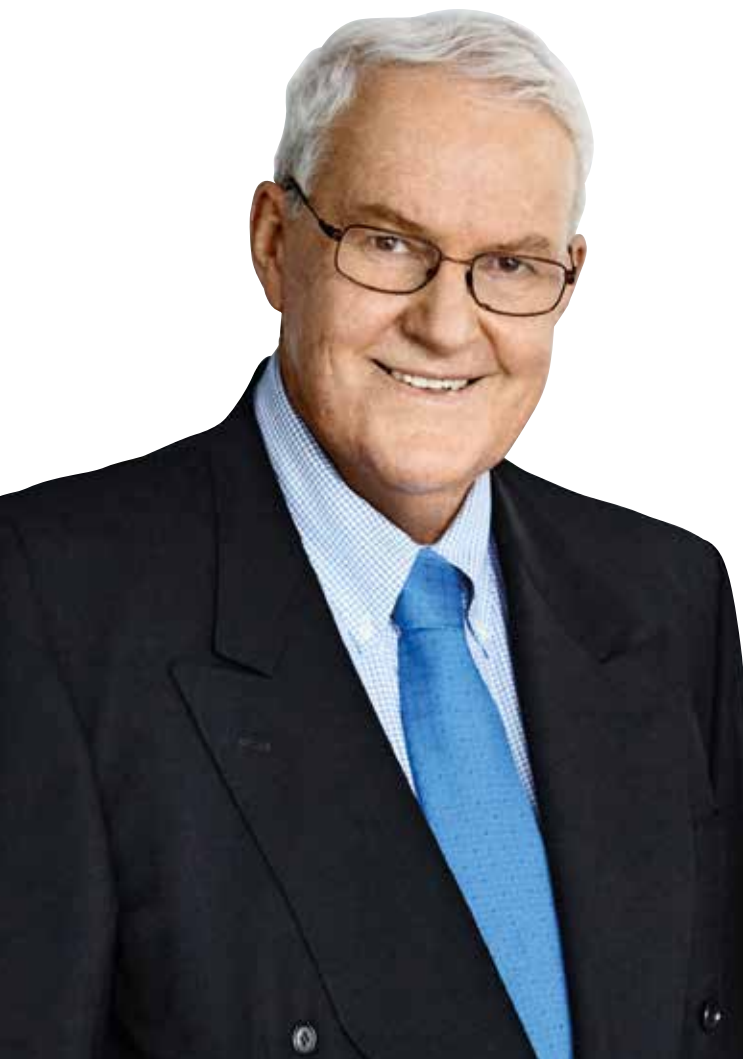
*He has worked as a consultant for a variety of government bodies as well as public, private and not-for-profit sections of the economy. He writes regularly for The Canberra Times and The Sun Herald. He has written several books, including 'Secure Your Superannuation Future' (2012) and 'An Uncertain Future' (2013).*

"I would describe the 21st Century as 'lacking leadership'. Basically, it is very difficult to get anybody to really say what needs to be done. This is the issue. I think in many ways there is a lack of understanding by the people who should be leading this country and your country.

"I was an academic briefly after getting a good degree. As a disciple of Keynes at Cambridge in the mid 1960s, I was always interested in investments and that fitted well with the Keynesian model. Thanks to Joan Robinson and other dons attending undergraduate Political Economy Society meetings, Cambridge set me on the path of being an academic briefly and then as an international and Australian public servant specialising in tax policy and then subsequently social policy. In 1986 the then Treasurer, Paul Keating, subsequently Prime Minister, sacked me. He was upset with my advice that one of his major superannuation changes would not work. When it did not, he blamed me.

"This is how I ended up in the private sector specialising in retirement strategies and investments. I wasn't

> *"I would describe the 21st Century as 'lacking leadership'. Basically, it is very difficult to get anybody to really say what needs to be done. This is the issue."*

> *"The 21st Century system has too many people who do not focus on 'this is what we should do' and 'how can we afford that?'"*

really loved in the bureaucracy because I wanted to achieve results and make sensible changes. Unlike a lot of bureaucrats who abhor change and have fixed positions on issues, I did not start from a fixed position and was open to ideas and alternative points of views. This could be why our firm, now with more than 600 employees, has flourished in the private sector.

"One of the troubles with governments is a lot of them facing real problems find it difficult to make hard decisions and implement them. In the past governments tended to be more responsible. During the Second World War there was a huge effort to make sure that problems were dealt with and funded efficiently and there was investment in things like national insurance. The 21st Century system has too many people who do not focus on 'this is what we should do' and 'how can we afford that?' The prevalence of short-termism is shocking.

