

# Achieving Inclusive Growth in the Fourth Industrial Revolution



# **Annual Meeting of the New Champions 2017**

Dalian, People's Republic of China 27-29 June

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The views expressed are those of certain participants in the discussion, and do not necessarily reflect the views of all participants or of the World Economic Forum.

# **Foreword**



W. Lee Howell
Head of Global Programming
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Member of the Executive Committee

# Welcome to the Annual Meeting of the New Champions 2017

"Achieving Inclusive Growth in the Fourth Industrial Revolution" is the theme of this 11th Annual Meeting of the New Champions. But why the emphasis on inclusive growth? After all, technology should empower people rather than replace them and serve society rather than disrupt it. Yet, in many instances, leaders have been complacent with regard to the human impact of technological advancement and its subsequent economic integration.

A truly human-centred model of economic growth should be guided by moral and ethical considerations that are shared by multiple stakeholders. If not, the Fourth Industrial Revolution could increase social marginalization, exacerbate economic inequality and undermine fundamental human relationships. Achieving the former and averting the latter is why nearly 2,000 business leaders, policy-makers and experts have come together in Dalian for the next three days. In the face of transformative change, a global summit on innovation, entrepreneurship, science and technology has never been more instrumental for preparing to create new opportunities for economic, social and personal development.

A diverse group of Co-Chairs for the meeting reflects this focus: Jean Liu, President, Didi Chuxing, People's Republic of China; Alex Molinaroli, Chairman and Chief Executive Officer, Johnson Controls, USA; Shu Yinbiao, Chairman, State Grid Corporation of China, People's Republic of China; Vishal Sikka, Chief Executive Officer, Infosys, USA; Maria-Elena Torres-Padilla, Director, Institute of Epigenetics and Stem Cells, Helmholtz Zentrum München, Germany; and Xu Jinghong, Chairman, Tsinghua Holdings, People's Republic of China

The Annual Meeting of the New Champions has been designed to be a transformative learning experience: a wide range of interactive debates, thought-provoking installations and collaborative formats will expand your thinking and help you drive progress towards achieving inclusive growth in the Fourth Industrial Revolution. We hope the following programme, related essays and accompanying materials will help you navigate over 200 sessions with these goals in mind.

# Achieving Inclusive Growth in the Fourth Industrial Revolution

In the face of transformative change, a global summit on innovation, science and technology has never been more important to help us prepare for the future. The best way to do this is to shape the present, tapping into the imagination, diversity and empathy of a truly global community.

Rapid change and rampant inequality are testing the resilience of economies and societies. It is in our hands to ensure that the potentially disruptive shifts of the Fourth Industrial Revolution not only herald a change of guard in the highest echelons of the global economy, but also rebalance opportunities and outcomes across geographic, generational and gender boundaries.

Historically, waves of progress have always been accompanied by forces of diffusion and concentration. Diffusion occurs as the power and privileges of the incumbents erode; concentration occurs as the influence of those assuming control over the new technologies expands.

Both forces shaped the growth patterns of the past decades. In 1988, a lower-middle-class US citizen had more than six times the income of a well-off middle-class citizen in China. Today, both earn almost the same amount. Similar leaps happened in other economies, from Turkey to Viet Nam. Yet, over the same period, half of the world's wealth went to the top 5% of the population, and almost one-fifth went to the highest 1%.

Today's emerging technologies are unleashing forces of diffusion and concentration in equal measure. opening up a wide range of plausible and possible outcomes. Smart and connected infrastructure might benefit a few exponential enterprises or millions of connected mini-multinationals; it might concentrate wealth with those who control the nodes of an internet of everything or turn these nodes into platforms that distribute value more fairly and efficiently: it might attract more people into urban hubs and deepen the rift between urban and rural areas or transform cities into compact connected units that help overcome the urban-rural divide.

Technological change will shape our future but won't determine it. Every technology age found its expression in human values, principles, norms and institutions. In the wake of the First Industrial Revolution, poor working conditions gave birth to socialism and social capitalism; the green movement beginning in the 1970s was a response to the nuclear age and the age of mass consumption associated with the Second Industrial Revolution; in the late 20th century, global multistakeholder governance models gained traction in response to rapid globalization, a result of the Third or "Digital" Revolution.

What value systems and institutions are needed to ensure that the Fourth Industrial Revolution will be inclusive and human-centred? And, how can they be implemented?



Answering this question will require the courage, thought leadership and entrepreneurial spirit of the leaders gathering at the Annual Meeting of the New Champions. We cannot simply discard the forces of income, wealth and opportunity concentration, but we can mobilize forces that work against them, from investing into education to fostering entrepreneurship.

Achieving this is not only a matter of developing new technologies, business and governance models; it also challenges us to reassert fundamental values that serve as a compass and radar at times when old maps no longer serve us well.

Achieving Inclusive Growth in the Fourth Industrial Revolution will require the power of imagination to see everything in our present world anew; a deep commitment to diversity as our best – if not only – chance to escape the echo chambers of our biases and beliefs; and a collective capacity for empathy as the glue that holds humanity together.

**Sebastian Buckup** is Head of Programming and a Member of the Executive Committee at the World Economic Forum.

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### A Platform for Interaction

# **Reaching the Hearts and Minds** of Global Leaders

The staggering speed of technological change is confronting leaders with a daunting number of questions – and the Annual Meeting of the New Champions is designed to bring those very questions to life in meaningful and inspiring ways. When walking into the Dalian International Conference Center, participants will find three gates to greet them, each probing their intentions for the day: Will you try something new? Will you share an idea? Will you be inspired? It is up to participants to decide which of the three gates to pass through each day.

Fortunately, this is the only question they will need to grapple with entirely on their own: on the other side of those gates is a global platform of leaders looking to join forces in a bid to solve some of the world's most pressing issues. A platform made of experts from an extraordinary variety of backgrounds - including science, technology, policy-making and culture contributing perspectives and know-how to make sense of the present and shape a better, more inclusive future.

The Annual Meeting of the New Champions is a perfect demonstration of the platform model, which is the bedrock of the World Economic Forum's work. At the heart of this model is the belief that platforms are unique systems where value is generated by enabling exchanges between people and ideas.

Harnessing the collective power of this platform has been the organizing principle of the meeting's programme: every detail - from the topics of the sessions to the set-up of the spaces – has been purposefully designed to create the conditions for high-value exchanges to happen. From interactive hub sessions to dynamic workshops, from immersive experiences to spaces like the BetaZone and the Global Situation Space where data and storytelling meet to amaze and inspire, every nook and cranny of the venue is intended to unlock the power of interaction and help the members of our platform create and strengthen impact-driven communities.

Interaction can take many forms: it can be face-to-face or enhanced through digital media: it can rely on reasoned arguments or appeal to human emotion. A great deal of research is dedicated to the foundations of cooperative and pro-social behaviours, drawing from a wide range of fields such as anthropology, behavioural economics, design, evolutionary biology, neuroscience and psychology.

To embrace this complexity and engage both the minds and hearts of participants, our programme combines four types of interaction: Experience, Discover, Debate and Collaborate. By combining these different types of interaction, we hope to have created a truly transformative experience, one that will change the way our participants think, feel and, ultimately, act,

For an indication of whether we have succeeded, just look up at those gates on the last day of the meeting. We have one final question for you: How does the future feel?

Emma Benameur is Head of Programme Design and Member of the Executive Committee at the World Economic Forum.

Every nook and cranny of the venue is intended to unlock the power of interaction and help participants create and strengthen impact-driven communities.



Learning through Immersive Exhibits

# **Facing the Future, Shaping** the Present

Andrea Bandelli. Executive Director of Science Gallery International, is participating in the Annual Meeting of the New Champions 2017. The views expressed in this article are those of the author alone and not the World Economic

How do we plan for something we don't know? From traditional education to professional development and lifelong learning, governments and businesses need to prepare the current and next generations for the Fourth Industrial Revolution.

But following the traditional path of transferring skills no longer works. Most importantly, the radical changes in our society mean that young people need new kinds of skills, many of which are not fully understood or codified. The new fluencies we need include emotional intelligence; intercultural sensitivity; creativity; problem formulation and resilience.

Experts question whether these skills can be taught at all: they argue that the context of formal education is not suitable for making people fluent in the skills they need to master. The solution lies in shifting the discourse from learning new skills to enabling the processes that create them. We need to create contextual opportunities to unlock creativity, embed empathy, and question and challenge our own assumptions. This design-led approach changes the narrative from education as something received from outside to something generated by experience.

Participants in Dalian will have an opportunity to experience how a design-led approach can change the way we think about education by visiting the 4IR Bio Lab. The experience, co-curated by the Forum wall made of living fungi that looks, and Science Gallery International with support from the Wellcome Trust, explores the boundaries of synthetic biology, material sciences and food production. It is a platform for conversations with stakeholders from science, technology, industry, arts and design, and shows how narratives around the Fourth Industrial Revolution become instruments for education and learning.

For example, rather than explaining synthetic biology, visitors can touch a bio-printed defibrillating organ that can be implanted in the human body. Using parts from an electric eel, it can discharge an electric current to the heart when it recognizes it's going into fibrillation or cardiac arrest. How do we feel about creating new living parts which to step in the recess of the 4IR Bio pre-empt health problems? These works trigger a gentle cognitive dissonance that make us reflect about what health means, how we co-exist with other species, and what are our ethical boundaries.

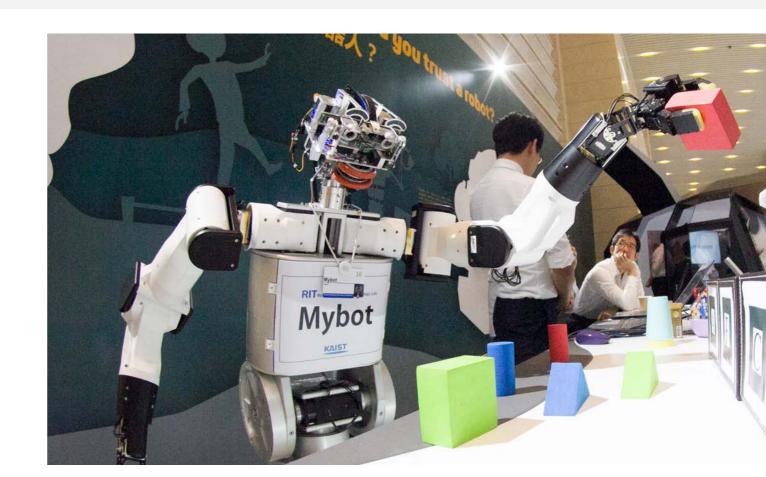
The projects in the 4IR Bio Lab are statements that evoke social and political consequences. Through the lens of art we are able to abstract, fantasize and then get back to reality, in a process that shapes our understanding of the future and its consequences. It is the future we want to design that shapes the present in which we are living.

Another project is the mycotecture feels and behaves like conventional bricks. How sustainable is a system where building materials are completely organic and recyclable?

Does this take us into a new spiral of consumption, albeit biodegradable? We want people to think about these questions and be ready to answer them the moment we have the technology to implement the transformative shifts we are envisioning today.

Emotional intelligence, creativity, empathy and adaptability are triggered by seemingly uncomfortable situations that confront us with totally new frameworks of thought. What if humans could give birth to a non-human species? If this sounds "way out there" then we invite you Lab where the work by Ai Hasegawa will put you in front of this (sur)real scenario. What might reproductive rights, parental custody and animal welfare look like in the not-so-distant future?

The fact we may find it uncomfortable to talk about these issues today is the signal we need to challenge ourselves and create the tools and narratives needed to step into that conversation.



The radical changes in society mean that young people need new kinds of skills, many of which are not fully understood or codified.

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Meeting Sub-Theme

# Scaling Up Human-Centred Technology

Technological innovations – from exponential increases in computing power and data to the CRISPR method in gene editing – create not only phenomenal opportunities for human progress, but also serious societal challenges. If we are to seize the opportunities and avoid the pitfalls of the Fourth Industrial Revolution, we must consider the moral and ethical questions it raises with regard to economic and social development, value creation, privacy and ownership, and individual identity. In this context, how do we design human-centred products and services?

### Scaling Up Human-Centred Technology

# **Explore the Programme**

# **Highlighted Sessions**



# Artificial Intelligence Unleashed

As we grant more autonomy to Al to make choices on our behalf, how do we make sure it decides in our best interest?

Arena, 27 June, 14.15 - 15.15



### Towards a Universal Digital Identity

How can a universal digital identity unlock opportunities for greater inclusion and access to the digital economy?

Agora, 29 June, 09.15 - 10.15



### Perfecting Precision Medicine

As genomic technologies move from lab to clinic, how can precision medicine be both accessible to and affordable for all?

Arena, 28 June, 14.30 - 15.30



# Achieving Inclusive Growth in the Fourth Industrial Revolution

The Fourth Industrial Revolution could widen or narrow income gaps and employment opportunities. How can leaders ensure technological change is inclusive and human-centred? Studio, 28 June, 14.30 - 15.30



# The Race towards Smart Mobility

As cities race towards a driverless future, how should they adapt their operating models, governance and infrastructure for the new mobility paradigm?

