

challenge  
opportunity data city  
innovation state  
solution governance decision people  
smart competition global leader sustainability  
social behaviour academia  
government  
business implication life organization society economy  
service privacy participation policy implication  
future experience knowledge industry  
ownership community efficiency  
crisis development  
design



Roundtable of Thought Leaders on Innovation in Cities

## Data. Social Behaviour. Policy

19 - 20 January 2015

Pan Pacific Singapore

Lee Kuan Yew Centre for Innovative Cities  
Singapore University of Technology and Design

## **LEE KUAN YEW CENTRE FOR INNOVATIVE CITIES**

Lee Kuan Yew Centre for Innovative Cities (LKYCIC) is one of the first university centres to focus on the integrated use of technology and design to derive solutions for urban planning, design, development and management. The Centre will study the confluence of governance, social management frameworks and technology and design innovations. It is one of five research centres in the Singapore University of Technology and Design (SUTD). SUTD is pioneering an innovative model of global university education as it is founded on collaborations across three geographies between Singapore, MIT in the USA and Zhejiang University in China. This pioneering model of a university without boundaries extends to how it is organised to cross disciplines, and the research strength of LKYCIC is drawn from the multi-disciplinary faculty working closely with a core team of research fellows at the Centre.

LKYCIC will seek partners in industry, business and government agencies for our research and education projects. LKYCIC intends to offer courses for graduate students as well as mid-level professionals, and provide opportunities for senior undergraduate students to be involved in urban innovation. It will also host talks, seminars and conferences that build a deeper understanding of cities, the role of cities, the future of cities, and the technology and design solutions for cities.

## MESSAGE

This is the first Roundtable of Thought Leaders on Innovation in Cities organised by the Lee Kuan Yew Center for Innovative Cities, Singapore University of Technology and Design. The objective of this meeting is to bring together a number of leading thinkers to discuss a cutting edge trend or development that will have a far reaching impact on the way cities and countries are managed and organised.

There is no doubt that cities and nation states have never been more challenged than now in how they govern and how they deliver goods and services to the people.

Rapid urbanisation and globalisation facilitated by technology and the internet revolution have generated high expectations and feedback from the citizenry. The population in a city or country expect to have an efficient and sustainable transportation system, good health services, decent housing and a liveable built environment, and reliable security in the city as well as in cyber space. And with global warming and extreme weather hazards, people seek protection from severe floods, snowstorms, warnings of earthquakes, typhoons and tsunamis.

The data revolution with the rapid advances made in collecting a vast amount of data, data analytics, modelling and simulation will bring about a major transformation in the way we can approach urban services and problems and find solutions to the problems. This we are told is just the beginning. We have to change our mindset, make a paradigm shift and learn to provide data and use data on a scale unimaginable before. Indeed, we would like to understand how data can help us to be more creative, entrepreneurial, economic, sustainable and competitive as individuals, businesses, cities and countries. It is equally important for us to understand how we can help the average man-in-the-street to understand that data can assist them to live better in so many ways. How can big data help smart cities and what do we have to do to become a smart city and smart nation in the near future? It is our hope that this roundtable will come to grips with these issues and point the way forward.

**Chan Heng Chee**

Ambassador-at-Large and Chairman  
Lee Kuan Yew Centre for Innovative Cities  
Singapore University of Technology and Design



## SYNOPSIS

The Lee Kuan Yew Centre for Innovative Cities will be organising its first Roundtable of Thought Leaders on Innovation in Cities in Singapore on 19 and 20 January 2015. The topic is *Data. Social Behaviour. Policy.*

Big data is both a challenge and an opportunity. Cities and states that take the lead to harness data can potentially realize innovative urban solutions and improve urban governance, bringing more sustainable and better lives to their people. We believe smart cities and big data also go hand-in-hand. Cities and states that embrace big data are likely to be more competitive on the global stage.

