Nobel Prize Dialogue Tokyo 2017

The Future of Intelligence

Organizers :

INDEX

All discussions, lectures and panels from Nobel Prize Dialogue Tokyo 2017 are available for viewing on

https://www.youtube.com/nobeldialogue

Event Information

Nobel Prize Dialogue Tokyo 2017 was held to advance an open discussion between the science community and the public on a topic at the interface between science and society. It sought to raise public interest and understanding of science and technology while contributing to the promotion of scientific research. 36 world's leading scientists and top authorities from various fields including 5 Nobel Laureates took the stage as lecturers and panellists, addressing an audience comprising attentive members of the public including young researchers and representatives from industry. Besides an audience of more than 1,000 at the venue, a live broadcast gave people around the world an opportunity to watch the proceedings. (The broadcast is archived at "https://www.youtube.com/nobeldialogue" for viewing.)

Since 2012, an open symposium called "Nobel Week Dialogue" has been held in Sweden by Nobel Media AB*, on the day before the Nobel Prize Ceremony. Nobel Media approached the Japan Society for the Promotion of Science (JSPS) with the idea of holding the Nobel Prize Dialogue in Japan. The discussion resulted in the 2015 event, which was the first Nobel Prize Dialogue to be held outside of Sweden. Building upon this success, a subsequent Nobel Prize Dialogue was held in Tokyo in 2017.

Nobel Prize Dialogue Tokyo 2017 was organized in close collaboration between JSPS and Nobel Media. It provided a valuable opportunity to increase the international presence of Japan within the global scientific community. The Nobel Prize Dialogue also achieved its goal of raising public interest and understanding of science as a trailblazing science communication activity.

This report summarizes the Nobel Prize Dialogue's proceedings in the hope that it may raise the interest of the general public in science and be of wide use to scientists and administrators.

(*)Nobel Media AB develops and manages programmes, productions and media rights of the Nobel Prize within the areas of digital and broadcast media, publishing as well as events.

Nobel Prize Dialogue Tokyo 2017
Organizers: Japan Society for the Promotion of Science (JSPS), Nobel Media
Date: 26 February 2017 (9:00-17:30)
Venue: Tokyo International Forum
Theme: The Future of Intelligence

Opening Remarks

Yuichiro Anzai

President, Japan Society for the Promotion of Science

I am very pleased to welcome all of you, and thank you for coming to this event, "Nobel Prize Dialogue Tokyo 2017." I am delighted that this event has brought together such a large audience from both Japan and other countries and regions. We even have with us more than a hundred doctoral students from Asian and African countries. Thank you very much for joining us here today.

Nobel Prize Dialogue Tokyo derives its inspiration from the "Nobel Week Dialogue," held each year in Sweden on the day before the Nobel Prize Award Ceremony, which I attended last December. Today's event was organized and is cohosted by Nobel Media, a company affiliated with the Nobel Foundation.

This is the second Nobel Prize Dialogue to be held outside of Sweden. The first was held at this venue in 2015, also hosted by JSPS and Nobel Media. Today's Dialogue focuses on the topic "The Future of Intelligence," in follow-up to the theme of the Nobel Week Dialogue held in December 2015 in Sweden.

How do you think intelligence will evolve in the future? Given the epochal advances being made in the AI field, some may imagine that machine intelligence will supplant human intelligence. But, what exactly is human intelligence? We know that it gives us the ability to advance science, to explore wide expanses of the universe and discover the smallest elements of matter. Many such achievements, spawned through human intelligence, have been recognized by the Nobel Prize.

Then, what exactly is machine intelligence? Can it advance science on its own? Can it explore the universe, discover elementary particles or develop new materials in a way that deserves being awarded a Nobel Prize?

We, humans, possess something unique which we call the "mind." While linked to our brain and body, the mind has the power to create new knowledge and new intelligence. How, then, will the process of evolution affect the brain-mind makeup? There are many other questions. Do we have different kinds of intelligences in the West and Orient, in other words, in the world? Do we have emotional intelligence and social intelligence besides individual cognitive intelligence?