Arena, 28 June, 09.00 - 10.00



# Building Skills for Life through Creativity

How can organizations and societies better prepare the workforce for lifelong learning and keep pace with change to drive innovation? xChange, 29 June, 12.30 - 13.45



### **Fuel-Free Flight**

From solar drones to zero-fuel commercial flights, explore the potential of next generation aviation technologies with Solar Impulse pilot Andre Borschberg.

BetaZone, 29 June, 10.45 - 11.30

## **Featured Series and Experiences**

### Experience the BioLab Nexus

The Bio Lab Nexus brings cutting-edge science and pioneering technology together with artists' inspired conception of the future. In this space, explore and debate the impact of the Fourth Industrial Revolution on all forms of life, from what we eat, to how we define the limits of our species, to the differences between humans and robots.

- Future of Life: Nutrition
- Future of Life: Species
- Future of Life: Consumption
- Future of Life: Medicine

- Across the Spectrum: Humans and Robots
- Across the Spectrum: City and Nature
- Across the Spectrum: Tradition and Innovation
- Across the Spectrum: East and West

Curated in collaboration with Science Gallery International with generous support from The Wellcome Trust

### Human-Centred High-Tech Series

Explore protocols, partnerships and practices addressing policy dilemmas and unintended consequences of emerging technologies from artificial intelligence to precision medicine.

- Self-Driving Vehicles
- Artificial Intelligence
- Internet of Things
- Blockchain
- Neurotechnology
- Virtual and Augmented Reality
- Global Data Flows

The series supports the work of the World Economic Forum Center for the Fourth Industrial Revolution in San Francisco.

Find details on timing, venue and speakers on the TopLink Events app and add sessions of interest to your agenda. Explore more sessic like these using the filter "Scaling Up Human-Centred Technology".

Scaling Up Human-Centred Technology

# The Four Big Ethical Questions of the **Fourth Industrial Revolution**

We live in an age of transformative scientific powers, capable of changing the nature of our species and radically remaking the planet itself. Thankfully, there is growing global recognition of the need for governance. Whatever forms governance takes, we need to make sure that governing bodies and public discussion address four critical questions:

### Should the technology be developed in the first place?

Some strategies carry unknown but potentially large risks for the planet. Even if we have risk estimates. discerning how much risk we should take, if any, is not something science alone can answer. Ultimately it is a moral assessment we need to make collectively.

### If a technology is going to proceed, to what ends should it be deployed?

During the Fourth Industrial Revolution, there will be a wide variety of human enhancements on offer. Some will focus on eliminating diseases; others may extend human capacities we wish to promote or reduce. Rather than making endorsements or prohibitions in general, each type should be considered on a case-by-case basis in terms of how likely it is to advance, or diminish, human flourishing.

### If the technology is to go forward, how should it proceed?

It matters how a technology is researched and enters the world. One landmark report takes a precautionary approach to the use of gene drives. These technologies, in combination with CRISPR Cas9 gene editing, can exponentially increase the prevalence of specific genetic elements in a whole population of certain wild plants or animals. The report encourages the development of the technology, but calls for carefully paced research, first in laboratory settings and small field studies, before engineered organisms are released into the wild.

### Once norms have been set, how will the field be monitored to ensure adherence?

There are guidelines for research and technology diffusion, but serious gaps in our ability to monitor adherence or hold bad actors accountable. Governance mechanisms will have to grapple with what areas need mandatory regulation and how to enforce them.

We must discuss the values we hold dear, even when [these discussions] may lead to controversy and conflict. But facts alone are insufficient. These questions require a willingness to discuss the values we hold dear, even when values discussions may lead to controversy and conflict.

Safety is perhaps the least controversial value. Most of us believe that there is an obligation to reduce the likelihood that individuals will be harmed by new technologies. Indeed, the primary responsibility of most regulatory bodies is to promote safety. But there are other very important values at stake, and

they are often given short shrift. First, we should commit to equity - to ensure that all people have access to technology's benefits. Even harder to talk about are values that have to do with ways of being in the world, with how we humans relate to one another and to the natural environment.

Values like stewardship and respect for the intrinsic worth of wilderness areas are often invisible in our discussions or falsely framed as in opposition to economic development. Underlying many of these issues is

the fundamental ethical question about how much we humans should intervene in changing the nature of our species, other species and the environment.

Governance, which will take many forms, must involve the public as well as experts. This path will engender strong differences of opinion, but that is exactly why we must embrace the dialogue - and soon.



Scaling Up Human-Centred Technology

# How to Build an Inclusive Future in the Time of Al

Vishal Sikka. Chief Executive Officer of Infosys, is a Co-Chair of the Annual Meeting of the New Champions 2017 and a member of the Forum's System Initiative on Shaping the Future of Environment and Natural Resource Security. The and not the World Economic Forum. Read the full article

The applications of AI we see today barely begin to scratch the surface of the possible. Even as the applications use of technology and leaders have are becoming more sophisticated from fraud detection to autonomous vehicles to natural language processing – we are still very far from communication. Marvin Minsky's "society of mind".

Infosys' recent research shows that Al technologies are being deployed or planned for deployment by most large an inclusive and safe future: companies. Businesses expect these technologies to bring disruption and, with that, growth and opportunity.

Yet for many, the potential for disruptive change also brings fear and uncertainty. Coupled with it is the build and use these systems. This uncertainty introduced by tumultuous geopolitical events. It comes as no surprise that employees worry about the future of their jobs and privacy. These concerns remain despite attempts by employers to address them.

The disruption caused by Al will also move at a speed and engage on a scale previously unknown in history. And, humans must also evolve our faculties and tools, and move alongside it. We must achieve a kind of symbiosis between minds and machines, with machines amplifying and actualizing thoughts and ideas from the human brain, and freeing it from mundane and repetitive cognitive advances on the most vexing tasks. This unleashed brain can then do the kinds of things no Al will ever do – like being able to see what is not Ethics: We must pay attention to there and imagine what that can be.

People have the right to be concerned about the irresponsible the opportunity, and the imperative, to assuage those fears through empathy, action, education and

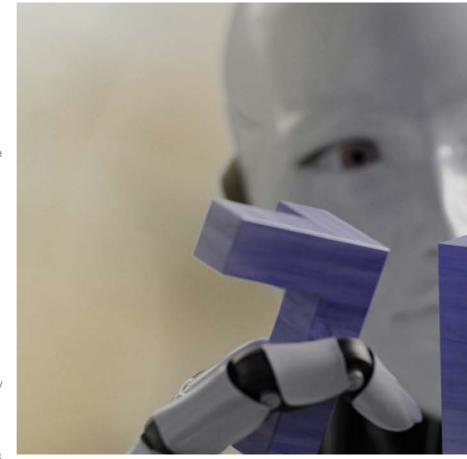
My peers in the AI community and I identified four fundamental areas where leaders must act now to shape

Education: We must reorient our education system to personalized learning. Every individual should have basic digital literacy to dispel fear of technologies and be able to learning must continue throughout our lives, enabled by workplaces and institutions.

Employment: Education will enable a more adaptive workforce and hone the skills necessary for future professions. We must think holistically and focus on creating these new jobs, as well as democratizing the skills needed to perform them.

Healthcare: Al will allow for a dramatic transformation in healthcare, by amplifying the capabilities of both mind and body. Al will also allow us to consider problems on a global scale and give us the tools to make problems in health and wellness.

how disruptive changes will severely affect lives and people, and work to preserve human dignity and



integrity throughout the changes. Some of this will come naturally, but other aspects must be purposefully considered and articulated.

As leaders, we have a responsibility to reimagine education, employment and social frameworks, and work to bring everyone into the new reality. The opportunity to transcend the boundaries of our imagination with technologies such as AI is almost

limitless, and the fear about this is natural. But it would be a great travesty to allow forces of fear and negativity to overwhelm the great potential for the purposeful and humane advancement of the human race that we have before us.

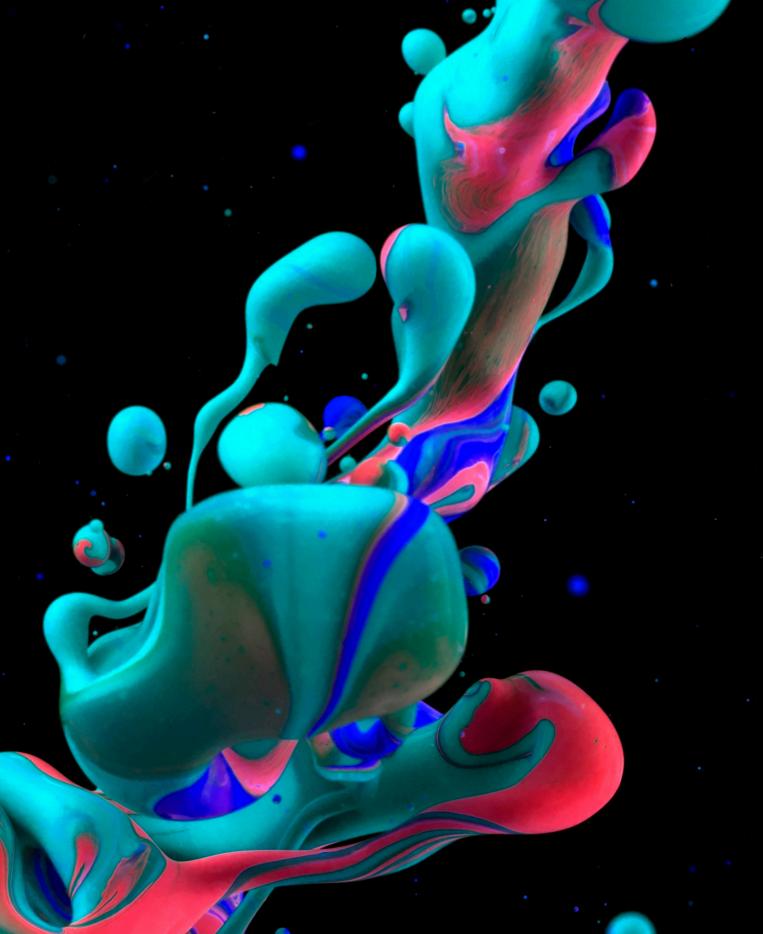
As leaders, we have a responsibility to reimagine education, employment and social frameworks, and work to bring everyone into the new reality.

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Meeting Sub-Theme

# Leading Continuous Reinvention

The Fourth Industrial Revolution is shaking up old business models and presenting strategic options that enhance efficiency. On the supply side, developments in energy storage, grid technologies and real-time processing of customer and asset performance are transforming operating models. On the demand side, customers value and expect personalized interaction at all points of their consumer experience. Facing an exponential speed of change in technology, how can leaders recognize adaptive challenges to their organizations and build resilience?



# **Explore the Programme**

# **Highlighted Sessions**



# The New Champions of Growth

By 2025, half of the world's Fortune 500 businesses will be headquartered in emerging economies. What industries and economies will drive the next wave of growth? Studio, 29 June, 09.00 - 10.00



### **When Virtual Becomes Reality**

China's virtual and augmented reality market will surpass \$7.9 billion in 2020. How will it transform media and entertainment?

Future Hub, 28 June ,16.15 - 17.00



# Operating for the Future Consumer

Digitalization and empowered consumers are challenging the definition of a company and how it operates. How will businesses of the future be organized?

Agora, 28 June, 14.15 - 15.00



### **Global Innovation Outlook**

How are new institutions and collaborations enabling global innovation to grow beyond borders? Studio, 29 June, 10.30 - 11.30



### **Building Blocks for Innovation**

If the most innovative economies are also the most competitive, what are the needed conditions to generate risk-taking enterprise?

IdeasLab, 29 June, 09.15 - 10.15



# The Promises and Pitfalls of Digitizing Learning

From bot-teachers to gamification, educational technology is on the rise. How can "edtech" be deployed to meet the needs of educators and students? Future Hub, 27 June, 09.30 - 10.15

### **Featured Series and Experiences**

### ■ Co-Chair Dialogue

Engage with the Co-Chairs on a transformational idea that will reshape industries, economies and societies.

- Pioneering the Sharing Economy with Jean Liu,
   President of Didi Chuxing
- Amplifying Human Intelligence with Vishal Sikka, Chief Executive Officer of Infosys
- Leading the Energy Transition with Shu Yinbiao,
   Chairman of State Grid Corporation of China
- Working towards a Smart and Secure Connected Future with Alex Molinaroli, Chief Executive Officer of Johnson Controls International
- Building an Innovation Ecosystem with Xu Jinghong, Chairman of Tsinghua Holdings
- Shaping the Future of Science with Maria-Elena Torres-Padilla, Director of the Institute of Epigenetics and Stem Cells at Helmholtz Zentrum München

### Design by Doing: Build Your First Robot

The Robot Maker Space invites participants to design, build and experiment with handmade robots, with the chance to shape the future of human-machine interaction with your own hands.

This learning experience was developed in partnership with Infosys and Carnegie Mellon University.

### ■ The Innovator Hub

Explore new ways to scale solutions to some of today's most pressing challenges, in sessions codesigned and led by participants.