Our participants include thought leaders and key decision makers from academia, government, and business, both in and beyond Singapore. Together, we will discuss big data and its implications for cities and citizens. We organise our discussion around four themes: understanding big data and how to realize a data society and economy; how big data can improve urban services and build smart cities; how big data relates to issues concerning citizens, such as privacy and participation; and how public policies can facilitate big data solutions that enable sustainable futures.

We look forward to a vibrant and vigorous discussion!

# PROGRAMME

## 19 JANUARY 2015

8:30 am - 9:00 am	<b>REGISTRATION</b>
9:00 am - 9:10 am	<b>WELCOME</b> <b>Professor Thomas Magnanti</b> President of Singapore University of Technology and Design
9:10 am - 9:30 am	<b>KEYNOTE SPEECH</b> <b>Dr Vivian Balakrishnan</b> Minister for the Environment and Water Resources and Minister-in-Charge of Smart Nation Programme Office, Prime Minister's Office
9:30 am - 11:00 am	<b>SESSION 1: UNDERSTANDING BIG DATA</b> Moderator: <b>Professor Chan Heng Chee</b> Ambassador-at-Large and Chairman of Lee Kuan Yew Centre for Innovative Cities, Singapore University of Technology and Design  <b>Dr Steven Koonin</b> Director of Center for Urban Science and Progress, New York University and Chief Science Officer in the first Obama Administration (2009 - 2012) <b>Mr Peter Ho</b> Chairman of Urban Redevelopment Authority
11:00 am - 11:15 am	Coffee
11:15 am - 12:30 pm	<b>Professor David Chan</b> Lee Kuan Yew Fellow, Professor of Psychology and Director of Behavioural Sciences Institute, Singapore Management University <b>Dr Ng See Kiong</b> Programme Director of Urban Systems Initiative Science and Engineering Research Council, A*STAR
12:30 pm - 2:00 pm	<b>LUNCH</b>

2:00 pm - 3:30 pm

**SESSION 2: BIG DATA AND SMART CITIES**

Moderator: **Mr Philip Yeo**

Chairman of SPRING Singapore and Chairman of Economic Development Innovations Singapore Pte Ltd

**Professor Brian Collins**

Professor of Engineering Policy and Director of International Centre for Infrastructure Futures, University College London

**Professor Paul Waddell**

Professor and Chair of Department of City and Regional Planning, University of California, Berkeley

3:30 pm - 3:45 pm

Coffee

3:45 pm - 5:00 pm

**Dr Jong Sung Hwang**

Head of the Center for Gov 3.0, National Information Society Agency, Republic of Korea

**Mr Bill Chang**

Country Chief Officer, Singapore and Chief Executive Officer, Group Enterprise, Singapore Telecommunications Limited

7:00 pm - 9:30 pm

**PRIVATE DINNER**

## 20 JANUARY 2015

8:30 am - 9:00 am

### REGISTRATION

9:00 am - 10:30 am

### SESSION 3: BIG DATA AND THE CITIZEN

Moderator: **Mr Desmond Kuek**

President and Group Chief Executive Officer of SMRT Corporation Limited

**Ms Jacqueline Poh**

Managing Director at Infocomm Development Authority of Singapore

**Mr Piyush Gupta**

Chief Executive Officer of DBS Group

**Professor Erick Stephens**

Chief Technology Officer of Asia-Pacific Microsoft Public Sector

10:30 am - 10:45 am

Coffee

10:45 am - 12:00 pm

**Professor David De Roure**

Professor of e-Research at University of Oxford, Director of Oxford e-Research Centre, and Strategic Advisor to the Economic and Social Research Council

**Mr Andrew Grant**

Director at McKinsey & Company

12:00 pm - 2:00 pm

### LUNCH

2:15 pm - 3:30 pm

### SESSION 4: ENABLING POLICIES THAT FACILITATE BIG DATA SOLUTIONS FOR SUSTAINABLE FUTURES

Moderator: **Dr Beh Swan Gin**

Chairman of Economic Development Board

**Dr Zheng Yu**

Lead Researcher at Microsoft Research and Chair Professor at Shanghai Jiao Tong University