"At the current time I have been lobbying the Treasurer of Australia to make some changes that protect the revenue but still improve how people get their entitlements. The bureaucrats are resisting even examining the options, saying they and the ministers have too much on their plates. There is a reluctance to even understand the issues. It's very hard. In many cases the bureaucrats don't even understand the impact of their own legislation; the system has become too complicated for the ordinary person to understand.

"As a country the challenge is to improve the standard of living for the workers. If labour income isn't rising but the costs of supporting an ageing population are, we need a mechanism to equitably share in the growth of the country, and an efficient tax system. Essentially the government must be involved when you are looking at improving the quality of life for people with reduced bargaining power. It really does have to be about what they get from government.

"The work in Australia of Ronald Henderson on the poverty line, measuring poverty in terms of the income relative to essential living costs, provides some hope for the future. Henderson's proposal is for a guaranteed minimum income scheme for Australia, essentially a universal basic income. A couple of countries like Finland and Switzerland are experimenting with trials. My assessment, based on some research that I funded, is that by getting rid of tax thresholds and low marginal tax rates it would be possible to improve the welfare system's means tests tax and achieve a broad-based income support system. The biggest obstacle is the opposition from a large sector of the population who do not favour handouts for all.

"The challenge for universities is to make sure people are properly informed and understand what all the conflicting issues are. It is unrealistic to assume that governments or private firms always act in the best interests of the country. I am a believer in a stretching education. Marx and Ricardo focused on two factors of production, capital and labour. Sraffa in 'Production of Commodities by Means of Commodities', extended this to multiple factors of production. Today the horizons of how the economy operates and how incomes are shared have been broadened further.

"It is about opening the horizon for people, that's where I see the universities. Where else are you going to get it? You're not going to get it from the press. In Australia newspapers and journals are really struggling and they can't afford to have people researching topics. So it is down to universities to spread ideas, concepts and get information out there. But there are very few academics focussing on that. Even some well-funded and internationally famous Australian mathematicians do very little to encourage the study and teaching of mathematics. They could highlight the possible financial benefits of being able to create algorithms. They could use the example of a resident in my street who sold an algorithm to Visa and does not need to work again.

"It really is the role of universities to be wise and have the ability and desire to step up and identify the huge issues and to want to help shape society. Who else is going to do it? I don't think the politicians are."

# Look Up and Out: UK University Leaders Need to Fly to Shenzhen

*Libby Hackett, Partner at Perrett Laver*

*"When leadership comes under pressure it often turns inwards. To me, it feels like that is what the UK is currently experiencing on a national scale."*

*Libby Hackett is a Senior Partner at Perrett Laver, a global executive search and consultancy firm. She is based in the Sydney office with leadership responsibilities across the Global Higher Education Practice. She also helped to establish and build the schools and not-for-profit practices in Sydney. Prior to joining Perrett Laver, Libby was the Founding Chief Executive of the University Alliance in the UK, and Director of Research for the Russell Group before that. She has held senior roles in the UK government and parliament, and helped establish the university think tank Higher Education Policy Institute. Libby studied PPE at Keble College, Oxford.*

*"The majority of Australians would see Australia as being a part of the Asian Century - they are excited about this and keen to be part of it. This feels noticeably different from the UK where, in the most part, there is much less awareness of this global economic shift."*

"Australia often brands itself as a launch pad to the wider Asia-Pacific market in order to attract inward investment. When we attract leading talent to Australia, the regional context is often a key part of the attraction. The majority of Australians would see Australia as being a part of the Asian Century – they are excited about this and keen to be part of it. This feels noticeably different from the UK where, in the most part, there is much less awareness of this global economic shift. There is a level of underlying cultural awareness – and an excitement about the future - that feels very different over here.

"The Australian economy wasn't really affected by the global financial crisis – not compared to the UK at least. The mining boom kept things going and there is a noticeable spring in people's step over here. The economic growth is a little concentrated but everywhere you look in Sydney, Melbourne, or Brisbane, for example, you see nothing but cranes, new buildings, and investment taking place. The New South Wales State Government, for example, has never been so wealthy; reporting $4-$5 billion surplus in the last two years. The investment in physical and virtual infrastructure that flows from this is tangible. Australia has always been a very 'can do', entrepreneurial country but now that the standard of living has been consistently rising for a couple of decades – particularly for those in the boom cities – there is a sense of confidence and place in the world that builds a strong sense of identity and belonging. Much of what is underpinning this economic growth is the deep and increasing interconnectedness with Asia-Pacific markets, rather than the old world.