Back to machine intelligence, it's been asked whether new generations of artificial intelligence will exceed human intelligence. That is, do we need to fear AI? How can we deal with the related ethical, legal and societal issues? Or should we realize a better society and better world through economic gains made by AI technology rather than fearing it? How should we go about introducing AI into manufacturing, healthcare, transport, and other services or sectors of our economies and societies?

I, myself, have been working in the fields of human and machine intelligence over long years. As a researcher, I have some, at least, tentative answers to the questions I broached. But today let's explore these questions together. I look forward to this event giving us an opportunity to ponder the nature of human and machine intelligence and to think about how they exert an influence on us and on science and society. To help us do that, I am very pleased that 36 prominent intellectuals including five Nobel Laureates have come here from all around the world to participate in today's Dialogue.

Last but not least, I would like to thank the Nobel Foundation, headed by Dr. Lars Heikensten, and Nobel Media, led by Mr. Mattias Fyrenius, for the long-standing collaboration and friendship they have accorded JSPS, and especially for their contributions to today's highly thought-provoking event. I would also like to thank Ambassador Magnus Robach and the Swedish Embassy for supporting us in this endeavor. A very special thanks goes to our event partners and supporting organizations. They have been a great help to us. I really look forward to today's Dialogue bringing the scientific community ever-closer to society and the public. Now, please enjoy the Nobel Prize Dialogue Tokyo 2017.

*These opening remarks were delivered by Dr. Yuichiro Anzai on 26 February 2017.
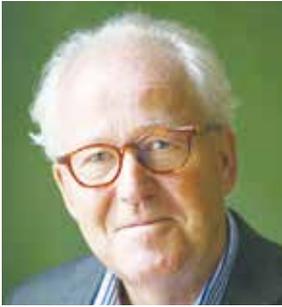
Lars Heikensten
Executive Director, the Nobel Foundation

Photo: Kari Kohvakka

Let me begin with a warm welcome to all of you. We are more than happy that so many of you have been able to make it here today for the second Nobel Prize Dialogue in Tokyo and Japan, this time with the theme The Future of Intelligence.

The Nobel Prize is one of the world´s most respected and well known prizes. But not everyone know so much about the man behind the prize, Alfred Nobel.

Nobel was the inventor of dynamite, but also a hard-working scientist and inventor, an entrepreneur with the whole world as his working field, with our words a true believer in globalization and international cooperation, a renaissance man with an interest not only in the natural sciences but also in philosophy, the humanities and literature as well. His whole life was characterized by the ideals of the enlightenment; by a search for knowledge and strong believes in fundamental human values. It is difficult not to be inspired by him and his life!

When Nobel´s will was opened in 1896 it came as a big surprise. What remained of his fortune should be used to endow "prizes to those who, during the preceding year, have conferred the greatest benefit to mankind". Man or woman. Regardless of national background. None of it self-evident in those days. By endowing prizes to those who have made breakthroughs in science, written good literature and contributed too peace, he wanted to make a difference. Clearly, he was not opening up for just another competition. No, he wanted to contribute to a better world.

Alfred Nobel knew that good role models – people and organizations - can show that it is possible to understand the world and improve it. It is in this spirit we organize events such as these. We want people, not least young, to engage in the areas of Nobel's interest; in science, in literature, for peace. We often do this with help of Nobel Laureates. Today we have as many as five of you here. Thank you very much for coming.

Japan is a perfect match for an event of this kind. You are one of the world´s biggest democracies with a great interest in science. You are also an important country in the world of Nobel with more than 20 Laureates living here or being of Japanese origin. Persons like Professors Yukawa, Tanaka, Ohsumi, Yamanaka and Tonegawa are precisely the kind of role models Nobel was looking for.
I think that today´s topic, "The future of intelligence", is fascinating. It deals with the development work now under way related to human intelligence. It brings together research in mathematics, technology and neuroscience. Obviously, the world is going to change. Artificial intelligence is now being used in a growing number of fields. Machines will be able to take over a lot of things we do today. But perhaps our view of what intelligence is will also change, and perhaps also our view of what it is to be human. It is hard to imagine a better topic for the Nobel Prize Dialogue, which aims at bringing together science and society.

Let me end with a more somber note. In the world today many of the values Nobel stood for are threatened. In Europe and North America we have even been backtracking during the last years. When we need more international cooperation it is instead being questioned. The same thing is true for the search of knowledge. Even facts are refused, the denial of climate change being a perfect and scary example of this. Leading politicians are gaining support by appealing to people's worst sides.