- Fighting Infectious Disease
- Venturing with Risk Capital
- Fostering Rural Innovation
- Rethinking Mobility
- Providing Healthcare for All
- Improving Diversity in Science, Technology,
   Engineering and Mathematics
- Design Thinking in the City
- Unlocking Blockchain for Humanitarian Finance
- Drones Delivering Development
- Accelerating the Recycling Market
- Making Al Safe
- Innovating for Greener Chemicals
- Catalysing China's Circular Economy

- Educating for a Borderless World
- Creating Critical Thinking
- Partnering for Innovation
- Video Gaming for Sustainability
- Achieving Energy Access
- Up-Smarting Cars
- Empowering Rural Populations
- Embracing Neurodiversity
- Open Government

Find details on timing, venue and speakers on the TopLink Events app and add sessions of interest to your agenda. Explore more sessions like these using the filter "Leading Continuous Reinvention".

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### Leading Continuous Reinvention

# A Good Idea Isn't Enough

By Taarvet Hinrikus, Co-Founder and Chief Executive Officer of TransferWise, is participating in the Annual Meeting of the New Champions 2017 and is a member of the Forum's Technology Pioneer community. The views expressed in this article are those of the author alone and not the World Economic Forum. Read the full article here: https://www.weforum.org/

I've been lucky enough to see firsthand two ideas go from the back of a napkin to global businesses - first at Skype and now at TransferWise. Looking back, the ideas behind both companies seem like common sense: letting the whole world speak for free and making international transfers as easy as sending emails. In fact, both were a completely new way of looking at things; a way that the incumbents in the sectors either couldn't or wouldn't consider. Here are three lessons that could help others turn great ideas into reality:

### Know what problem you're solving

While in two very different sectors, both companies were born out of frustration. The motivation was a strong desire to solve a problem: not just fix something that was broken but create a better alternative and a new system for doing things. Big problems are overwhelming, but when we distil them to their simplest forms, then the solutions become simple too.

### Test the solution

The only way to find out if an idea is any good is to try it out: build it and see what happens. At both Skype and TransferWise, we were told "it'll never work." Is there enough bandwidth and computing power for this to work? Will people speak to their computers? These were the common questions for Skype. In the case of TransferWise, the major doubts were about trust - will people trust you with their money? Then we built the first minimum viable product. Not only did it work, but people were quick to adopt something that was cheaper (or free), faster and easier to use. Since then, it's an ongoing process of development, testing, improving. Rinse and repeat.

### Keep crossing boundaries

Keep asking "what if ...?" An idea comes from going beyond the usual confines of our thoughts and crossing those boundaries. Steven Johnson talks about "one door leading to another door": the adjacent possible. There's no single Eureka moment but a series of opportunities and possibilities that leads you to a new alternative. A good idea takes on a life of its own and finds those doors. That's the excitement of innovation.

Big problems are overwhelming but, when we distil them to their simplest forms, the solutions become simple too.

A seed depends on a whole host of factors to grow - from the fertility of the soil to the right mix of rain and sun, to not being eaten by a passing bird. The same goes for an idea. For an idea to really take hold, other factors come into play, from timing to embrace non-bank alternatives.

the emerging technology that makes it possible. In fintech, it is the perfect storm of a loss of trust in the banks, the rise of mobile and the experience of better in other sectors that means consumers are willing and ready to

But you can only reap what you sow. The most important thing is to just get on and plant the seed.



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# **Programme in Brief**

Discover the depth and variety of the official programme by exploring the sessions below. Design your own meeting journey by participating in sessions across a range of topics and formats, from interactive hub sessions to dynamic workshops and immersive experiences.

For the latest details on speakers, as well as any updates to timing and venue, please go to the TopLink Events app. Using the app, you can add sessions to your agenda and search by theme, topic, speaker and format.

### **Meeting Sub-Themes**

- Scaling Up Human-Centred Technology
- Creating Sustainable Systems

- Leading Continuous Reinvention
- Responding to Geo-Economic Shifts

### Tuesday 27 June

BetaZone 08.15 - 09.00

### Introduction to Tai Chi

Tai Chi is an ancient Chinese discipline of meditative movements that can improve health, mental clarity and overall well-being. Start the day with an early morning introduction to the philosophy and practice of Tai Chi.

Studio 09.00 - 10.00

### Strategic Update: The Digital Economy

From augmented reality to machine learning, the global digital economy landscape is transforming. How can policy and business leaders keep pace with new technological, regulatory and economic realities?

Arena 09.00 - 10.00

### Strategic Update: The Energy System

From supergrids to subsidy cuts, the global energy landscape is transforming. How can the industry keep pace with new technological, regulatory and economic realities?

Salon 09.15 - 10.15

### Strategic Update: The Financial System

From geo-economic uncertainty to the rise of passive investing, the finance landscape is transforming. How can the industry keep pace with new technological, regulatory and economic realities?

Agora 09.15 - 10.15

### Strategic Update: The Mobility System

From self-driving trucks to novel biomass fuels, the global mobility landscape is transforming. How can the industry keep pace with new technological, regulatory and economic realities?

Future Hub 09.30 - 10.15

### The Promises and Pitfalls of Digitizing Learning

From bot-teachers to the gamification of learning, the development of educational technology is on the rise. How can "edtech" be deployed to meet the needs of future educators and their students?

Global Situation Space

09.30 - 10.00

### Global Situation Space: The Big Picture on the New Silk Road

From ancient trade routes to One Belt, One Road, explore the causes and consequences of deepened regional integration now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

Innovator Hub 1 09.30 - 10

### Fighting Infectious Disease

How might we develop new doorstep delivery models to fight infectious disease? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Transformation Hub 09.30 - 10.00

### World in Transformation: Artificial Intelligence and Robotics

From machine vision to autonomous action, what breakthroughs are transforming the future of artificial intelligence and robotics? Join this session to explore the Transformation Map on Al and Robotics, cocurated with KAIST.

Science Hub 09.45 - 10.15

### Ask About: Brain-Machine Interfaces

Explore how to empower the next generation of brain-machine interfaces with wireless technology.

BetaZone 09.45 - 10.15

### Averting a Future World War

History has shown that when a rising power threatens to displace a ruling one, the most likely outcome is war. How can the United States and China avoid the "Thucydides Trap"?

Bio Lab Nexus 09.45 - 10.30

### Future of Life: Nutrition

From insect protein to lab-grown meat, how is technology providing new perspectives on feeding a planet of 10 billion? Explore the possible, plausible and probable impacts of biological aspects of the Fourth Industrial Revolution.

Plenary Hall 10.30 - 10.40

Welcome to the Annual Meeting of the New Champions 2017

Plenary Hall 10.40 - 11.30

Opening Plenary with Li Keqiang

Village 11.30 - 13.00

### Community Lunch

Participants are cordially invited to a buffet lunch in the Village within the Dalian International Conference Center.

Science Hub 11.45 - 12.15

### Ask About: Clean Coal

Explore how clean coal technologies could mitigate harmful carbon dioxide emissions.

BetaZone 12.00 - 12.45

### **Empower and Reunite - Technology for Refugees**

Human displacement is a phenomenon as old as humankind, pressing today as never before. Explore how new technologies can help empower and reunite hundreds of thousands of refugees.

Science Hub 12.30 - 13.00

### Ask About: Diamond Sensors

Explore how diamond-based semiconductors can be used as sensors in drug delivery, immunological testing and regenerative medicine.

Transformation Hub 12.30 - 13.0

### World in Transformation: Entrepreneurship

From corporate intrapreneurship to social impact, what drivers are transforming the future of entrepreneurship? Join this session to explore the Transformation Map on Entrepreneurship, co-curated with the National University of Singapore.

Agora 12.30 - 13.15

### Human-Centred High-Tech: Blockchain

Blockchain technology has the potential to transform a range of domains, from financial and logistical to governmental and humanitarian. What protocols, partnerships and practices can address the policy dilemmas and unintended consequences of distributed ledger technology, and ensure the benefits are widely shared? This session supports the work of the Center for the Fourth Industrial Revolution in San Francisco.

Future Hub 12.30 - 13.15

### The Next Generation of Clean Technologies

From renewable energy certification to sustainably sourced product verification, how could blockchain's ledger system unleash a clean revolution?

Global Situation Space 12.30 - 13.15

### Behind the Scenes: Smog Free Tower

Could polluted air be a thing of the past? Visit the Smog Free Tower with artist and creator Daan Roosegaarde to learn more about the vision behind the world's largest smog vacuum cleaner.

Salon 12.30 - 13.15

### Strategic Update: Health and Healthcare System

From precision medicine to digital doctors, the global healthcare landscape is transforming. How can the industry keep pace with new technological, regulatory and economic realities?

Bio Lab Nexus 12.45 - 13.30

### Future of Life: Species

From synthetic biology to genome editing, how are new technologies changing our definition of species? Explore the possible, plausible and probable impacts of biological breakthroughs in the Fourth Industrial Revolution.

Robot Maker Space 12.45 - 13.30

### Design by Doing: Build Your First Robot

Design, build and experiment with handmade robots and find out how they will be part of our future. Participants can also visit the Robot Maker Space outside scheduled session times. This learning experience was developed in partnership with Infosys and Carnegie Mellon University.

Studio 12.45 - 13.45

### The Global Impact of China's Consumer Class

In 2016, 20% of global GDP growth was generated by Chinese domestic consumption. China will contribute more than any other country to global consumer expenditure growth from now until 2030. How are China's consumers changing, and how will they change the world economy? This session was developed in partnership with Channel News Asia.

Arena 12.45 - 13.45

### Strategic Update: The Production System

From advanced robotics to augmented reality, the global manufacturing landscape is transforming. How can the industry keep pace with new technological, regulatory and economic realities?

Science Hub 13.15 - 13.45

### Ask About: Pollution Remediation

Explore how to harness the power of plants to remove pollutants from soil

Innovator Hub 1 13.15 - 13.45

### Venturing with Risk Capital

How might we use risk capital differently to accelerate entrepreneurship in emerging markets? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

BetaZone 13.15 - 13.45

### Public Art: Spaces of Hope

Explore with Iranian street artist Mehdi Ghadyanloo how art can transform places of despair into spaces of hope.

xChange 13.15 - 14.30

### The New Drone Economy with Hong Kong University of Science and Technology

How can engineers, business leaders and policy-makers unleash the full potential of civilian drones for tomorrow's commerce?

deasLab 13.15 - 14.30

# Sensors, Simulations and Supercomputing with Tokyo Institute of Technology

Discover new ideas and insights with leading researchers in the IdeasLab.

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16.00 - 18.00

### Meeting Sub-Themes

- Scaling Up Human-Centred Technology
- Creating Sustainable Systems

China: The Next World Leader?

### Leading Continuous Reinvention

Responding to Geo-Economic Shifts

### Briefing Centre 13.45 - 14.15

From trade agreements to climate change, China is signalling its readiness to take on a more prominent global leadership role. Is China ready to lead the world economy?

Global Situation Space 13.45 - 14.15

### Global Situation Space: The Big Picture on Cities

From economic growth to environmental collapse, explore the causes and consequences of emerging megacities now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

Agora

### **Human-Centred High-Tech: Neurotechnology**

Advances in brain science mean more effective therapeutics for brain-related illnesses, while fundamentally impacting how we think, behave and self-identify. What protocols, partnerships and practices can address the ethical dilemmas and unintended side-effects of brain technology, and ensure the benefits are widely shared? This session supports the work of the Center for the Fourth Industrial Revolution in San Francisco.

Future Hub 13.45 - 14.30

### Confronting the Cybersecurity Crisis

From ransomware to zero day vulnerabilities, new risks are forcing countries and companies to rethink their cybersecurity frameworks. How can public and private actors collaborate to create a secure cyber world?

13 45 - 14 30 Transformation Hub

### **Transforming Global Development Cooperation**

The Chinese government's pledges to assist developing nations through investment, infrastructure and climate change projects reach a volume of several billion dollars. How might global cooperation change as the country rapidly becomes a player in the humanitarian and development ecosystem?

Salon 13.45 - 14.30

### Strategic Update: The Consumption System

From changing demographics to new channels such as virtual and augmented reality, global consumption is transforming. How can businesses keep pace with new technological, regulatory and economic realities?

Science Hub 14.00 - 14.30

### Ask About: Antibiotic Resistance

Explore how to track and predict drug-resistant infections using big data.

Bio Lab Nexus 14.00 - 14.30

### **Ask About: Allergies**

From mild to potentially life-threatening reactions, allergies affect the daily lives of an increasing proportion of the global population. Learn about the latest research on monitoring and mitigating allergies.

BetaZone 14.15 - 15.00

### Bio-Inspired Design

Investigate how designers and entrepreneurs are fast-tracking biological, material and digital innovation by developing nature-inspired solutions to humanity's challenges.

14.15 - 15.15 Arena

### Artificial Intelligence Unleashed

Artificial intelligence platforms are transforming the way businesses and governments interact with customers and constituents. As we grant more autonomy to AI to make choices on our behalf, how do we make sure it decides in our best interest? This session was developed in partnership with New Scientist.

Studio 14.15 - 15.15

### The Global Implications of China's Financial Reforms

What impact will China's financial market development have on the global financial and monetary system? This session was developed in partnership with Yicai Media Group.

Innovator Hub 1 14.30 - 15.00

### Fostering Rural Innovation

How might we foster rural innovation by fusing modern technology and traditional solutions? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Innovator Hub 2 14.30 - 15.00

### Unlocking Blockchain for Humanitarian Finance

How might we use blockchain technology to transform humanitarian finance? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Transformation Hub 15.00 - 15.45

### China in Depth: Mega Infrastructure Projects

Over the next 10 years, China plans to move 250 million people into the country's rapidly growing megacities. How will policy-makers and businesses implement the required large-scale city projects? Come to the Transformation Hub for an in-depth exploration of China's critical social and economic challenges.