**Mr Steve Adler**

Chief Information Strategist of IBM

3:30 pm - 3:45 pm

Coffee

3:45 pm - 5:00 pm

**Professor Richard de Neufville**

Professor of Engineering Systems, Massachusetts Institute of Technology and  
Visiting Professor at Singapore University of Technology and Design

**Professor David Gann**

Vice-President (Development and Innovation) of Imperial College London  
and Chairman of Smart London Board

5:00 pm

**CONCLUDING REMARKS**



## WELCOME & KEYNOTE SPEAKERS



### **Professor Thomas Magnanti**

President of Singapore University of Technology and Design

Professor Thomas Magnanti is the founding President of the Singapore University of Technology and Design (SUTD), and Institute Professor and former Dean of Engineering at M.I.T. He has devoted much of his professional career to education that combines engineering and management, and to teaching and research in applied and theoretical aspects of large-scale optimization. At SUTD, he has led the development of a university whose mission is to advance knowledge and nurture technically-grounded leaders to serve societal needs, through a focus on Design and an integrated multi-disciplinary curriculum and research. He has led several centres and programmes at M.I.T., was editor of the journal *Operations Research*, headed one third of the MIT Sloan School of Management and has also served on numerous boards and councils.



### **Dr Vivian Balakrishnan**

Minister for the Environment and Water Resources and Minister-in-Charge of Smart Nation Programme Office, Prime Minister's Office

Dr Vivian Balakrishnan is Singapore's Minister for the Environment and Water Resources and the Minister-in-charge of the Smart Nation Initiative. He previously held appointments as the Minister for Community Development, Youth and Sports; Second Minister for Trade and Industry; Minister responsible for Entrepreneurship; Second Minister for Information, Communications and the Arts; and Minister of State for National Development. He has also been a Member of Parliament since 2001. Before politics, Dr Balakrishnan was an Ophthalmologist and the CEO of Singapore General Hospital.

## MODERATORS & SPEAKERS

### SESSION 1



#### **Professor Chan Heng Chee**

Ambassador-at-Large and Chairman of Lee Kuan Yew Centre for Innovative Cities, Singapore University of Technology and Design

Professor Chan Heng Chee is Ambassador-at-Large with the Singapore Foreign Ministry and Singapore's Representative to the ASEAN Intergovernmental Commission on Human Rights. She chairs the Lee Kuan Yew Centre for Innovative Cities in the Singapore University of Technology and Design. She is also Chairman of the National Arts Council and a member of the Presidential Council for Minority Rights. Previously, she was Singapore's Ambassador to the United States from 1996 to 2012 and Singapore's Permanent Representative to the United Nations from 1989 to 1991 with concurrent accreditation as High Commissioner to Canada and Ambassador to Mexico. Professor Chan holds a B.Soc.Sc (Hons) First Class from the National University of Singapore, a M.A. from Cornell University and a Ph.D from the National University of Singapore.



#### **Dr Steven Koonin**

Director of Center for Urban Science and Progress, New York University and Chief Science Officer in the first Obama Administration (2009 - 2012)

Dr Steven Koonin was appointed as the founding Director of NYU's Center for Urban Science and Progress in April 2012. That consortium of academic, corporate, and government partners will pursue research and education activities to develop and demonstrate informatics technologies for urban problems in the "living laboratory" of New York City. He previously served as the U.S. Department of Energy's second Senate-confirmed Under Secretary for Science from May 2009 through November 2011. As the Chief Scientist at BP from 2004 to early 2009, Dr Koonin developed the long-range technology strategy for alternative and renewable energy sources. He joined the California Institute of Technology's faculty in 1975, was a research fellow at the Niels Bohr Institute during 1976-1977, and was an Alfred P. Sloan Foundation Fellow during 1977-1979. He became a professor of theoretical physics at Caltech in 1981 and served as Chairman of the Faculty from 1989-1991. Dr Koonin was the seventh provost of Caltech from 1995-2004. In that capacity, he was involved in identifying and recruiting 1/3 of the Institute's professorial faculty and left an enduring legacy of academic and research initiatives in the biological, physical, earth, and social sciences, as well as the planning and development of the Thirty-Meter Telescope project.