Given this we all have strong reasons to involve ourselves, to take up the torch of Alfred Nobel and work for what he believed in; in science and a more human world with peace. In this, we have strong hopes in Japan. A democratic country with strong scientific and human traditions, well placed to step up and take a larger role in today´s world.

Once again, welcome to Nobel Prize Dialogue Tokyo. I am very much looking forward to today´s programme. I know Alfred Nobel would have done that too.

*These opening remarks were delivered by Dr. Lars Heikensten on 26 February 2017.

4

Programme

1. Opening: For the Future of Intelligence

9:00 — 9:15	**Welcome and Opening Remarks** Japan Society for the Promotion of Science The Nobel Foundation Ministry of Education, Culture, Sports, Science and Technology

2. Beyond the Horizon: What Will the Future of Intelligence Be?

9:15 — 9:35	**Lecture "Human Intelligence and Glorious Scientific Achievements (1)"** George F. Smoot
9:35 — 9:50	**Interview "Human Intelligence and Glorious Scientific Achievements (2)"** Jean-Pierre Sauvage Interviewer: Sawako Takeuchi
9:50 — 10:10	**Interview "What is Human Intelligence? (1)" -Human Evolution-** Mariko Hasegawa Interviewer: Adam Smith
10:10 — 10:30	**Lecture "What is Human Intelligence? (2)" -Human Brain-** Susumu Tonegawa
10:30 — 10:40	**Lecture "What is Human Intelligence? (3)" -Technology, Economy and Society-** Sadayuki Sakakibara
10:40 — 11:00	**Interview "What is Human Intelligence? (4)" -Social System and Civilization-** Eric S. Maskin, Stuart J. Russell Interviewer: Sawako Takeuchi
11:00 — 11:30	Coffee Break

3. How Can We Create the Future of Intelligence?

11:30 — 11:50	**Lecture "The Future of AI (1)" -From Computer Science and Machine Learning-** Tom M. Mitchell
11:50 — 12:10	**Interview "The Future of AI (2)" -From Machine Learning and Brain Science-** Peter Norvig Interviewer: Mitsuo Kawato
12:10 — 12:30	**Conversation "Challenges of Science and Technology(1)"** Takeo Kanade, Jeannette M. Wing
12:30 — 12:50	**Panel Discussion "Challenges of Science and Technology(2)"** Edvard I. Moser, Nicole Dewandre, Frank A. Pasquale Moderator: Adam Smith
12:50 — 13:10	**Interview "Human Mind"** Nanrei Yokota Interviewer: Noyuri Mima
13:10 — 14:30	Lunch Break

4. More Challenges: What Can We Create: The Future of Intelligence in Diverse Fields

	Stream 1 Hall B7 1A: Innovation of Business	Stream 2 Hall B5(1) 2A: Mobility and Accessibility	Stream 3 Hall B5(2) 3A: Humans and AI
14:30 — 15:15	Eric S. Maskin Stuart J. Russell Hirotaka Tamura Jeannette M. Wing Moderator: Junichi Tsujii	Jean-Pierre Sauvage Chieko Asakawa William J. Dally Takeshi Uchiyamada Moderator: Adam Smith	George F. Smoot Tony Belpaeme Margaret A. Boden Shinsuke Shimojo Moderator: Yasuo Kuniyoshi
15:15 — 15:30	Short Break		
15:30 — 16:15	**Stream 1 Hall B7** **1B: Innovation of Industry Structure** Eric S. Maskin Kazuto Ataka Peter Norvig Wolfgang Wahlster Moderator: Noyuri Mima	**Stream 2 Hall B5(1)** **2B: Health and Welfare** Edvard I. Moser Shahram Ebadollahi Hiroaki Kitano Moderator: Adam Smith	**Stream 3 Hall B5(2)** **3B: ELSI Challenges** George F. Smoot Margaret A. Boden Nicole Dewandre Norihiro Hagita Moderator: Kazuo Iwano
16:15 — 16:45	Coffee Break		