15.00 - 15.45 Salon

### A New Measure of Economic Progress

GDP is widely considered an outdated measure of economic activity that fails to account for the natural, human and physical capital of nations. What would a more inclusive definition of economic progress look like?

15.00 - 15.45

### Designing for Human and Machine

Learn how to build robots, and explore and imagine a future that is more convivial to integrating robots into human life. This experience was developed in partnership with Infosys and Carnegie Mellon University.

Future Hub 15.00 - 15.45

### Thinking Ahead: Teaching Children Digital Literacy

What is one woman's work on the development of the Digital Intelligence Quotient (DQ) telling us about how to educate the next generation of digital citizens?

15.00 - 16.15 IdeasLab

### Materials of the Future with Korea Advanced Institute of Science and Technology (KAIST)

Discover new ideas and insights with leading researchers in the IdeasLab.

Global Situation Space 15.15 - 15.45

### Global Situation Space: The Big Picture on Oceans

From illegal fishing to marine pollution, explore the causes and consequences of man-made changes to water resources now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

Bio Lab Nexus 15.15 - 16.00

### Across the Spectrum: Tradition and Innovation

Explore and exchange stories of the unseen and surprising dynamics between tradition and innovation. The Spectrum series features artists and scientists challenging conventional wisdom and lending their insight to contested issues of today.

Science Hub 15.30 - 16.00

### Ask About: Quantum Computing

Explore how to trap individually charged atoms and place them in a special quantum state, in a step towards quantum computers.

BetaZone 15.30 - 16.15

### Security Outlook for the Korean Peninsula

Uncertainty over the Korean Peninsula has increased as a result of North Korea's continued missile testing. How might the region respond to future provocations?

Innovator Hub 1 15.45 - 16.15

### Open Government

How can governments balance the freedom of information and privacy to enable better government practices with open data? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Innovator Hub 2 15.45 - 16.15

### **Rethinking Mobility**

How might we implement an ecosystem that enables the mass adoption of electric vehicles in emerging markets? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

15.45 - 16.45 Arena

### China's Clean Tech Revolution

After transforming from the world's biggest polluter to its largest renewable energy market, what are the global implications of China's clean technology revolution? This session was developed in partnership with CNBC Africa

Studio 15.45 - 16.45

### **Bridging the Gender Divide**

From automation to the rise of flexible work, the shifting employment landscape will carry important gender implications. What approaches hold the greatest potential to make gender parity a reality in the Fourth Industrial Revolution?

16.00 - 17.45

### Dalian Cultural Tour: Chinese Tea Culture

During this journey into the essence of the extensive and profound Chinese tea culture, participants will be introduced to the art, etiquette and traditions of tea-making and tasting. Experience the reserve, inclusiveness and peace of the Chinese tea culture. Check TopLink for additional timings and to book.

Dalian Cultural Tour: Traditional Chinese Medicine

During this journey into traditional Chinese medicine (TCM), participants will visit an exhibit (antiques, precious medicinal herbs, plant specimens), meet with Chinese doctors, have an opportunity to experience TCM therapy (pulse diagnosis, massage, acupuncture) and taste Chinese medicinal food such as home-made herbal pastry and medicinal tea. Check TopLink for additional timings and to book.

16.15 - 16.45 Science Hub

### Ask About: Cell Behaviour

Explore how optogenetics is elucidating how cells decide when to differentiate, move, grow and die, and how diseases such as cancer affect signalling processes.

Global Situation Space 16 15 - 16 45

### Global Situation Space: The Big Picture on Energy

From subsidy reforms to decreasing production costs, explore the causes and consequences of renewable energy deployment now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modellina.

Transformation Hub 16.15 - 16.45

### World in Transformation: Illicit Economy

From transnational criminal networks to digital piracy, what factors are driving the persistence of the illicit economy? Join this session to explore the Transformation Map on Illicit Economy, co-curated with the Global Initiative against International Crime.

16 15 - 17 00 Future Hub

### The Benefits of a Curious Mind: Enhancing Empathy

Curiosity has the power to expand a person's worldview and strengthen the capacity to connect with others. How does one cultivate a curious mind to enhance empathy?

16.15 - 17.00 Agora

### Human-Centred High-Tech: Global Data Flows

A new age of digital trade brings opportunities as well as questions about the treatment of cross-border data flows, data localization and associated issues. What protocols, partnerships and practices can address the policy dilemmas and unintended consequences of instantaneous, cross-border data flows, and ensure the benefits are widely shared? This session is related to the work of the Center for the Fourth Industrial Revolution in San Francisco.

Salon 16.15 - 17.00

### In Science We Trust?

From climate change denial to vaccine scepticism, science is increasingly under attack. How can the scientific world rethink its approach to public engagement in a "post-truth" era?

BetaZone 16.30 - 17.00

### Pioneering the Sharing Economy

Join a conversation with Annual Meeting of the New Champions 2017 Co-Chair Jean Liu, President of Didi Chuxing, the world's leading ridehailing service, on pioneering and scaling up China's sharing economy to the global arena.

09.15 - 10.30

### Meeting Sub-Themes

- Scaling Up Human-Centred Technology
- Creating Sustainable Systems

### Leading Continuous Reinvention

Responding to Geo-Economic Shifts

Bio Lab Nexus 16.30 - 17.15

### The Science of Sleep

Feeling jet-lagged? Why do all animals and humans need to sleep? How does the brain control whether we are tired or awake? Sleep, an essential part of our lives, remains one of neuroscience's greatest mysteries. Join a conversation with Masashi Yanagisawa, Director of the International Institute for Integrative Sleep Medicine at the University of Tsukuba, to learn about the latest discoveries in the neurobiology of sleep and why they matter.

Briefing Centre 16.45 - 17.15

Issue Briefing: European Political Outlook

Elections in Europe have tested the resilience of the European Union and signalled the direction of future reform agendas. How will Europe's latest and future elections shape the region, and how will that impact the rest of the world?

IdeasLab 16.45 - 18.00

### **Exploring Epigenetics with the European Research Council**

Discover new ideas and insights with leading researchers in the IdeasLab.

Science Hub 17.00 - 17.30

### Ask About: Energy Storage

Explore how hydro-pump storage technologies are revolutionizing renewable energy deployment and precipitating a tipping point in the clean energy transition.

Studio 17.15 - 18.15

### **Dragon Science**

China's spending on R&D surpasses that of the European Union and is expected to overtake the US by the end of the decade. How will China's rise as a global science leader shape the future of science? This session was developed in partnership with The-Intellectual.

Arena 17.15 - 18.15

### The Smart City Revolution

More compact, connected and coordinated cities can dramatically shrink environmental pressures while improving life quality and economic competitiveness. With smart city projects on the rise globally, what policies, business models and technologies show the greatest promise?

BetaZone 17.30 - 18.00

### Amplifying Human Intelligence

Join a conversation with Annual Meeting of the New Champions 2017 Co-Chair Vishal Sikka, Chief Executive Officer of Infosys, a global technology company, on leveraging artificial intelligence to amplify human potential.

Innovator Hub 2 17.30 - 18.00

### Providing Healthcare for All

How might we use technology more effectively to provide basic healthcare to 2 billion people who don't have access today? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Future Hub 17.30 - 18.15

### The Transformation of Energy Storage

Battery storage is predicted to grow 250-fold by 2030, yet the advanced materials needed in their manufacture are in chronically short supply. How could partnerships support responsible sourcing and recycling within the burgeoning battery economy?

17.30 - 18.15 Salon

### Responding to Global Health Risks

At the World Economic Forum Annual Meeting 2017, a group of countries, funding organizations and pharmaceutical companies launched the Coalition for Epidemic Preparedness Innovations (CEPI), an initiative devoted to readying pandemic defences before a major outbreak. How can innovative partnerships and emerging technologies transform the response to global health threats?

17.30 - 18.15 Agora

### Human-Centred High-Tech: Self-Driving Vehicles

Fully autonomous vehicles are at a critical juncture in their development, with test fleets operating on public roads and citizen trust increasing. What protocols, partnerships and practices can address the remaining policy dilemmas and unintended consequences of autonomous mobility, and ensure the benefits are widely shared? This session supports the work of the Center for the Fourth Industrial Revolution in San Francisco.

Transformation Hub 17.30 - 18.15

### Rethinking Economics for the Real World

Voters have shown little interest in advice from economists in recent elections. What disruptions from the sciences can make economics more relevant?

Global Situation Space 17.30 - 18.15

### Behind the Scenes: Smog Free Tower

Could polluted air be a thing of the past? Visit the Smog Free Tower with artist and creator Daan Roosegaarde to learn more about the vision behind the world's largest smog vacuum cleaner.

Bio Lab Nexus 17.45 - 18.15

### Ask About: Vaccines

From influenza to Ebola, vaccines have the power to bring global health threats under control. Learn about the latest research on vaccines.

Science Hub 17.45 - 18.15

### Ask About: Prosumer Grids

Explore how residential grid storage is enabling distributed power generation and empowering consumers.

18 00 - 19 00

### Transfer to Soirée

Shuttles will leave continually from the official hotels to the cultural soirée located across the street from the DICC.

Music Fountain Square, Donggang CBD 19.00 - 21.00

### Cultural Soirée

The Dalian Municipal Government warmly welcomes participants to sample traditional dumplings hand-pulled poodles roast duck and local culinary specialties; enjoy artistic performances; and appreciate demonstrations of painting, calligraphy, paper-cutting, knotting and other aspects of China's cultural heritage.

Music Fountain Square, Donggang CBD 19.00 - 21.30

### Transfer to Hotels

Shuttles will depart continually from the Cultural Soirée to the official

### Wednesday 28 June

BetaZone 08.00 - 08.45

### Introduction to Tai Chi

Tai Chi is an ancient Chinese discipline of meditative movements that can improve health, mental clarity and overall well-being. Start the day with an early morning introduction to the philosophy and practice of Tai Chi

Studio 09.00 - 10.00

### One Belt, One Road: The Global Implications

What regional and global partnerships are required to realize a successful and inclusive One Belt, One Road initiative? This session was developed in partnership with Caixin Media.

09.00 - 10.00 Arena

### The Race Mobility

Experts believe that, by 2021, mass market sales of driverless cars will begin. As cities race towards a driverless future, how should they adapt their operating models, governance and infrastructure for the new mobility paradigm?

09.00 - 10.30

### Dalian Cultural Tour: Peking Opera

In 2010, the Peking Opera was proclaimed by UNESCO as a Masterpiece of the Oral and Intangible Heritage of Humanity. Come to the 200-year old Peking Opera for a performance and back-stage tour - from stagecraft and make-up rituals to an exclusive acrobatic performance – and learn some of the troupe's fighting moves in this interactive experience. Check TopLink for additional timings and to book.

Science Hub 09.15 - 09.45

### Ask About: Waste to Energy

Explore the latest developments in waste-to-energy technology in China.

BetaZone 09.15 - 09.45

### Leading the Energy Transition

Join a conversation with Annual Meeting of the New Champions 2017 Co-Chair Shu Yinbiao, Chairman of State Grid Corporation of China, the world's largest public utility, on leading China's transition towards clean energy.

09.15 - 10.00 Salon

### Ending Counterfeit in Commerce

In consumer tech alone, the value of lost sales due to counterfeit goods amounts to \$143 billion, and inferior or dangerous components expose consumers to health and safety risks. What policies and technologies will make trade and commerce safer and more transparent?

09.15 - 10.15 Agora

### **Decoding National Digital Strategies**

Many emerging economies build on national digital strategies to unlock opportunities for future growth. What are the most promising approaches, and how can they be measured? This session is related to a System Initiative (Shaping the Future of Digital Economy and Society).

IdeasLab

Unpacking New Medical Paradigms with Imperial College London

Discover new ideas and insights with leading researchers in the IdeasLab.

Future Hub 09.30 - 10.15

### Algorithms Make the World Go Round - or Wrong

Algorithms can be just as biased as their programmers, and social media feeds may multiply fake news at the speed of light. What are constructive approaches to counteract algorithms changing political behaviour at the mass and individual level?

09.30 - 10.15 Transformation Hub

### China in Depth: Digital Transformation

By some measures, the digital economy comprises one-third of China's GDP, providing fertile ground for new business and operating models. How can China nurture and expand its digital ecosystem? Come to the Transformation Hub for an in-depth exploration of China's critical social and economic challenges.

Innovator Hub 1 09.30 - 10.00

### Design Thinking in the City

How might we apply design thinking to create urban spaces that allow for greater collaboration and inclusion? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator

Innovator Hub 2 09.30 - 10.00

### Improving Diversity in Science, Technology, Engineering and Mathematics

How might we address structural challenges to enable diversity and gender parity in the STEM workforce? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Global Situation Space 09.30 - 10.00

### Global Situation Space: The Big Picture on Energy

From subsidy reforms to decreasing production costs, explore the causes and consequences of renewable energy deployment now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

10.00 - 10.30 Briefing Centre

### **Cloning Humans**

With developments in genome editing, synthetic biology and tissue engineering, are we getting closer to human cloning? Explore the challenges, limitations and implications of the latest scientific breakthroughs.