**Mr Peter Ho**

Chairman of Urban Redevelopment Authority

Mr Peter Ho is the Senior Advisor to the Centre for Strategic Futures, and a Senior Fellow in the Civil Service College. He is also the Chairman of the Urban Redevelopment Authority of Singapore. When he retired in 2010 after 34 years of public service, he was Head, Civil Service, concurrent with his other appointments of Permanent Secretary (Foreign Affairs), Permanent Secretary (National Security and Intelligence Coordination), and Permanent Secretary (Special Duties) in the Prime Minister's Office. Before that, he was Permanent Secretary (Defence). He was also the founding Chairman of the Maritime and Port Authority of Singapore.



**Professor David Chan**

Lee Kuan Yew Fellow, Professor of Psychology, and Director of Behavioural Sciences Institute, Singapore Management University

Professor David Chan is Lee Kuan Yew Fellow, Professor of Psychology & Director of the Behavioural Sciences Institute at Singapore Management University (SMU), Adjunct Principal Scientist at Agency for Science, Technology and Research (A\*STAR), and Co-Director of the Centre for Technology and Social-Behavioural Insights jointly established by A\*STAR and SMU. He has received numerous international awards and served as Editor or board member on several journals. His works have been cited over 3,000 times in various disciplines. He serves on various national councils, boards and advisory panels in Singapore and United States. He is Elected Fellow of several international psychological associations.



**Dr Ng See Kiong**

Programme Director of Urban Systems Initiative Science and Engineering Research Council, A\*STAR

Dr Ng See Kiong (Ph.D., Carnegie Mellon University) is currently the SERC Programme Director of the Urban Systems Initiative of the Agency of Science, Technology and Research (A\*STAR). The multi-programme initiative seeks to address the new challenges of the rapidly urbanising world through technology and innovations. He also holds concurrent appointments as the Director for Strategic Alliances and the Advisor to the Data Analytics Department at A\*STAR's Institute for Infocomm Research (I2R). Trained in computer science, he has a long-standing interest in cross-disciplinary applied research. When he was a graduate student at CMU, he used advanced machine learning and data mining algorithms to help analyse human DNA data. Today, instead of helping biologists understand the biology of the human body, he is helping decision makers of smart cities understand the biology of complex human cities using big data approaches.

## SESSION 2



### **Mr Philip Yeo**

Chairman of SPRING Singapore and Chairman of Economic Development Innovations Singapore Pte Ltd

Mr Yeo is Chairman of SPRING Singapore and Chairman of Economic Development Innovations Singapore Pte Ltd (EDIS). Mr Yeo has served as Special Adviser for Economic Development, Prime Minister's Office (2007-2011), Chairman of Agency for Science, Technology and Research (2001-2007), Chairman of Economic Development Board (1986-2000), and Permanent Secretary for Defence Research, Technology and Logistics (1979-1985). Mr Yeo obtained a Bachelor of Applied Science (Industrial Engineering) 1970 and Doctor of Engineering honoris causa in 1997 from University of Toronto, Canada; Master of Science (Systems Engineering), University of Singapore in 1974; and Master of Business Administration, Harvard University in 1976. Mr Yeo received a Doctor of Medicine honoris causa, Karolinska Institutet, Sweden in 2006, Doctor of Science honoris causa, Imperial College London in 2007, Doctor of Letters honoris causa, National University of Singapore in 2011 and Doctor of Laws honoris causa, Monash University, Australia in 2011.