5. Towards the Future

16:45 — 17:05	**Policy Discussion -Japan, Germany, the United States-** Yuichiro Anzai, Keith Marzullo, Wolfgang Wahlster
17:05 — 17:25	**Nobel Laureates Discussion** Susumu Tonegawa, George F. Smoot, Eric S. Maskin, Edvard I. Moser, Jean-Pierre Sauvage Moderator: Adam Smith
17:25 — 17:30	**Closing Remarks** Nobel Media Japan Society for the Promotion of Science

Venue

Tokyo International Forum
Address: 3-5-1, Marunouchi, Chiyoda-ku, Tokyo, Japan   URL: https://www.t-i-forum.co.jp/

Photo: Alexander Mahmoud

Molecular machines could one day play an important role in information processing and this is very much related to artificial intelligence.

Jean-Pierre Sauvage Emeritus Professor, University of Strasbourg
(Nobel Laureate in Chemistry 2016)

I don't see any reason to tell that AI could not surpass human intelligence in principle. But, if you ask me whether I think it ever will, I think it quite possibly never will.

Margaret A. Boden Research Professor of Cognitive Science, University of Sussex

In Industrie 4.0, collaborative robots share the workspace with humans and work hand in hand in hybrid teams of people and machines. This is the future, not only for AI but also for everything in life.

Wolfgang Wahlster CEO & Scientific Director, German Research Center for Artificial Intelligence (AI) GmbH

Let's see whether a time will come when robots are interested in receiving the Nobel Prize.

Susumu Tonegawa Director, RIKEN Brain Science Institute
(Nobel Laureate in Physiology or Medicine 1987)

Panellists

Susumu Tonegawa

Nobel Laureate in Physiology or Medicine 1987
Director, RIKEN Brain Science Institute

He conducted landmark studies in immunology, earning the Nobel Prize in 1987. He currently studies the neuroscience of learning and memory.

George F. Smoot

Nobel Laureate in Physics 2006
Professor, University of California, Berkeley

His group conducts research on the early universe (cosmology) using the Cosmic Microwave Background radiation (CMB) and other astrophysical sources. These investigations are directed towards realizing a variety of science goals regarding cosmology and astrophysics. He has founded a number of research centers and institutes and was awarded the Nobel Prize in Physics in 2006.

Eric S. Maskin

Laureate in Economic Sciences 2007
Professor, Harvard University

Adams University Professor at Harvard and was previously at MIT and IAS (Princeton). He shared Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 2007.

Edvard I. Moser

Nobel Laureate in Physiology or Medicine 2014
Professor, Norwegian University of Science and Technology

His main research field is neural network computations in the cortex. He discovered cells that constitute a positioning system in the brain with co-researchers and shared the Nobel Prize in 2014.

Jean-Pierre Sauvage

Nobel Laureate in Chemistry 2016
Emeritus Professor, University of Strasbourg

He has built his professional career at The National Center for Scientific Research (CNRS) and university, and shared the Prize for his contribution to the design and synthesis of molecular machines in 2016. He has also contributed the fields of inorganic photochemistry and artificial photosynthesis.

Yuichiro Anzai

President, Japan Society for the Promotion of Science
Chair, Strategic Council for AI Technology

President of the JSPS, Japan's representative government-supported research funding agency and also serves as the chair of Strategic Council for AI Technology. He has been engaged in research on human and machine learning in cognitive and computer sciences.

Chieko Asakawa

IBM Fellow, IBM Research

She is a researcher in information and real world accessibility. She joined IBM in 1985, and has been IBM Fellow since 2009. She has been a visiting professor at Carnegie Mellon University since 2014.

Kazuto Ataka

Chief Strategy Officer(CSO), Yahoo Japan Corporation

He joined Yahoo!JAPAN after 11 years at McKinsey. He has a Ph.D in Neuroscience from Yale. Director of Data Scientist Society, Deputy Chair of AI Industry Roadmap taskforce in Japan.

Tony Belpaeme

Professor, Plymouth University

He has been at Plymouth University (UK) since 2005 and Ghent University (Belgium) since 2016. He received his Ph.D from Vrije Universiteit Brussel (Belgium).

Margaret A. Boden

Research Professor of Cognitive Science, University of Sussex

She helped develop the world's first academic programme in cognitive science at the University of Sussex. She holds degrees in medical sciences, philosophy, and psychology, and integrates these disciplines with AI in her research.