Science Hub 10.00 - 10.30

### Ask About: Technology for Oceans

Explore how technologies such as cloud computing enable better management of our ocean resources.

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### **Meeting Sub-Themes**

Scaling Up Human-Centred Technology

Across the Spectrum: Humans and Robots

Creating Sustainable Systems

### Leading Continuous Reinvention

Responding to Geo-Economic Shifts

### Bio Lab Nexus 10.00 - 10.45

Explore and exchange stories of the unseen and surprising dynamics between humans and robots. The Spectrum series features artists and scientists challenging conventional wisdom and lending their insight to contested issues of today.

Arena 10.30 - 11.30

### Climate's Next Frontier

The climate-smart investment opportunity is estimated at nearly \$23 trillion in emerging markets between now and 2030. Following the US pull-out from the climate agreement, what leadership is needed to seize this opportunity?

Salon 10.30 - 11.30

### Global Innovation: An Indian Perspective

From low-cost innovation to frugal engineering, scarcity and frugality have often driven Indian entrepreneurs to solve local challenges. What can Indian entrepreneurs offer in the global context?

Studio 10.30 - 11.30

### China's New Age of Entertainment

Chinese box office is expected to beat North America this year as the world's biggest film market. How is China's booming media and entertainment industry affecting culture and commerce? This session was developed in partnership with iQIYI.

Innovator Hub 1 10.45 - 11.15

### **Embracing Neurodiversity**

New research is increasingly showing that people with neurological conditions such as autism possess skills that neurotypical people do not have. How might we harness the potential of neurodiversity in the workplace? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Innovator Hub 2 10.45 - 11.15

### **Empowering Rural Populations**

How might we create economic opportunities in rural areas through microfinance? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Global Situation Space

10.45 - 11.15

### Global Situation Space: The Big Picture on Cities

From economic growth to environmental collapse, explore the causes and consequences of emerging megacities now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

Science Hub 10.45 - 11.15

### Ask About: Technology for Sanitation

Explore how to leverage technology for water treatment and disinfection in cities.

BetaZone 10.45 - 11.30

### **Towards Humane Cities**

Explore with architect John Lin how design and architecture can help make rapid urbanization a more humane process.

10.45 - 11.30 Agora

Connected devices are driving transformation with advances in sensor

### **Human-Centred High-Tech: Internet of Things**

technology, wireless connectivity and increased data and energy storage, while raising new concerns about privacy, security and interoperability. What protocols, partnerships and practices can address the policy dilemmas and unintended consequences of the internet of things, and ensure the benefits are widely shared? This

session supports the work of the Center for the Fourth Industrial

Transformation Hub 10.45 - 11.30

### Rethinking Economics for the 21st Century

Voters have shown little interest in advice from economists in recent elections. What disruptions from social sciences can make economics more relevant?

Robot Maker Space

Revolution in San Francisco.

10.45 - 11.30

### Design by Doing: Build Your First Robot

Design, build and experiment with handmade robots and find out how they will be part of our future. Participants can also visit the Robot Maker Space outside scheduled session times. This learning experience was developed in partnership with Infosys and Carnegie Mellon University.

Future Hub 10.45 - 11.30

### Thinking Ahead: Growing Change

How is one woman's sustainable mushroom farming venture delivering a unique vision for self-empowerment and a path out of poverty? The Thinking Ahead sessions spotlight members of the Social Engagement communities to share their unconventional ideas and bold initiatives that could change the world and reshape our common future.

11.00 - 12.15 IdeasLab

### The Revolution in Bio-Engineering with Princeton University

Discover new ideas and insights with leading researchers in the IdeasLab.

Bio Lab Nexus 11.30 - 12.00

### Ask About: Cancer

Approximately four out of 10 men and women will be diagnosed with cancer at some point in their life. Learn how you can support the fight against cancer.

Science Hub 11.30 - 12.00

### Ask About: Wearable Display

Explore how altering crystal structures is leading to wearable display technology.

Global Situation Space 11.45 - 12.30

### Behind the Scenes: Smog Free Tower

Could polluted air be a thing of the past? Visit the Smog Free Tower with artist and creator Daan Roosegaarde to learn more about the vision behind the world's largest smog vacuum cleaner.

Village 11.45 - 13.00

### Community Lunch

Participants are cordially invited to a buffet lunch in the Village within the Dalian International Conference Center.

Science Hub 12.15 - 12.45

### Ask About: Epigenetics

Explore how epigenetics is the key to unlocking and understanding the full potential of each individual on the planet.

Future Hub 12.15 - 13.00

### The Hospital of the Future

Tomorrow's technology could turn hospitals into science fiction dreams or make them obsolete. How will the Fourth Industrial Revolution redefine where and how we care for the ill and injured?

Bio Lab Nexus 12.30 - 13.00

### Ask About: Mental Health

One in four people in the world will be affected by a mental health condition at some point in their lives. Learn about the latest research on mental health

12.45 - 13.45 Agora

### A New Vision for Oceans

The ocean economy provides 31 million jobs and generates \$1.5 trillion annually, but is threatened by over-exploitation, pollution and climate change. How can new technologies secure the health of our oceans and the livelihoods dependent on them? This session is related to a System Initiative (Shaping the Future of Environment and Natural Resource Security).

BetaZone 13.00 - 13.45

### Visions of Digital Creativity

Explore with media artist Daito Manabe how new reality-bending technologies will shift the digital landscape.

Salon 13.00 - 13.45

### Social Safety Net 4.0

From the robot tax to universal basic income, what new approaches hold the greatest potential to provide societal safety as the Fourth Industrial Revolution takes hold?

Studio 13.00 - 14.00

### Global Trade and Inclusive Growth

G20 ministers are divided about the benefits of trade, and the future of the multilateral trading system is in doubt. With protectionist rhetoric on the rise, what policy options can firmly embed inclusive growth in global trade agendas? This session was developed in partnership with CCTV.

Arena 13.00 - 14.00

### Solving the Productivity Puzzle

Productivity growth has been slack in many economies since the global financial crisis. How can emerging technologies and innovation help boost productivity growth and living standards over the long term?

Innovator Hub 1 13.15 - 13.45

### **Drones Delivering Development**

How might we harness the next big opportunity for using drones in healthcare and development? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

13.15 - 13.45 Innovator Hub 2

### Accelerating the Recycling Market

How might we create a local market for recycling technologies in emerging economies? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

13.15 - 14.30 IdeasLab

### Demystifying Quantum with ETH Zurich

Discover new ideas and insights with leading researchers in the IdeasLab.

Bio Lab Nexus 13.30 - 14.15

### Across the Spectrum: East and West

Explore and exchange stories of the unseen and surprising dynamics between East and West. The Spectrum series features artists and scientists challenging conventional wisdom and lending their insight to contested issues of today.

Science Hub 13.45 - 14.15

### Ask About: Lithium-Air Batteries

Explore how new chemistry could improve the efficiency and longevity of batteries.

Briefing Centre 13.45 - 14.15

### China's Carbon Market

When launched, China's carbon-emission trading system will be the world's most ambitious and sophisticated. What are its success prospects, and how will it ultimately impact climate change?

Transformation Hub 13.45 - 14.15

### World in Transformation: Blockchain

From digital identity to transparent governance, what breakthroughs are transforming the future of distributed ledger technology? Join this session to explore the Transformation Map on Blockchain, co-curated with Imperial College London.

13.45 - 14.30 Future Hub

### **Digital Urban Future**

From ubiquitous connectivity to the internet of things, emerging technologies are optimizing life in cities. What is needed to resolve ethical and legal challenges as smart cities scale up?

BetaZone 14.15 - 14.45

### Working towards a Smart and Secure Connected Future

Join a conversation with Annual Meeting of the New Champions 2017 Co-Chair Alex Molinaroli, Chief Executive Officer of Johnson Controls International, a multi-industrial technology company, on building smart, connected and secure infrastructure.

Salon 14.15 - 15.00

### A New Strategic Narrative for Asia

The strategic narrative for the Asia-Pacific region remains unclear in the wake of the US withdrawal from the Trans-Pacific Partnership and China's launch of the One Belt, One Road Initiative. What are the common interests and new opportunities that could underpin renewed efforts to develop a shared vision for regional peace and prosperity?

### **Meeting Sub-Themes**

- Scaling Up Human-Centred Technology
- Creating Sustainable Systems

### Leading Continuous Reinvention Responding to Geo-Economic Shifts

14.15 - 15.00 Agora

### Operating for the Future Consumer

Digitalization of industry and increasingly empowered consumers are challenging the definition of what a company is and how it operates. How will businesses of the future be organized? This session is related to a System Initiative (Shaping the Future of Consumption).

Innovator Hub 1 14.30 - 15.00

### Making Artificial Intelligence Safe

How might we make Al safer to bring autonomous systems into our daily lives? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Innovator Hub 2 14.30 - 15.00

### **Innovating for Greener Chemicals**

How might we better link advances in biology and green-chemistry research to deliver high-value chemicals for industries? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub

14.30 - 15.00 Science Hub

### Ask About: Supercomputing

Explore how to achieve high-performance computation and software optimization while staying green.

Global Situation Space 14 30 - 15 15

### Behind the Scenes: Smog Free Tower

Could polluted air be a thing of the past? Visit the Smog Free Tower with artist and creator Daan Roosegaarde to learn more about the vision behind the world's largest smog vacuum cleaner.

Studio 14 30 - 15 30

### Achieving Inclusive Growth in the Fourth Industrial Revolution

The Fourth Industrial Revolution could either widen or narrow future income gaps and employment opportunities. How can leaders ensure technological change is inclusive and human-centred?

Arena 14.30 - 15.30

### **Perfecting Precision Medicine**

Precision medicine has the potential to change the way we treat and cure disease. As genomic technologies move from lab to clinic, how can precision medicine be both accessible to and affordable for all?

Future Hub 15.00 - 15.45

### The Benefits of a Curious Mind: Sparking Creativity

Curiosity has the power to drive people to ask disruptive questions and can be the key ingredient for future breakthroughs and new ideas. How does one cultivate a curious mind to awaken creativity?

15.00 - 15.45 Transformation Hub

### Transforming Industrial Production with Artificial Intelligence

How might we use artificial intelligence to make production methods and processes more sustainable and efficient?

15.00 - 16.15 IdeasLab

### Reimagining Pollution Control with Zhejiang University

Discover new ideas and insights with leading researchers in the Ideasl ab.

BetaZone 15.15 - 15.45

### Building an Innovation Ecosystem

Join a conversation with Annual Meeting of the New Champions 2017 Co-Chair Xu Jinghong, Chairman of Tsinghua Holdings, which incubated more than 10,000 technology companies ranging from smart chips to security systems, on scaling up China's innovation ecosystem.

Science Hub 15.15 - 15.45

### Ask About: Hybrid Materials

Explore how combining artificial and natural polymers can create novel materials with unique functionality.

Bio Lab Nexus 15.15 - 16.00

### Future of Life: Medicine

From Chinese traditional medicine to microbiome therapy, how is new research redefining our approach to medicine? Explore the possible, plausible and probable impacts of biological breakthroughs in the Fourth Industrial Revolution

Robot Maker Space 15 15 - 16 00

### Design by Doing: Build Your First Robot

Design, build and experiment with handmade robots and find out how they will be part of our future. Participants can also visit the Robot Maker Space outside scheduled session times. This learning experience was developed in partnership with Infosys and Carnegie Mellon University.

15.30 - 16.15 Agora

### Human-Centred High-Tech: Artificial Intelligence

Exponential increases in computing power and data indicate that computers with previously unimaginable capabilities are finally within reach. What protocols, partnerships and practices can address the policy dilemmas and unintended consequences of artificial intelligence, and ensure the benefits are widely shared?

Salon 15.30 - 16.15

### Rebuilding Trust in the Healthcare Industry

The global healthcare industry has come under the spotlight in recent years amid accusations of unethical practices, questionable pricing strategies and inaccurate data reporting. How can the industry put the patient back at the centre of the system?

Innovator Hub 1 15.45 - 16.15

### Educating for a Borderless World

How might we equip Chinese teenagers with the skills needed to navigate conflicting value systems in a fast-changing world? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Innovator Hub 2 15.45 - 16.15

### Catalysing China's Circular Economy

How might we accelerate the deployment of circular economy business models in Chinese cities? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

15.45 - 16.15 Global Situation Space

Global Situation Space: The Big Picture on the New Silk Road

From ancient trade routes to One Belt, One Road, explore the causes and consequences of deepened regional integration now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

Studio 16.00 - 17.00

### The Future of Big China

China's state-owned enterprises are suffering from the end of the construction boom, global commodity price slump and shrinking trade. What is the way forward for "Big China" corporations?

Arena 16.00 - 17.00

### The State of Neuroscience

Discover how strategic neuroscience initiatives from around the world are aligning to unlock the mysteries of the human brain. This session was developed in partnership with Scientific American.

BetaZone 16.15 - 16.45

### Shaping the Future of Science

Join a conversation with Annual Meeting of the New Champions 2017 Co-Chair Maria-Elena Torres-Padilla, Young Scientist and Director of the Institute of Epigenetics and Stem Cells at Helmholtz Zentrum München, on the future of science, research and innovation.