"By comparison, the UK is perceived – fairly or not – to be pulling down the shutters, which is of course, much less attractive to international talent. If you put barriers around you, you don't get to hear new perspectives and to work with people who can think differently - those who can completely change the debate. In mainland China, Hong Kong, and Singapore, they are very intentional about sending their best young talent out to the USA, Australia or UK for 5-10 years, not just to study for a PhD but to undertake their early research career there. It is a very intentional policy to diversify their talent pool and then they offer incredible incentives to entice them back. The UK needs to find ways to look up and look

out as a nation – not just a few leading academics and business leaders – otherwise it will be left behind.

"The pace at which we are losing long-standing social norms, losing respect for our institutions and democratic processes in the 21st Century, the things that have provided stability in the world for many decades, feels chaotic. They are all up for grabs, they are all being challenged and I personally see a world that is increasingly destabilised. I think many individuals are quite lost within it. It is increasingly polarised between the 'haves' that want to maintain economic, political, and social stability, and the 'have nots' who have zero regard for any sort of established order or authority. They want anything other than the status quo.

"It is not just polarisation, it is the micro-distribution of community, voices, and engagement. The challenge for modern government is how to create coherent national policies in that environment. Our leaders have to be the ones that bring the bigger narratives into their organisations; they have to be the ones looking upwards and outwards. When leadership comes under pressure it often turns inwards. To me, it feels like that is what the UK is currently experiencing on a national scale.

"Complexity is a huge challenge. Universities are massively complex operations. They are balancing business objectives and public accountability with an inherent mission to create new knowledge and protect academic freedom. They are a unique and much needed voice into key issues and public debates but how do they exercise that privilege? Have they lost this privilege already? How do they equip students for the future? How do they identify future areas of transformational research to invest in? What is their place in the new world; a more polarised, more distributed, more anti-institutional society? Our academic leaders are no longer just academic leaders – they have to be all things to all people. They need to be world-class academics, have a natural rapport with students, and to have worked with industry, government, the world and everything besides.

"What can UK university leaders learn from their Australian counterparts? To get on a plane to Shenzhen! To learn

what it means to do things at 'Shenzhen speed'. Some of this is about proximity but it is more about a desire to learn from others and having an external perspective. I know that many UK university leaders spend half of their lives on a plane but we need this mindset to shift beyond the few to the many, and to impact on the public mindset. The UK's future partners are out there and the UK needs to want to get to know them. The world has changed and the UK needs to wake up to that. The future is bright but the future is not with the old world order."

# Graduating into a World with Fewer Resources

*Nick Molho, Executive Director at the Aldersgate Group*

*Nick Molho is Executive Director at the Aldersgate Group, an environmental think tank and membership organisation which has around 45 members who are predominantly businesses from a range of economic sectors. The purpose of the Aldersgate Group is to make the business case for a strong environmental policy, to support the work of NGOs in educating the wider public, and to provide business solutions to environmental problems. He was previously Head of Climate Change and Energy Policy at WWF-UK following a career as an environmental and energy lawyer at CMS Cameron McKenna, where he spent six years working on commercial energy law for a range of international businesses,* regulators, and governments. A regular public speaker, Nick also writes for a range of media outlets including The Economist Insights, Business Green, and the Huffington Post.

"The 21st Century is one of massive risk. We face environmental challenges that we have never faced before. We have changed the world's climate in the last 150 years to a greater extent than natural forces have done over thousands of years beforehand. If we don't do anything about some of those big environmental challenges like climate change, there will be very severe consequences for our society and economy, from the provision of food to the increase of extreme weather events.

"The decisions we make in the next 15 years will determine whether or not we avert the worst scenarios related to climate change. Yet this is also a century of unique opportunity. The technological improvements that we have seen, especially in terms of communication, in terms of renewable energy, in terms of mobility, are huge. There are enormous opportunities to make the world more efficient, more connected, and to really make the right choices so that we move into a more sustainable way of life and a greener economy.

"The Paris Agreement on Climate Change had a really big impact on me. It was signed in December 2015 but officials had been working on it for more than a decade. To see more than 170 countries sign up to such a significant global agreement was really positive. It showed that perseverance really pays off. But equally, the election of Donald Trump in 2016, and the subsequent withdrawal of the USA from that Paris Agreement, was an unfortunate and important reminder that nothing is ever won. You have got to constantly work at it, especially in the environmental space where climate impacts aren't always immediately visible. You can't take anything for granted.