William J. Dally

Chief Scientist, NVIDIA Corp.

He was a Professor of Computer Science and Electrical Engineering at Stanford University from 1997-2009. From 2004-2009 he was Chairman of Computer Science. From 1986-1997 he was a Professor at MIT. He held previous positions at Caltech and Bell Labs.

Nicole Dewandre

Engineer & Philosopher, Joint Research Center, European Commission

At the European Commission, she works on the societal aspects of hyperconnectivity and she has been the convener of the Onlife Initiative.

Shahram Ebadollahi

Vice President, IBM Watson Health

Prior to his current role, he was the global head and founder of Health Informatics Research for IBM, which spanned IBM's global research labs in Asia, Europe, Africa and the US.

Norihiro Hagita

Director, Intelligent Robotics and Communication Laboratories, Advanced Telecommunications Research Institute International (ATR)

Research interests are the human-robot interaction, smart networked robotics, etc. Research supervisor on intelligent systems with human-machine harmonious collaboration in JST CREST.

Mariko Hasegawa

Executive Director & Professor, The Graduate University for the Advanced Studies

She received her Ph. D. in 1986 from the Graduate School of Physical Anthropology, the University of Tokyo. She was previously at Yale University, Waseda University, etc., and she has worked at the Graduate University for the Advanced Studies since 2006.

Kazuo Iwano

Chief Digital Officer, Mitsubishi Chemical Holdings Corporation

Ph.D., Department of Computer Science, Princeton University, U.S. He is CDO since 2017 and was previously at IBM Tokyo Research Laboratory, IBM Yamato Development Laboratory, Mitsubishi Corporation, JST Center for Research and Development Strategy.

Takeo Kanade

U.A. and Helen Whitaker University Professor, Carnegie Mellon University

At CMU, he served as Director of the Robotics Institute and Founding Director of Quality of Life Technology Research Center. He received Franklin Medal Bower Award (2008) and Kyoto Prize (2016).

Mitsuo Kawato

Director & ATR Fellow, Brain Information Communication Research Laboratory Group, Advanced Telecommunications Research Institute International (ATR)

Director of ATR Brain Information Communication Research Laboratories since 2010, and Special Advisor of RIKEN Center for AIP since 2016. His research area is Computational Neuroscience.

Hiroaki Kitano

President & CEO, Sony Computer Science Laboratories, Inc.

President and CEO of Sony Computer Science Laboratories, Inc., President of The Systems Biology Institute, Professor at Okinawa Institute of Science and Technology Graduate University, Corporate Executive, Sony Corporation.

Yasuo Kuniyoshi

Professor & Director of Next Generation Artificial Intelligence Research Center (AI Center), The University of Tokyo

Director of Next Generation Artificial Intelligence Research Center (AI Center) of the University of Tokyo since 2016 and Director of RIKEN BSC-Toyota Collaboration Center since 2012.

Keith Marzullo

Dean, College of Information Studies, University of Maryland / Former Director, NITRD Program

He directed the Networking and Information Technology Research and Development (NITRD) Program in White House Office of S&T Policy, also served as the Division Director for the Computer and Network Systems (CNS) Division in the Computer & Information Science & Engineering (CISE) in NSF.

Noyuri Mima

Former Deputy Director, National Museum of Emerging Science and Innovation Professor, Future University Hakodate

Learning Scientist Noyuri joined planning National Museum of Emerging Science and Innovation and Future University Hakodate. She was Deputy Director at the museum and is a Professor.

Tom M. Mitchell

E. Fredkin University Professor, Carnegie Mellon University

He works in the areas of Machine Learning and Cognitive Neuroscience. He created and chaired the world's first university Department of Machine Learning, and wrote the widely used textbook "Machine Learning."

Peter Norvig

Director of Research, Google Inc.

Previously he directed Google's core search algorithms group. He is co-author of Artificial Intelligence: A Modern Approach, the leading textbook in the field. He is a Fellow of AAAI, ACM, the California Academy of Science and the American Academy of Arts & Sciences.