Future Hub 16.15 - 17.00

### When Virtual Becomes Reality

China's virtual and augmented reality market will surpass \$7.9 billion in 2020. How will it transform media and entertainment?

16.15 - 17.30 xChange

### Connecting Innovation Ecosystems across China and Europe

Representing two powerhouses for innovation and entrepreneurship, how can China and Europe leverage their ecosystems to drive closer collaboration? This session will be connected live to a parallel session co-hosted with the Net Futures Conference in Brussels

Global Situation Space 16.45 - 17.15

### Global Situation Space: The Big Picture on Oceans

From illegal fishing to marine pollution, explore the causes and consequences of man-made changes to water resources now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modellina.

Science Hub 16.45 - 17.15

### Ask About: Machine Learning and Genetics

Explore how an algorithm can look for the genetic relationships that cause conditions such as autism.

Bio Lab Nexus 16.45 - 17.30

### Future of Life: Consumption

From harnessing a jellyfish's natural ability to desalinate water to rearing animals for food, how are we exploiting life as a raw material? Explore the possible, plausible and probable impacts of biological aspects of the Fourth Industrial Revolution.

16.45 - 17.30 Agora

### Learn to Code

From custom apps to game-changing innovations, programming is becoming a critical skill to succeed in the workplace. Test your ability to code and discover the technology and programming skills that are essential assets for the Fourth Industrial Revolution. This learning experience was developed in partnership with LEGO Foundation.

16.45 - 17.30

### **Boosting the Mini-Multinational**

Digital platforms and technologies enable even small-scale entrepreneurs to connect directly with customers and suppliers around the world, transforming them into "micro multinationals". Could a largescale increase of mini-multinationals make globalization more inclusive and "global"?

16.45 - 18.00 IdeasLab

### Rethinking Energy Storage with Australian National University

Discover new ideas and insights with leading researchers in the IdeasLab.

Briefing Centre 17.00 - 17.30

### China's Security Agenda

China's foreign policy influence is expanding in terms of regional security, as well as global trade and investment regimes. How will China's policies shape the international security landscape in the coming decade?

BetaZone 17.15 - 17.45

### Stemming the Surge in the Illegal Wildlife Trade

As China takes the lead in closing down its ivory markets, learn how cutting-edge technology deployed in the tourism and transport sectors can turn the tide on illegal wildlife trafficking, with John Scanlon, Secretary-General of CITES.

Innovator Hub 1 17.30 - 18.00

### **Creating Critical Thinking**

How might we prepare young people with soft skills and critical thinking for an ever more technology-driven world? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub

Innovator Hub 2 17.30 - 18.00

### Partnering for Innovation

How might established companies and upcoming enterprises partner to overcome cultural differences and accelerate innovation in an age of digital disruption? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

Science Hub 17.30 - 18.00

### Ask About: Dynamic Biomaterials

Explore how dynamic biomaterials are helping wounds to heal.

Transformation Hub

### China in Depth: Future Manufacturing System

The Made in China 2025 plan aims to accelerate growth in 10 strategic industries, including robotics, electric cars and nextgeneration technology. How will China achieve its goal of becoming a leading high-tech manufacturer in the coming decade? Come to the Transformation Hub for an in-depth exploration of China's critical social and economic challenges.

17.30 - 18.15

- Scaling Up Human-Centred Technology
- Creating Sustainable Systems
- Leading Continuous Reinvention Responding to Geo-Economic Shifts

Future Hub

17.30 - 18.15

### Thinking Ahead: 40 Marathons in 40 Days

What is one woman's journey of running 40 marathons in 40 days along six rivers teaching us about how to tackle the global water crisis? Thinking Ahead sessions spotlight members of the Social Engagement communities to share their unconventional ideas and bold initiatives that could change the world and reshape our common future.

Arena

17.30 - 18.30

### China Economic Outlook

What are China's macroeconomic and structural policy priorities to meet its 6.5% GDP growth target? This session was developed in partnership with Caijing Media.

Studio

17 30 - 18 30

### Visualizing Disease

From cardiovascular disease to diabetes, discover how noncommunicable diseases are rapidly spreading across Asia and how new technologies could help to prevent and manage this new epidemic. This session is designed in collaboration with the New England Journal of Medicine.

xChange

17.45 - 18.45

### Fintech for Inclusive Finance

The Chinese mobile-payments market is 50 times that of the US. What products and business models are needed for fintechs to be able to reach the financially underserved? This session was developed in collaboration with the National School of Development, Peking University.

Agora

18.00 - 18.45

### Tomorrow's Clean Energy Giants

China invested a record \$32 billion last year in renewables, contributing to a fast-growing global market of clean assets. How can investors and businesses accelerate clean energy uptake from public and private seed funding? This session is related to System Initiatives (Shaping the Future of Energy; Shaping the Future of Long-Term Investing, Infrastructure and Development; and Shaping the Future of Environment and Natural Resource Security).

Salon

18.00 - 18.45

### The State of the Arts in China

Join leading artists and curators to learn about what developments in the arts reveal about culture in China today.

BetaZone

18.15 - 18.45

### **Augmenting Humanity**

From assisting people with disability to augmenting everyday work and life, explore how technology transforms the human experience with robotics pioneer Yoshivuki Sankai.

Science Hub

18.15 - 18.45

### Ask About: Batteries

Explore how quantum physics is helping to visualize what happens inside a battery as it operates and how to harness this information to improve battery duration and performance.

### Thursday 29 June

BetaZone

08.15 - 09.00

### Introduction to Tai Chi

Tai Chi is an ancient Chinese discipline of meditative movements that can improve health, mental clarity and overall well-being. Start the day with an early morning introduction to the philosophy and practice of Tai Chi.

Studio

09 00 - 10 00

### The New Champions of Growth

By 2025, half of the world's Fortune 500 businesses will be headquartered in emerging economies. What industries and economies will drive the next wave of growth? And, how will this wave overcome the structural concerns impacting the global economy today? This session was developed in partnership with CNBC.

Arena

09.00 - 10.00

### Global Science: The View from Russia

Russian science has set the scene for its renaissance through extensive reforms since 2010. How is Russian science poised to reshape the global innovation ecosystem?

xChange

09.00 - 10.15

### Thriving under Uncertainty

How can businesses and governments manage complex and interconnected risks in the Fourth Industrial Revolution? This session is related to the Forum initiative on Mitigating Risks in the Innovation Economy.

Global Situation Space

09.15 - 09.45

### Global Situation Space: The Big Picture on the New Silk Road

From ancient trade routes to One Belt, One Road, explore the causes and consequences of deepened regional integration now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

Transformation Hub

09.15 - 10.00

### China in Depth: The Quest for Talent

China today boasts roughly five workers for every retiree. By 2040, this ratio will have collapsed to less than two, and the median age in the country will go from 30 to 46. From delaying retirement to attracting global talent, how will China prepare for an ageing society and shrinking workforce? Come to the Transformation Hub for an in-depth exploration of China's critical social and economic challenges.

Salon

09.15 - 10.15

### **Rethinking Business Growth**

In a business climate of accelerated automation and trade protectionism, many companies are "reshoring" jobs to the countries that develop their technologies. What is the new business growth model?

Agora

### Towards a Universal Digital Identity

How can a universal digital identity unlock opportunities for greater inclusion and access to the digital economy? This session is related to System Initiatives (Shaping the Future of Digital Economy and Society).

Ideasl ab

09.15 - 10.30

### **Building Blocks for Innovation**

If the most innovative economies are the most competitive, then what are the characteristics and conditions that make these risk-taking enterprises successful? This session is related to a System Initiative (Shaping the Future of Economic Growth and Social Inclusion).

Science Hub

09.30 - 10.00

### Ask About: Ecology from the Air

Explore how to image, map and measure huge expanses of the environment in detail with a spectrometer, lasers and a small aircraft.

Innovator Hub 2

09 30 - 10 00

### Video Gaming for Sustainability

What can we learn from video game technology to create a more sustainable urban future? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

BetaZone

09.30 - 10.15

### The Blue Zones of Happiness

Discover the surprising secrets of the world's happiest places and learn how to apply the lessons of true happiness to your own life, with bestselling author and National Geographic Fellow Dan Buettner.

Bio Lab Nexus

10.00 - 10.30

### Across the Spectrum: City and Nature

Explore and exchange stories of the unseen and surprising dynamics between nature and the city. The Spectrum series features artists and scientists challenging conventional wisdom and lending their insight to contested issues of today.

Robot Maker Space

10.00 - 10.45

### Design by Doing: Build Your First Robot

Design, build and experiment with handmade robots and find out how they will be part of our future. Participants can also visit the Robot Maker Space outside scheduled session times. This learning experience was developed in partnership with Infosys and Carnegie Mellon University.

Global Situation Space

10.15 - 10.45

### Global Situation Space: The Big Picture on Cities

From economic growth to environmental collapse, explore the causes and consequences of emerging megacities now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

Science Hub

10.15 - 10.45

### **Ask About: Metamaterials**

Explore how artificially designed materials – metamaterials – possess properties that go beyond those of their building blocks.

Future Hub

10.30 - 11.15

### The Benefits of a Curious Mind

Curiosity has the power to increase active engagement and interest in learning and to spark a person's ability to think critically for the long run. How does one cultivate a curious mind to improve lifelong learning?

 Leading Continuous Reinvention Responding to Geo-Economic Shifts

Transformation Hub 10.30 - 11.15

### Rethinking Economics with Big Data

Voters have shown little interest in advice from economists in recent elections. What disruptions from big data can make economics more relevant?

Arena 10.30 - 11.30

### Prosperity and Security along the Modern Silk Road

This year's Belt and Road Forum concluded with investment pledges of multiple billion dollars and statements committing to consultation and cooperation. What actions are needed to sustainably advance prosperity and security along the Southern branch of the Modern Silk Road?

Studio 10.30 - 11.30

### Global Innovation Outlook

How are new institutions and collaborations enabling global innovation to grow beyond borders? This session was developed in partnership with Wired.

Innovator Hub 1 10.45 - 11.15

### **Achieving Energy Access**

How might we leverage decentralized power generation to bring light to the 1.3 billion living in darkness? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator

Innovator Hub 2 10.45 - 11.15

### **Up-Smarting Cars**

How might we deploy autonomous vehicle-grade technology to improve the safety and efficiency of cars on the road today? Explore new ways to scale solutions to some of today's most pressing challenges in the Innovator Hub.

BetaZone 10.45 - 11.30

### Fuel-Free Flight

From solar drones to zero-fuel commercial flights, explore the potential of next-generation aviation technologies with Solar Impulse pilot Andre Borschberg.

10.45 - 11.30 Agora

### Designing for Human and Machine

Learn how to build robots, and explore and imagine a future that is more convivial to integrating robots into human life. This experience was developed in partnership with Infosys and Carnegie Mellon University.

Salon 10.45 - 11.30

### Working with Robots

As robots move from assembly lines to office floors, what opportunities and challenges will arise for the future workforce?

xChange 10 45 - 12 00

### The Future of Production with Carnegie Mellon University

How can engineers, policy-makers and business leaders develop a human-centred production system?

Bio Lab Nexus 11.00 - 11.30

### Ask About: Heart Disease

Heart disease remains the number one global cause of death. Learn about the latest research on heart disease.

Science Hub 11.00 - 11.30

### Ask About: Solar Energy

Explore how perovskite thin films are propelling the development of ultra-efficient, low-cost solar cells.

11.00 - 12.15

### Technologies for the Planet with Stanford University

Discover new ideas and insights with leading researchers in the IdeasLab.

Global Situation Space 11.30 - 12.00

### Global Situation Space: The Big Picture on Energy

From subsidy reforms to decreasing production costs, explore the causes and consequences of renewable energy deployment now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

Science Hub 11.45 - 12.15

### Ask About: Growing Organs

Explore how to reconstruct tissue architectures, such as those found in the lungs or kidneys, from scratch.

Future Hub 11.45 - 12.30

### In Digital We Trust

Digitalization and social media can foster civic participation to uphold integrity in society. How can technology help mitigate the corrosion of trust in business and governance?

Village 11.45 - 13.30

### Community Lunch

Participants are cordially invited to a buffet lunch in the Village within the Dalian International Conference Center.

Salon 12.00 - 12.45

### Beyond Paris: Technology's Promise

As the United States withdraws from the climate deal, how could new technologies help drive progress on commitments made in Paris?

12 00 - 12 45 Agora

### Human-Centred High-Tech: Virtual and Augmented Reality

Virtual and augmented reality can allow transportation to new worlds and provide new channels to consume information, and yet we know little about how these technologies impact our brains and how we relate to each other. What protocols, partnerships and practices can address the policy dilemmas and unintended consequences of virtual and augmented reality, and ensure the benefits are widely shared? This session supports the work of the Center for the Fourth Industrial Revolution in San Francisco.

Transformation Hub 12.00 - 12.45

### China in Depth: The New Face of Philanthropy

Passed in September 2016, China's first Charity Law sets a new context for philanthropic activity. At the same time, charitable giving continues to rise, surpassing \$15 billion annually. How will China's philanthropy sector increase its impact and unleash its full potential to ensure that socio-economic growth reaches all? Come to the Transformation Hub for an in-depth exploration of China's critical social and economic challenges.