### **Professor Brian Collins**

Professor of Engineering Policy and Director of International Centre for Infrastructure Futures, University College London

Professor Brian Collins is Professor of Engineering Policy at University College London on 1st August 2011 and is Director of the International Centre for Infrastructure Futures. He is also co-investigator on a £10M research programme investigating liveable cities for the future, specialising in governance and policy issues. In the 2011 New Year Honours List, he was bestowed by Her Majesty the Queen the Honour of Companion of the Bath (CB). Professor Collins holds a MA in Physics and a DPhil in Astrophysics from the University of Oxford.



### **Professor Paul Waddell**

Professor and Chair of Department of City and Regional Planning, University of California, Berkeley

Professor Paul Waddell is a Professor and Chair of the Department of City and Regional Planning at the University of California, Berkeley. He is also Senior Fellow of the Berkeley Institute for Data Science, and Founder and President of Synthicity. His current work focuses on the development of integrated analysis and visualization to support better coordination of local land use and transportation planning, with environmental planning. He is the author of the UrbanSim urban simulation modeling platform used widely in the U.S. and internationally, and leads the development of the UrbanCanvas platform for 3D urban planning and design applications.



**Dr Jong Sung Hwang**

Head of the Center for Gov 3.0, National Information Society Agency, Republic of Korea

Dr Jong Sung Hwang is an ICT strategy expert who served in a number of key positions in the IT policy planning in distinguished organizations. Dr Hwang led the Korean Big Data Center of the National Information Society Agency until August 2014 and currently heads the Center for Gov 3.0. Dr Hwang is a former Chief Information Officer of Seoul Metropolitan Government as well as the former Secretary General of the World e-Governments Organization of Cities and Local Governments (WeGO). He is also a Member of the Global Advisory Board to the Smart City Exhibition and World Congress, and of the Steering Committee of the IoT World Forum. Dr Hwang holds a Master's degree and a Doctoral degree in Political Science from Yonsei University in Korea.



**Mr Bill Chang**

Country Chief Officer, Singapore and Chief Executive Officer, Group Enterprise, Singapore Telecommunications Limited

Mr Bill Chang is SingTel's Country Chief Officer, Singapore. Concurrently, he is Chief Executive Officer, Group Enterprise, which provides innovative Information and Communications Technology solutions to the Group's enterprise customers. Bill is the Chairman of the Singapore Polytechnic Board of Governors and a Board Member of SingPost. He was on the Board of Workforce Development Agency for six years until 2011. For his contributions, he received the National Day Public Service Medal in 2007. In 2014, he was conferred the honorary Fellow of the Singapore Computer Society in recognition of his pivotal role in advancing the infocomm industry in Singapore.

### SESSION 3



#### **Mr Desmond Kuek**

President and Group Chief Executive Officer of SMRT Corporation Limited

Mr Desmond Kuek is the President and Group CEO of SMRT Corporation Limited, Singapore's leading multi-modal transport operator. The public-listed company focuses on train, bus and taxi operations and maintenance services, engineering and project management, as well as the marketing and leasing of commercial and media spaces within the transport network. Desmond Kuek was previously the Chief of Defence Force in the Singapore Armed Forces, and Permanent Secretary at the Ministry of the Environment and Water Resources. He also previously served on the Boards of Singapore Technologies Engineering, Defence Science and Technology Agency, Housing and Development Board, Jurong Town Corporation and International Enterprise Singapore. He currently sits on the Civil Service College Board and chairs its Audit Committee, and is a member of the International Advisory Panel for the Lee Kuan Yew Centre for Innovative Cities at the Singapore University of Technology and Design. He holds a Master of Arts (Engineering Science) from Oxford University and a Masters in Public Administration from Harvard University.