Frank A. Pasquale

Professor of Law, University of Maryland

Member of NSF-sponsored Council on Big Data, Ethics, & Society and an Affiliate Fellow, Yale ISP. He is the author of Black Box Society (law & social theory on data regulation).

Stuart J. Russell

Professor of Computer Science, University of California, Berkeley

Director of the Center for Human-Compatible AI at Berkeley. He is a leading AI researcher and author of the standard text in the field.

Sadayuki Sakakibara

Chairman, Japan Business Federation

Born in 1943, he completed a Master's Degree in Applied Chemistry at Nagoya University. He was named as President of Toray Industry in 2002 and became Chairman of the Board in 2010, and has been Chief Senior Advisor and Chief Senior Counselor since 2015. In Keidanren, he has been Chairman since 2014.

Shinsuke Shimojo

Gertrude Baltimore Professor, California Institute of Technology

As a professor of experimental psychology in Biology & Biological Engineering and a cognitive neuroscientist, he has worked on perception, decision, memory and emotion.

Adam Smith

Chief Scientific Officer, Nobel Media AB

As Chief Scientific Officer for Nobel Media, he has played a key role in putting together the Nobel Week Dialogue and Nobel Prize Dialogue. His background is in scientific research and science publishing.

Sawako Takeuchi

Senior Advisor, Ministry of Education, Culture, Sports, Science and Technology, Japan / Former President, National Center of Arts in Paris

She began her research at the Institute of Applied Sciences in France. She was Professor at Kyoto University. Main interest is the integration of Science & Arts/Culture. She has two Ph.D.s in Engineering and Economics.

Hirotaka Tamura

Fellow, Fujitsu Laboratories Ltd.

He leads transistor-level design for CMOS high-speed signaling, and has been expanding his area to cover devices, circuits, and architectures for post-Moore-era computing.

Junichi Tsujii

Director, Artificial Intelligence Research Center, National Institute of Advanced Industrial Science and Technology

He graduated from his master's course at Kyoto University (1973), became professor at UMIST (1988), Professor at The University of Tokyo (1995) and Principal Researcher of Microsoft Research Asia (2011). He assumed his present position in 2015, and is concurrently Professor at Manchester University (part-time).

Takeshi Uchiyamada

Chairman of the Board, Toyota Motor Corporation

He has been Chairman of Toyota Motor Corporation since 2013. He was the Chief Engineer of the Prius—the world's first mass-produced gasoline-electric hybrid car, launched in 1997. Global sales of Toyota hybrid vehicles reached 9 million units in 2016.

Wolfgang Wahlster

CEO and Scientific Director, German Research Center for Artificial Intelligence (DFKI) GmbH

He was elected Foreign Member of the Royal Swedish Nobel Prize Academy of Sciences in Stockholm in 2003 and is a Full Member of the German National Academy of Sciences Leopoldina.

Jeannette M. Wing

Corporate Vice President, Microsoft Research
Consulting Professor of Computer Science, Carnegie Mellon University

Corporate Vice President, Microsoft Research from 2013; Consulting Professor, Carnegie Mellon University; and former Assistant Director, National Science Foundation. She advocates computational thinking for all.
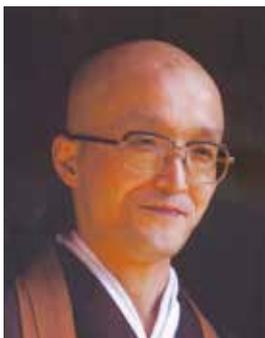
Nanrei Yokota