Robot Maker Space 12.00 - 12.45

### Design by Doing: Build Your First Robot

Design, build and experiment with handmade robots and find out how they will be part of our future. Participants can also visit the Robot Maker Space outside scheduled session times. This learning experience was developed in partnership with Infosys and Carnegie Mellon University.

Studio 12.00 - 13.00

### Science with(out) Borders

Answering the next generation of big questions – from dark matter to curing cancer - will require financial and human resources that exceed any one nation's capacity. In the wake of rising nationalism, how can the global community collaborate to advance the frontiers of knowledge?

Arena 12.00 - 13.00

### Global Economic Outlook

Global growth has returned to a healthy 3.5%, yet weak productivity growth, rising debt burdens and geo-economic tensions present new risks in many regions. How robust is the global economic recovery? This session was developed in partnership with Bloomberg.

Bio Lab Nexus 12 15 - 12 45

### Ask About: Tumours

Understanding how tumours grow is at the core of developing methods to slow or stop cancer. Learn about the latest research on

BetaZone 12 30 - 13 00

### An Insight, An Idea with Jin Xing

A conversation with choreographer and television host Jin Xing on her journey of overcoming societal barriers to become one of China's most influential personalities.

Global Situation Space 12.30 - 13.15

### Behind the Scenes: Smog Free Tower

Could polluted air be a thing of the past? Visit the Smog Free Tower with artist and creator Daan Roosegaarde to learn more about the vision behind the world's largest smog vacuum cleaner.

xChange 12.30 - 14.00

### **Building Skills for Life through Creativity**

With the rapid rise of new technologies, products and services, and ways of working, creativity, collaboration and critical thinking are among the top attributes needed by 2020 for workers to thrive in the Fourth Industrial Revolution. How can organizations and societies better prepare the workforce for lifelong learning and keep pace with change to drive innovation? This learning experience was developed in partnership with LEGO Foundation.

IdeasLab 12.45 - 14.00

### The Future of Conflict

Previous industrial revolutions have been intimately connected to changes in the way nations wage war. How will the Fourth Industrial Revolution shape the future of conflict?

Transformation Hub

13.00 - 13.30

### World in Transformation: Human Enhancement

From extreme bionics to neuroscience and genome editing, what are the breakthrough technologies that are transforming the future of human enhancement? Join this session to explore the Transformation Map on Human Enhancement, co-curated with MIT.

Future Hub 13.00 - 13.45

### Thinking Ahead: Roots in the Rainforest

What is one woman's food-based business venture in the Amazon teaching us about local conservation and global markets? The Thinking Ahead sessions spotlight members of the Social Engagement communities to share their unconventional ideas and bold initiatives that could change the world and reshape our common future.

Global Situation Space 13.15 - 13.45

### Global Situation Space: The Big Picture on Oceans

From illegal fishing to marine pollution, explore the causes and consequences of man-made changes to water resources now and through time. The Global Situation Space combines NASA time-lapse satellite imagery, geospatial and econometric data with predictive modelling.

Studio 14 00 - 15 00

### Leading a Human-Centred Revolution

Advances in genomics, precision medicine and neuroscience have the capacity to change who we are, what we think and how we behave. What values and principles will help us ensure that the Fourth Industrial Revolution will be human-centred?

Studio 15.00 - 15.10

### Closing Remarks

Studio 15.10 - 15.30

### Closing Performance

The Annual Meeting of the New Champions 2017 draws to a close with a powerful dance performance by the acclaimed Jin Xing Dance Theatre, bridging modern Chinese and Western styles and reaffirming the spirit of cross-cultural understanding.

North Main Entrance 15.30 - 16.15

### Farewell Reception

Participants are invited to a farewell reception co-hosted by the Dalian Municipal Government and the World Economic Forum.



### Creating Sustainable Systems

# **Explore the Programme**

## **Highlighted Sessions**



### **China's Clean Tech Revolution**

After transforming itself from the world's biggest polluter to its largest renewable energy market, what are the global implications of China's clean technology revolution?

Arena, 27 June, 15.45 - 16.45



### A New Vision for Oceans

The ocean economy provides 31 million jobs and generates \$1.5 trillion annually. How can new technologies secure the health of our oceans and the livelihoods dependent on them?

Agora, 28 June, 12.45 - 13.45



### Boosting the Mini-Multinational

Digital platforms enable entrepreneurs to connect directly with customers and suppliers around the world.
Could a large-scale increase of minimultinationals make globalization more inclusive?
Salon, 28 June, 16.45 - 17.30



### **Bio-Inspired Design**

Investigate how designers and entrepreneurs are fast-tracking biological, material and digital innovation by developing nature-inspired solutions to humanity's challenges.

BetaZone, 27 June, 14.15 - 15.00



### Social Safety Net 4.0

From the robot tax to universal basic income, what new approaches hold the greatest potential to provide societal safety as the Fourth Industrial Revolution takes hold?

Salon, 28 June, 13.00 - 13.45



### The Smart City Revolution

More compact and connected cities can dramatically shrink environmental pressures while improving life quality. With smart city projects on the rise globally, what policies, business models and technologies show the greatest promise?

Arena, 27 June, 17.15 - 18.15

# **Featured Series and Experiences**

### Global Situation Space

Investigate humanity's greatest challenges in the Global Situation Space through a combination of time-lapse imagery, data and predictive modelling.

The Big Picture on Oceans: From illegal fishing to marine pollution, explore the causes and consequences of man-made changes to water resources now and through time.

The Big Picture on Energy: From subsidy reforms to decreasing production costs, explore the causes and consequences of renewable energy deployment now and through time.

The Big Picture on Cities: From economic growth to environmental collapse, explore the causes and consequences of emerging megacities now and through time.

The Big Picture on the New Silk Road: From ancient trade routes to One Belt, One Road, explore the causes and consequences of deepened regional integration now and through time.

### The Smog Free Tower

Could pollution be a thing of the past? Powered by clean energy, the Smog Free Tower is the world's largest smog vacuum cleaner, turning a vision of a clean air future into a reality.

Go behind the scenes with artist and creator Daan Roosegaarde to learn more about the vision behind the Smog Free Tower. Sessions include a visit to the Smog Free Tower, located just outside of the conference centre.

Find details on timing, venue and speakers on the TopLink Events app and add sessions of interest to your agenda. Explore more sessions like these using the filter "Creating Sustainable Systems".

### Creating Sustainable Systems

# The New Economic Model That Could **Help End Inequality**

Kate Raworth, is Senior Visiting Research Associate, Environmental Change Institute, University of Oxford, and Like a 21st Century Economist. She is participating in the Annual Meeting of the New Champions 2017. The views expressed in this article are those of the author alone and not the World Economic Forum. Read the full article here

Imagine the state of humanity as a "Doughnut" of social and planetary boundaries. The hole at the centre reveals the proportion of people worldwide falling short on life's essentials - and a big part of humanity's challenge is to get everyone out of that hole.

At the same time, we cannot afford to overshoot the Doughnut's outer crust if we are to safeguard Earth's lifegiving systems.

Millions of people lack life's essentials. At the same time, humanity's collective pressure on the planet has already overshot at least four planetary boundaries. What economic mindset can give us even half a chance of turning this situation around? This is the question at the heart of my book, and here I'll focus on just one of those seven ways: a revolution in economic thinking about inequality.

### Progress for everyone

Thanks to the past 10 years of ground-breaking analysis combined with the extraordinary rise of the 1%, the promise to tackle inequality appears high on every policy-maker's list. We are daily offered "inclusive growth" and "an economy that works for everyone". So, what kind of economic mindset can help bring it about?

Certainly not 20th-century thinking on inequality, which was ruled by a spurious economic law of motion. And that law's accidental creator, Simon Kuznets, would be the first

to debunk the political narrative that has been used to justify trickle-down economics and austerity politics ever since. In 1955, he gathered patchy historical data on income distribution and thought he saw a pattern: that as economies grew, income inequality rose at first and then fell.

He proffered a tentative explanation based on the process of rural-tourban migration – for which he later admitted he had "no evidence whatsoever". The underlying message was too good a story to doubt and the Kuznets Curve was taught to every student for at least the next 50 years. So what new paradigm can replace this outdated myth and its accompanying intellectual graffiti?

### Distributive by design

To transform today's divisive economies, we need to create economies that are distributive by design - ones that share value far more equitably among all those who help to generate it. Thanks to the emergence of network technologies, we have a greater chance of making this happen than any generation before us.

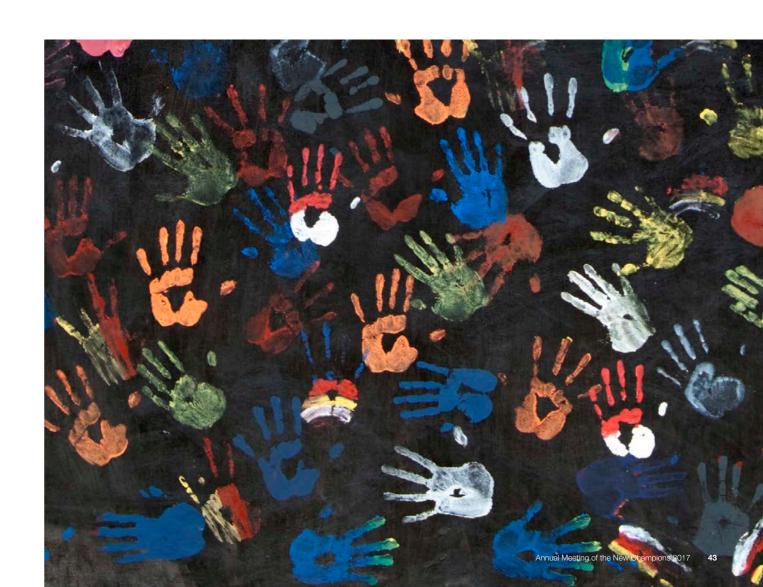
In the 20th century, policies promoting redistribution were largely focused on redistributing income along with investing in key public services. All are essential, but they don't get to the root of economic inequalities because they focus on income.

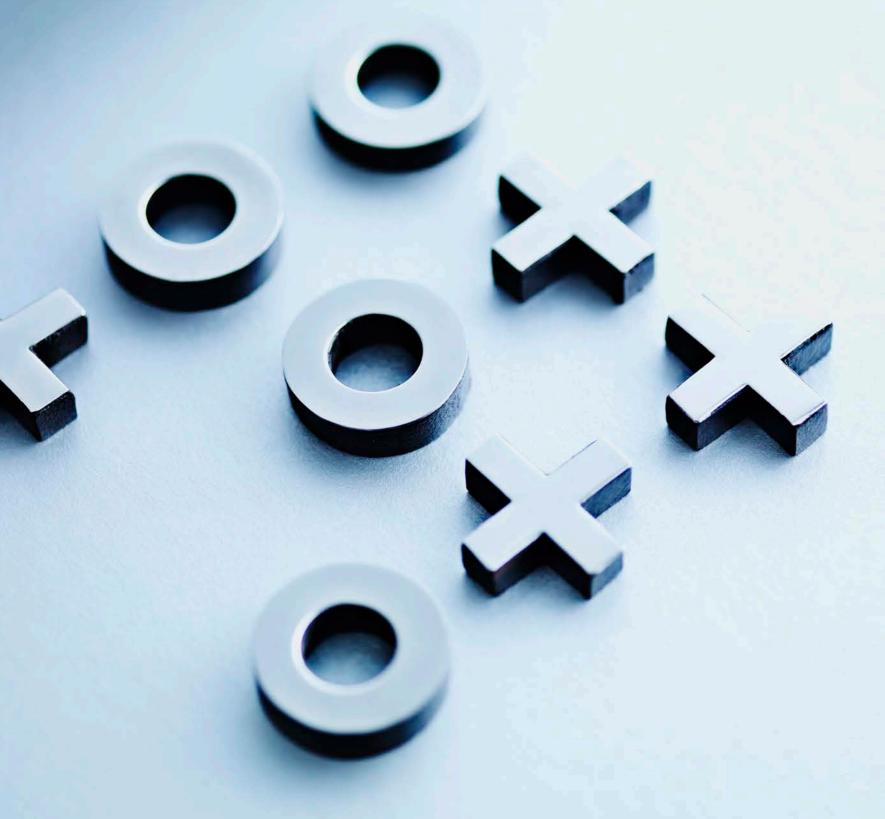
Instead of focusing on income, 21st-century economists will seek to redistribute the sources of wealth too. Instead of turning solely to the market and state for solutions, they will harness the power of the commons to make it happen.

Here are some questions they have taken on to help create an economy that is distributive by design:

How can the value of Earth's natural commonwealth be more equitably distributed? Why endow commercial banks with the right to create money as interest-based debt, and leave them to reap the rents that flow from it? What business design models can best ensure that committed workers, not fickle shareholders, reap a far greater share of the value that they help to generate? How can the potential of the creative commons be unleashed internationally, through free open-source hardware and software, and the rise of creative commons licensing? Given that much basic research underlying automation and digitization has been publicly funded, should a share of the rewards not return to the public

# Tackling inequality ... is nothing less than our generational challenge.





Meeting Sub-Theme

# Responding to Geo-Economic Shifts

The erosion of the middle-class is reframing the political economy of slower-growth countries. In faster-growth economies, avoiding the "middle-income trap" is an increasing strategic concern. Common to both is that technological innovation is creating newly advantaged and disadvantaged stakeholders during a period of increasing geopolitical uncertainty. How can communities, companies and countries better prepare for the coming economic changes?