"When we talk about environmental issues we are really talking about three things: climate change and energy – so how do we as a society and an economy reduce our emissions so that we can prevent the most dangerous impacts from climate change? Resource efficiency or the circular economy – for example, how can we design our products better so that instead of landfilling them we re-use valuable materials within them? Then there is natural capital, which is really about better valuing our reliance on natural resources and improving the state of these resources - for example, it takes 50,000 litres of water to manufacture a car but very few car manufacturers factor that into their business models.

"The number one priority in the 21st Century has to be climate change; it will affect everyone and everything. A warming climate means that there will be more frequent and more severe weather events, from droughts and flooding to more severe typhoons and hurricanes. It will have an impact on the resilience of our infrastructure; our buildings, bridges, railways, and roads are rarely built with the future impacts of climate change in mind. It will have an impact on our food system; as a major importer of food the UK relies heavily on supply chains that are spread out in many regions and countries around the world, many of which are vulnerable to extreme weather events. The same is true of car manufacturing.

"Climate change triggers so many environmental changes that is hard to put a single image to that problem in the same way that you can with plastics or other global issues. And yet it is clear that people and businesses will start to see the impact in everyday life more and more. We can minimise negative impacts if we act at sufficient speed and scale now and make the difficult decisions that we need to make in the coming years.

"There is still a misperception that if you want to invest in the technologies to tackle environmental issues that it will cost you dearly. Yet the evidence shows that once you commit yourself to particular targets, and you focus the private sector to deliver these targets, you can rapidly cut the costs of new technologies. We have seen the cost of offshore wind go down by 50% in the last two years, for example. That has been driven by innovation and high volumes of business investment that were spurred by clear government targets and support policies. It really goes to show what is possible when we set a clear policy direction and clear ambition. There are big economic opportunities at stake for the businesses that develop those new ideas and technologies and then export them.

"To be successful in the 21st Century, graduates will need to make their business or engineering ideas fly in a carbon constrained world; where you have to cater for extreme weather events, where you can't use too much water and where you have to be very efficient with your use of resources. The need for innovation in this century to tackle environmental challenges is unprecedented. We need innovation to develop planes and ships that don't emit anything, to radically cut emissions from the agricultural sector, whilst feeding a growing global population and making our buildings highly energy efficient – the list carries on. So there is plenty of room for graduates who understand the context in which they will live their lives and careers.

"Universities should incorporate environmental sustainability into all degree courses. Whether you are training to be an engineer, a doctor, or scientist, an understanding of the environmental challenges that we are currently facing and moving into will be essential. The future generation of workers and voters need to be well equipped to do their jobs properly and make informed decisions. A few years ago the National Union of Students did a survey of students across many different disciplines and a majority of them said that they were willing to take a pay cut if that meant working for a more sustainably responsible organisation. There is clearly a demand there and universities should respond to it. Schools need to do the same.

"The key message I would give to universities is to go out there and share your research. Take part in policy debates, be active on social media, organise events, share the results of your research beyond academic circles. Show the relevance of your work in relation to real life challenges. There is definitely still a role for expertise and expertise is still very respected behind closed doors but the language used needs to be accessible to a non-specialist audience. People are more likely to respond if they are given an honest account of both the risks and opportunities. Universities need to help inform a fact-based debate so that society is able to make the decisions that it needs to at this critical juncture."

*"The number one priority in the 21st Century has to be climate change; it will affect everyone and everything."*

# What's Going to Be in the Handover Note?

*Judy Friedberg, freelance media consultant and journalist*

*Judy Friedberg is a freelance media consultant and journalist who worked on both foreign and home news before specialising in higher education as Universities Editor at the Guardian newspaper, responsible for the University Guide and Guardian Students and overseeing the higher education editorial. Having spent her career working as a journalist and an editor, she is now a consultant for the Guardian on its relationship with universities. She is also a Visiting Professor at Coventry University, working on equality and diversity.*

**Judy Friedberg has written this contribution and asks the question: how well are we preparing the younger generation to take up the reins of power?**

When I think about the future, I am most concerned with those who are going to be running the show. The much-maligned youth of today will one day be in charge of everything.

The media portray young people in a variety of contradictory, but largely negative guises: as feckless, selfie-obsessed, illiterate, self-harming, no-platforming, knife-wielding snowflakes.

Looking out of the window at Coventry University where I sometimes work, I see self-contained, diverse, engaged students, some of whom grew up nearby, others who've come from as far away as Africa and Asia. They look fine, but I know many are struggling with self-esteem issues, and anxieties about debt and prospects.

And what I wonder is: what kind of handover note are we giving them for the job they're going to have to take over from us?