#### **Ms Jacqueline Poh**

Managing Director at Infocomm Development Authority of Singapore

Ms Jacqueline Poh has served in the Administrative Service for over 16 years. In her position as Managing Director for IDA, Ms Poh leads IDA's policy and regulatory functions. These include developing infocomm and data policies, telecommunications regulation, as well as guiding the strategic Government Chief Information Office (GCIO) function, Government data analytics and Cybersecurity governance. She also plays a leading role in the government's Smart Nation initiative. Prior to her appointment in IDA, Ms Poh has held positions in the Ministry of Manpower (MOM), the Ministry of Finance, the Prime Minister's Office and the Ministry of Defence.



#### **Mr Piyush Gupta**

Chief Executive Officer of DBS Group

Mr Piyush Gupta is Chief Executive Officer and Director of DBS Group, as well as Director of DBS Bank (Hong Kong) and The Islamic Bank of Asia. DBS is the largest financial services group in Southeast Asia, with assets of over S\$400 billion. Prior to joining DBS, he was Citigroup's Chief Executive Officer for South East Asia, Australia and New Zealand. Some of his external appointments include serving as the Deputy Chairman of SPRING Singapore, as a member of the Group of Experts to the ASEAN Capital Markets Forum, and on the boards of the Institute of International Finance, Washington, The Institute of Banking and Finance, Dr Goh Keng Swee Scholarship Fund and the MasterCard Asia/Pacific, Middle East and Africa Regional Advisory Board. He is an advisory board member of Sim Kee Boon Institute for Financial Economics and a council member of The Association of Banks in Singapore. He is also a Managing Council member of Indian Business-leaders' Roundtable (under SINDA).





**Professor Erick Stephens**

Chief Technology Officer of Asia-Pacific Microsoft Public Sector

Professor Erick Stephens supports policy decision and delivers technology relevance and scalable solutions into public sector markets in APAC. He participates in the Industry Council of the Open Government Partnership coordinated by the National Information Society Agency of Korea, Center for International Private Enterprise and Microsoft. He is a member of the World Quality Council for Local Governments. Before joining APAC, he was the National Technology Officer for Microsoft Mexico and was a relevant actor in the ICT industry. Before joining Microsoft, he has over 20 years of IT experience, both in private and public sectors. He holds an engineering degree in Computer Science and MBA from ITAM University, and received post-graduate training in e-Government at ITESM and Public Policies at CIDE. He has over 20 years of experience as professor at ITAM and has won ITAM Professional Merit Award in 2007.



**Professor David De Roure**

Professor of e-Research at University of Oxford, Director of Oxford e-Research Centre, and Strategic Advisor to Economic and Social Research Council

Professor David De Roure FBCS is Professor of e-Research at University of Oxford, where he directs Oxford's multidisciplinary e-Research Centre and is a Co-Director of the Institute for the Future of Computing in the Oxford Martin School. He previously directed the national Digital Social Research programme for the UK Economic and Social Research Council (ESRC), for whom he continues to work as Strategic Advisor for Data Resources in the current phase of the Big Data programme, with a focus on Social Media data and realtime analytics. He was also involved in the development of the ESRC Urban Transformations programme, recently participated in the UK Government's Blackett Review of Internet of Things, is one of a team of experts advising the European Commission on an exercise to envision 2050, and represents UK on the European e-Infrastructure Reflection Group. With multidisciplinary expertise and a focus on "social machines", he is a member of the Oxford Cyber Security Centre, collaborates in the Oxford Internet Institute's Web Science laboratory, and has strategic responsibility for Digital Humanities within the Oxford Research Centre in the Humanities. Prior to Oxford, he worked at University of Southampton where he directed the Centre for Pervasive Computing in the Environment.