Annual Meeting of the New Champions 2017 47

### Responding to Geo-Economic Shifts

# **Explore the Programme**

# **Highlighted Sessions**



### **New Strategic Narrative for Asia**

What are the prospects for regional stakeholders to arrive at a shared vision for regional peace and prosperity? Salon, 28 June, 14.15 - 15.00



### **Global Economic Outlook**

Global growth has returned to a healthy 3.5%, yet weak productivity growth and rising social and geoeconomic tensions present new risks in many regions. How robust is the global economic recovery? Arena, 29 June, 12.00 - 13.00



### One Belt, One Road: The **Global Implications**

What regional and global partnerships are required to realize a successful and inclusive One Belt. One Road initiative?

Studio, 28 June, 09.00 - 10.00



### **Confronting the Cybersecurity** Crisis

The ransomware "WannaCry" worm attack is symptomatic of a growing crisis in cybersecurity. How can global governance institutions secure the cyber world against crime and geopolitical competition? Future Hub, 27 June, 13.45 - 14.30



### The Global Implications of China's Financial Reforms

What impact will China's financial market development have on the global financial and monetary system?

Studio, 27 June, 14.15 - 15.15



### The Future of Conflict

Previous industrial revolutions have been intimately connected to changes in the way nations wage war. How will the Fourth Industrial Revolution shape the future of conflict? IdeasLab, 29 June, 12.45 - 14.00

## **Featured Series and Experiences**

### China in Depth

Dive into China's vibrant innovation ecosystem and its pioneering businesses, research centres and start-ups, in a series of sessions hosted at the Transformation Hub.

- The New Face of Philanthropy
- Mega Infrastructure Projects
- Digital Transformation
- Future Manufacturing System
- The Quest for Talent

### Issue Briefings

These in-depth sessions offer insights into relevant topics and latest developments from leading experts in a particular field or region.

### European Political Outlook

How will Europe's latest and future elections shape the region, and how will that impact the rest of the world?

### China: The Next World Leader?

China is signalling its readiness to take on a more prominent global leadership role. Is China ready to lead the world economy?

### Cloning Humans

With developments in genome editing, synthetic biology and tissue engineering, are we getting closer to human cloning?

### China's Carbon Market

China's carbon-emission trading system will be the world's most ambitious and sophisticated. What are its prospects, and how will it impact climate change?

### China's Security Agenda

How will China's policies shape the international security landscape in the coming decade?

Find details on timing, venue and speakers on the TopLink Events app and add sessions of interest to your agenda. Explore more sessions like these using the filter "Responding to Geo-Economic Shifts".

# Responding to Geo-Economic Shifts

# **Responding to Geo-Economic Shifts**

Consider this scenario, taken from recent headlines: a diplomatic dispute over suspected terrorist financing leads to a sudden dollar shortage in one of the wealthiest oil-producing nations. The ramifications? Foreign workers who make up the backbone of that nation's economy scramble for access to the currency to send home remittances, while another country in the region steps in to send cargo planes of food to the importdependent economy. One of the world's wealthiest countries suddenly needs to accept food aid.

What happened? When governments warn their countries' banks to scale back business with one or more specific nations, this amounts to a soft form of sanctions, a geoeconomic practice with a long history.

The use of economic and financial tools by the state or state-owned enterprises to advance political goals, or geo-economics, is on the rise as traditional alliances are being questioned in the post-globalization world. But what happens when

these traditional geo-economic tools are supplemented with the new technologies and platforms of the Fourth Industrial Revolution?

A traditional tool of geo-economics, economic sanctions entail the restriction or elimination of trade and financial operations with the aim of achieving foreign policy or security objectives. Sanctions are used by individual states or international organizations, and their targets may be whole countries or a group of countries, or specific industrial sectors or individuals within countries. Sanctions are differentiated from trade barriers and export controls by their specific targets and their openly declared aim to change policy in the target country, rather than to affect economic conditions in the country that is the source of the controls.

Trade agreements are another traditional means for achieving strategic influence. Regional and bilateral trade agreements are being remade following a backlash against globalization in some advanced economies. With the US pulling out of the Trans-Pacific Partnership, countries in Latin America and Asia are reassessing their trade partnerships, reinvigorating regional ties, and looking towards China for new trade agreements.

China is advancing its own regional goals with the One Belt, One Road initiative, with more than \$900 billion in infrastructure projects coming from China's banks and commercial lenders.

The positioning of international economic organizations is also seen as a way to build influence and strategic partnerships. China has actively promoted the development of competitors to the Bretton Woods institutions and, along with its partners, has helped lay the groundwork for the BRICS bank, also known as the New Development Bank. China was also a driving force behind the development of the Asian Infrastructure Investment Bank (AIIB). Both institutions provide

alternatives to the World Bank, which has traditionally had a US-nominated president, and is often seen as furthering US policy.

In the guickly developing realm of geo-economic activity, statesponsored hacking into the commercial businesses of rival nations to further economic or business policy goals has resulted in several high-profile cases in recent years. In these cases, the goal of the cyberattacks is either to steal

intellectual property and trade secrets to benefit national firms, or to create disruption and chaos. Banks and insurers in some countries are now required to annually certify that they are in compliance with best practice cybersecurity regulations.

This situation provides a glimpse into the further possibilities for disruption unleashed by the Fourth Industrial Revolution. The extensive connectivity that is an integral characteristic of today's world means that the future

impact of geo-economic actions may be more difficult to contain. The consequences of such actions need to be carefully prepared for and thought through by all parties in the public and private sectors and civil society.

Jennifer Beckman is Programme Lead for Economic Governance at the World Economic Forum.

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### World Economic Forum

# **Center for the Fourth Industrial Revolution**

How can we speed up the benefits of science and technology for society? That's our mission. To do this we've created a global hub of expertise, knowledge-sharing and collaboration, based in San Francisco.

# In the home of the world's foremost companies

A global hub of expertise, knowledge-sharing and collaboration, the Center for the Fourth Industrial Revolution is located at the Presidio of San Francisco, close to the world's foremost technology companies, start-ups, investors, venture capital firms and academic institutions. Our impartial platform mobilizes global cooperation to develop policy principles and frameworks that speed up the application of science and technology in the global public interest.

# Working with future technologies

We discuss ethical issues, values and regulation of Fourth Industrial Revolution technologies such as the internet of things and Al/machine learning. The projects of the Center aim to inspire exchange and sharing of big ideas and insight. They include: Artificial intelligence and machine learning; internet of things and connected devices; digital trade and cross-border data flows; autonomous vehicles; civilian use of drones; new vision for the ocean; and distributed ledger technology.

# Global collaboration for social good

We convene start-ups, venture capitalists, experts, academics, governments and more to discuss the benefits of science and technology. Our mission is to accelerate global collaboration across industry, government and other key stakeholders on the development of policy principles, decision-making tools and governance frameworks for science and technology so that they best serve citizens, society and the global public interest.

### Find us

World Economic Forum Center for the Fourth Industrial Revolution 1201 Ralston Avenue San Francisco, CA 94129

### https://www.weforum.org/center-for-the-fourth-industrial-revolution/home



# Advancing Human-Centred Economic Progress in the Fourth Industrial Revolution

Under Germany's presidency of the G20, Think20 (T20) chair Dennis J. Snower asked the Forum to contribute a research-based policy brief on the role that governments can play in leading human-centred economic progress in light of disruptive technological change.

The resulting brief builds on the Forum's work on inclusive growth and development in combination with the values- and rights-based framework of the Fourth Industrial Revolution, and has inspired a range of dialogues, interactive sessions and activities in Systems Initiatives well beyond the conversations taking place during the Annual Meeting of the New Champions 2017.

The world urgently needs a new leadership agenda to instil optimism in citizens about the capacity of market economies to create positive synergy between humans and machines in the workplace.

At the same time, leaders have the opportunity to implement structural changes designed to create a virtuous circle of rising living standards among developed and developing countries within the world economy.

The paper outlines a narrative vision and policy agenda aimed at ensuring that the technological progress of the 21st century augments rather than substitutes for human potential and employment.

It proposes a three-part programme to reorient the growth models of G20 economies towards this objective by designing social inclusion into their innovation ecosystems and economic policies to diffuse as widely as possible the overall gains in opportunity and prosperity enabled by technology and international economic integration.

well beyond the conversations taking place during the Annual Meeting of the New Champions 2017.

Read the full article online: http://www.g20-insights.org/policy\_briefs/ advancing-human-centred-economic-progress-fourth-industrial-revolution-leadership-agenda-g20-governments/



# **Recommended Reading**

A range of books and papers by experts at this meeting go in depth into the implications of the Fourth Industrial Revolution for various industries and global systems.

Additional reports can be found on the World Economic Forum website at https://www.weforum.org/reports/

### **Business and Innovation**

The Fourth Industrial Revolution Klaus Schwab. Founder and Executive Chairman, World Economic Forum

Platform Revolution: How Networked Markets are Transforming the Economy Machine Ethics and Robot Ethics and How to Make Them Work for You

Sangeet Paul Choudary, Founder, Platformation Labs

A Service-Oriented Architecture for Social Networks

Florian Leibert, Co-Founder and Chief Macroeconomics Executive Officer, Mesosphere

Indovation: How Indian Innovators are Changing the World

Tan Ying-Lan, Adjunct Associate Professor, National University of Singapore

### **Human-Centred Technology**

The Blue Zones of Happiness: Secrets of the World's Happiest Places

Dan Buettner, Founder, Blue Zones

From Detached Concern To Empathy: Humanizing Medical Practice

Jodi Halpern, Professor of Bioethics and Medical Humanities, University of California, Berkeley

CURE: A journey into the science of mind over body

Jo Marchant, Author and Journalist

The City of Tomorrow: Sensors, Networks, Hackers, and the Future of Urban Life

Carlo Ratti, Director, SENSEable City Laboratory, MIT - Department of Urban Studies and Planning MIT - Department of Urban Studies and Planning

### Do Zombies Dream of Undead Sheep?: Political Landscape A Neuroscientific View of the Zombie

Timothy Verstynen, Assistant Professor, Psychology, Center for the Neural Basis of Cognition, Carnegie Mellon University

(The Library of Essays on the Ethics of Emerging Technologies)

Wendell Wallach, Scholar, Interdisciplinary Center for Bioethics, Yale University

The Complacent Class

Tyler Cowen, Professor of Economics, George Mason University

Gaining Currency: The Rise of the Renminbi

Eswar Prasad, Professor, Cornell University

The Gray Rhino: Why We Keep Missing the Most Obvious Threats and How We Can Get Out of Their Way

Michele Wucker. Chief Executive Officer, The Gray Rhino & Company

### **Green Technology**

Hydrogen Generation from Ethanol using Plasma Reforming Technology (Green Energy and Technology)

Yan Jianhua, Vice-President, Zhejiang University

Plasma Remediation Technology for Environmental Protection (Advanced Topics in Science and Technology in

Yan Jianhua, Vice-President, Zhejiang University

Media, Propaganda and Politics in 20th-Century Japan (SOAS Studies in Modern and Contemporary Japan)

Yoichi Funabashi, Chairman, Rebuild Japan Initiative Foundation (RJIF)

### From the Forum

The Inclusive Growth and Development Report 2017

Global Risks Report 2017

Beyond Organizational Scale: How Social Entrepreneurs Create Systems Change

Value in Healthcare: Laying the Foundation for Health System Transformation

The Future of Electricity: New Technologies Transforming the Grid

The New Plastics Economy: Catalysing

Alternative Investments 2020: The Future of Capital for Entrepreneurs and **SMEs** 

Disruptive innovation in financial services: A blueprint for digital identity

### The Journey Continues

# Flow of Events

Making sense of the forces that shape our world requires a continuum of insight and action, combining global and regional meetings with the Forum's suite of digital knowledge and community tools.



# **Acknowledgements**

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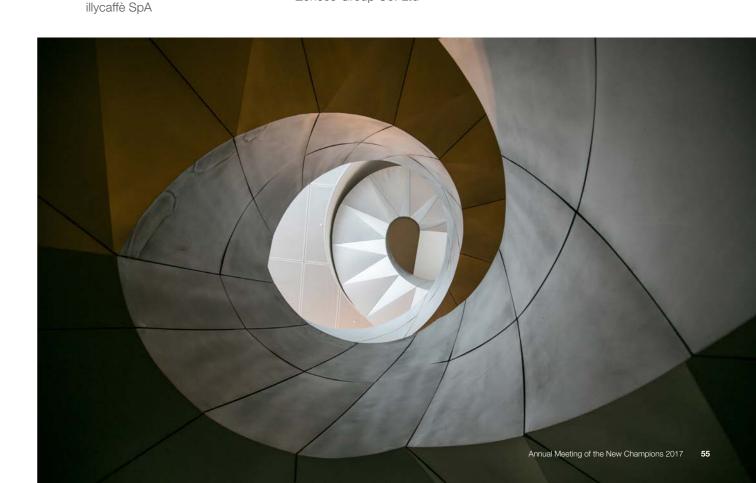
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