When one gets a new job, one needs three things:
1. The skills demanded by the role
2. A fair share of the available resources
3. An honest account from the previous incumbent about what's working and what isn't.

So how well are we, the oldtimers, doing on giving the next generation the education, fairness and honesty they need to succeed?

## Education and Skills

Educating is at the heart of our task of preparing young people to take on leadership roles in the future. Successive governments have stressed the value of choice, so we now have a confusing plethora of school options, from private to grammars, faith to free schools, academies to comprehensives. But class divisions - and in some areas, ethnic ones - have remained stubbornly entrenched. Once pupils get to sixth form, a university degree is punted as the only route to success. Where apprenticeships are presented as an option, it is with little conviction. Everyone knows completion rates are poor and schemes are floundering for lack of resource.

## Resources

Everyone needs the basics but the basics cost money, and young people are least likely to have any. In the past decade, they've had their education maintenance allowance taken away, they've lost benefits, youth unemployment has risen, tuition fees have soared to £9,000 and they've been priced out of housing. We owe it to their generation to rebalance wealth in their favour.

The other resource young people need is time with those who know what's what. That too is in short supply. As universities expand, they look to digital solutions for the delivery of teaching and tutoring to ever larger classes of students. With the lifting of the cap on student recruitment, and the lack of a strong vocational alternative, 'non-traditional' students are arriving at UK universities in far greater numbers than ever before. What they need is staff willing to take them patiently through the transition - what they may well find are call centres and chatbots. The link between digital 'triaging' and human support is crucial if they are to thrive. Private schools know that small class sizes and lots of one-to-one support is the key to success. So do the top universities, especially Oxford and Cambridge. That's why they prioritise tutorials and supervisions. Face-time with experienced academic staff may be expensive, but it is not an optional extra.

## Honesty

What are young people told about the future?

Here are some of the things schoolchildren hear from grown-ups as they make the 13-year journey to A-level results day.

"How you do in your exams will determine your whole future." "You need to be your own brand - get all that frivolous stuff off your social media and prepare for the job market." "Study science, arts degrees are worthless." "Go to a Russell Group university or you're doomed." "If you work hard, you'll prosper. It's all down to you." Any of that true? Not a word of it. And what about the non-verbal messages they've picked up along the way to adulthood? Has our generation been able to impact the values that will stand them in good stead in challenging times?

Young people in the UK are also getting an unnerving picture of themselves and others as they work their way through a divisive schooling system. Private schools and grammar schools provide small classes, skiing trips and work experience at top firms, while underfunded state schools battle to deliver the basics. Across the spectrum, young people display worrying symptoms of stress and despair.

The honest truth is that all of them have the potential to excel if given a fair and equal chance. It's not a truth they experience in their day-to-day lives. They are made to feel that if they're not doing well it's their own fault. Mostly it's not.

Building motivation and self-belief among the have-nots in our increasingly polarised society is the biggest challenge our generation of educators faces. And it begins with changing the attitudes of teachers and lecturers towards their students. They need to identify their own unconscious biases, understand the different backgrounds of students, focus on giving each of them the specialised attention they need. Only then can we start to eliminate the attainment gaps between rich and poor, black and white, lucky and not-so-lucky.

## Universities are Ideas Factories

Living in London, what I see all around me is a wilful blindness to the growing divide in our own society. Increasing numbers of young people are living in fear of poverty, of authority, and worst of all, of each other. Families are being torn apart by a steady rise in murders of teenagers. It's easy for us not to notice as we go through our everyday lives, commuting from paying jobs to comfortable homes.

Universities, schools and colleges are ideas factories. They change the way people think. They need to challenge their own thinking and focus more effort on giving students the tools they need to build a more inclusive future, one that is better for all of us.

What will be in the handover note? Look around. We're writing it right now.

> *"Universities, schools and colleges are ideas factories. They change the way people think. They need to challenge their own thinking and focus more effort on giving students the tools they need to build a more inclusive future, one that is better for all of us."*

The 21st Century is creating profound changes across our globe, in our economies, our societies, our nations and our cultures. The aim of #C21stLab is to provoke new thinking from within the higher education sector and beyond.

We hope that you will be inspired, challenged, and stimulated by the 21st Century Lab but most of all we hope that you will engage with it.

Join in the discussion via Twitter using **#C21stLab.**

21st Century Lab, led by the University of Lincoln, UK, is designed to open up thinking on how universities should develop. The project is driven by contributions from different voices on the challenges for the future. Contributors include social entrepreneurs, investors, technologists, social and cultural thinkers, engineers, journalists, and economists from around the world offering wide-ranging views.

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Join in the discussion #C21stLab