**Mr Andrew Grant**

Director at McKinsey & Company

Mr Andrew Grant leads McKinsey & Company's Global Public Sector Practice. He is a member of McKinsey's Global Board. Prior to his current role, he was Managing Director for Greater China from 2005-2009 and he led McKinsey and Company in New Zealand from 1997-2004. He was based in Tokyo, London, Santiago and Sydney prior to this. In his 22 years with the firm, he has advised clients in a broad range of industries and geographies. His focus is currently on helping to lead public sector institutions solve their most pressing strategic challenges. Economic development, finance and infrastructure are foremost amongst them.

## SESSION 4



### **Dr Beh Swan Gin**

Chairman of Economic Development Board

Dr Beh Swan Gin was appointed Chairman of Singapore Economic Development Board (EDB) on 1 December 2014. He also chairs the Boards of Directors of EDB Investments and EDBI. Dr Beh was Permanent Secretary of the Ministry of Law from 1 July 2012 to 30 November 2014. Prior to the Ministry of Law, he had been Managing Director of EDB from 1 August 2008 to 30 June 2012. He joined EDB in November 1992 and held various portfolios over the years. Dr Beh is a medical doctor by training and graduated from the National University of Singapore. He is also a Sloan Fellow with a Master of Science in Management from Stanford University's Graduate School of Business, and completed the Advanced Management Programme at Harvard Business School. He is a Board Director for Singapore Technologies Engineering Ltd, as well as The Esplanade Co Ltd.



### **Dr Zheng Yu**

Lead Researcher at Microsoft Research and Chair Professor at Shanghai Jiao Tong University

Dr Zheng Yu is leading research on urban computing in Microsoft Research and is passionate about using big data to tackle urban challenges. His research has received five best paper awards and 5,000+ citation in the past five years (H-Index 34). In 2013, he was named one of the Top Innovators under 35 by MIT Technology Review and later featured by Time Magazine, due to his research on urban computing. In 2014, he was named one of the Top 40 Business Elites under 40 in China by Fortune, because of the business impact of urban computing he has been advocating.



### **Mr Steve Adler**

Chief Information Strategist of IBM

Mr Steve Adler is IBM's Chief Information Strategist, where he is responsible for IBM's Open Data, Data Governance, and System Dynamics strategies. He represents IBM in the Open Government Partnership, leads meetup groups for Africa and Australia Open Data, is co-chair of the W3C Data on the Web Best Practices Working Group, co-chair of the OASIS System Dynamics Technical Committee, and member of the Open Contracting Advisory Board. He guest lectures at universities in the United States and Europe, and his blog is syndicated by the Global Investigative Journalism Network.





**Professor Richard de Neufville**

Professor of Engineering Systems, Massachusetts Institute of Technology and Visiting Professor at Singapore University of Technology and Design

Professor Richard de Neufville was the Founding Chairman of the MIT Technology and Policy Program. This post-graduate curriculum, adapted at Cambridge and other universities, prepares cadres of engineers and scientists for constructive engagement of their technical expertise with the political, financial, and regulatory processes that ultimately define societal policies. His career has been dedicated the articulation and implementation of the evolving array of analytic tools to help identify and define effective strategies in the face of uncertainty. He authored 7 major texts, most recently "Flexibility in Engineering Design" (2011). He was one of the first White House Fellows for US President Johnson.



**Professor David Gann**

Vice-President (Development and Innovation) of Imperial College London and Chairman of Smart London Board

Professor David Gann is responsible for shaping the vision, strategy and innovation agenda for Imperial College, and the development of its new London campus, Imperial West. He holds the Chair in Innovation and Technology Management at Imperial College Business School and Department of Civil & Environmental Engineering. A Chartered Civil Engineer with a PhD in Industrial Economics, he previously held the Royal Academy of Engineering Chair in Innovative Manufacturing at Sussex University. David was awarded the 2014 Tjalling C. Koopmans Asset Award, for extraordinary contributions to the economic sciences. David's research focuses on innovation in the digital economy, new business models and innovation strategy in technology firms.



**NOTES**





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