Zen Master & Chief Abbot, The Engaku-ji School, Rinzai Zen Denomination

He graduated from University of Tsukuba (1987) and trained to be a priest at Kennin-ji. He moved to Engaku-ji (1991) and continued to train under Daishin Adachi, Zen master & Chief Abbot. He assumed his present position in 2010.
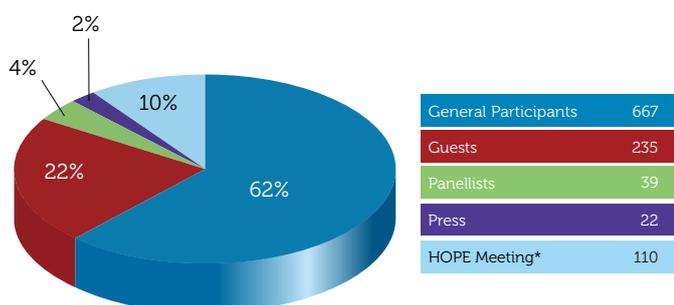
*Affiliation and Title are as of Nobel Prize Dialogue Tokyo 2017.
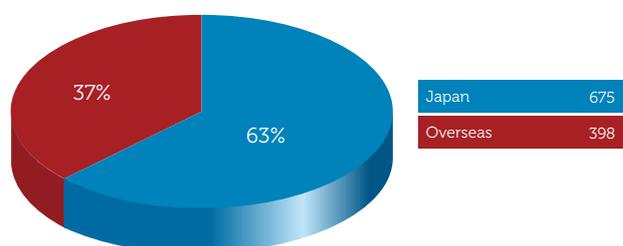
Participants

As an international event, this year's Nobel Prize Dialogue Tokyo was attended by some 1,073 people hailing from countries around the world. Numerous other people also viewed the Dialogue via live streaming on the event's official website and over social media. For perusal at any time, all of the lectures and panel discussions are archived on the following webpage: https://www.youtube.com/nobeldialogue

Regarding the participants at the venue, 63% of them were Japanese and 37% were from other countries. About 50% of the participants were students and university researchers, who were seen to take an active part in the Q&A discussions.
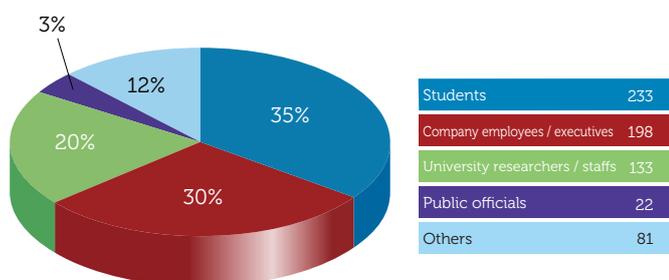
Number of participants: 1,073

General Participants	667
Guests	235
Panellists	39
Press	22
HOPE Meeting*	110

*JSPS hold HOPE Meetings for excellent young researchers specially selected from countries and areas of the Asia-Pacific and African regions. HOPE Meetings provide an opportunity for the young participants to interact with Nobel Laureates.

Percentage of overseas participants

Japan	675
Overseas	398

Category of general participants

Students	233
Company employees / executives	198
University researchers / staffs	133
Public officials	22
Others	81

Photo: Alexander Mahmoud

Number of participants per country/area
(General Participants and
HOPE Meeting Students (nominating country/area))

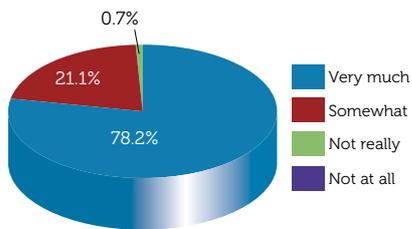|					
Algeria	1	Iran	5	Singapore	6
Australia	7	Israel	4	South Africa	3
Austria	1	Japan	463	Spain	2
Bangladesh	10	Kenya	3	Sri Lanka	3
Belgium	1	Korea	7	Sudan	1
Brazil	1	Liberia	1	Sweden	1
Canada	4	Lithuania	2	Switzerland	1
Chile	1	Malaysia	5	Taiwan	7
China	21	Mexico	2	Thailand	7
Egypt	6	Mongolia	4	Turkey	1
Ethiopia	2	Myanmar	7	Uganda	1
France	4	Nepal	7	UK	3
Germany	3	Netherlands	1	USA	4
Ghana	2	New Zealand	5	Uzbekistan	1
Greece	2	Philippines	28	Venezuela	3
Hong Kong	1	Poland	1	Viet Nam	9
India	16	Russia	1	Zimbabwe	1
Indonesia	93	Senegal	1	Total	777

* Alphabetical order

Survey Results and Comments

Did you enjoy the Nobel Prize Dialogue Tokyo 2017?

0.7%
21.1%
78.2%

- Very much
- Somewhat
- Not really
- Not at all

Did you find the overall contents to be:

8.8%
11.9%
79.3%

- Too complicated/difficult
- Just right - both accessible and enriching
- Too basic
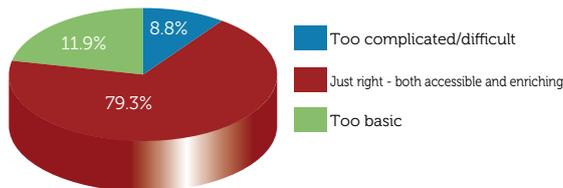
Would you attend future Nobel Prize Dialogue?

4.2%
95.8%

- Yes
- No
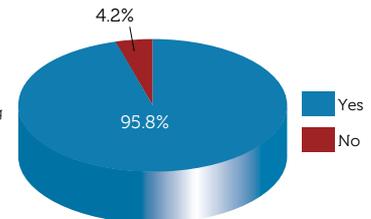
What was your favorite element of the day's program?

Percentage	Element
28.1%	1. Opening: For the Future of Intelligence
59.3%	2. Beyond the Horizon: What Will the Future of Intelligence Be?
61.4%	3. How Can We Create the Future of Intelligence?
11.2%	4-1 A. Innovation of Business
14.0%	4-1 B. Innovation of Industry Structure
12.6%	4-2 A. Mobility and Accessibility
15.1%	4-2 B. Health and Welfare
25.3%	4-3 A. Humans and AI
8.1%	4-3 B. ELSI Challenges
43.9%	5. Towards the Future
0.4%	No Answer

*From 4-1A to 4-3B, participants attended their preferred session within 3 streams.

Comments and Suggestions regarding the Day's Programme
· I thought that the event had a highly polished agenda.
· I felt the program to be somewhat fragmented. It would have been better if more time had been allocated for the lecturers.
· I would like to have seen more lectures by recent Nobel Laureates, such as Prof. Ohsumi, included in the program.
· The facilitator did an excellent job. The content of the program was highly meaningful throughout.
· If even a little, I would like to have heard about the backgrounds and specializations of the panellists.
· I felt that it would have been better if there was more opportunity included in the program for dialogue between the panellists and audience.
· I was happy with the way that the discussion on "human intelligence" was advanced from various perspectives.
· It was very interesting to see how intelligence is evolving from generation to generation.
· I was impressed by how the panellists used regular language in their discussions so as to make it easy for members of the general public in the audience to understand highly technical content. That made the program all the more intellectually stimulating for me.
· It was surprising to see so many renowned speakers gathered under one roof to participate in the Dialogue.
· I was impressed by how much substance was neatly compacted into the program agenda.

Comments and Suggestions regarding the Day's Operation
· There was no waste in the agenda; everything was productive.
· It would be more convenient if a smart check-in system could be used.
· As I could not attend the Dialogue at the venue, I watched its live streaming over the official website. Both the event and the broadcast went very smoothly.
· The registration area was located some distance from the venue, which made getting into the event a bit confusing.

*These were some of the participant responses to our questionnaire concerning Nobel Prize Dialogue Tokyo 2017.

Japan Society for the Promotion of Science

The Japan Society for the Promotion of Science (JSPS), or Gakushin for short, is an independent administrative institution, established by way of a national law for the purpose of contributing to the advancement of science in all fields of the natural and social sciences and the humanities. JSPS plays a pivotal role in the administration of a wide spectrum of Japan's scientific and academic programs. While working within the broad framework of government policies established to promote scientific advancement, JSPS carries out its programs in a manner flexible to the needs of the participating scientists.

JSPS was founded in 1932 as a non-profit foundation through an endowment granted by Emperor Showa. JSPS became a quasi-governmental organization in 1967 under the auspices of the Ministry of Education, Science, Sports and Culture (Monbusho), and since 2001 under the Ministry of Education, Culture, Sports, Science and Technology (Monbukagakusho). Over this 70-year period, JSPS has worked continuously to develop and implement a far-reaching array of domestic and international scientific programs. On October 1, 2003, JSPS entered a new phase with its conversion to an independent administrative institution, as which it will strive to optimize the effectiveness and efficiency of its management so as to improve the quality of the services it offers to individual researchers, universities, and research institutes.

JSPS website   https://www.jsps.go.jp/english/index.html

Nobel Media

Nobel Media spreads knowledge about Nobel Prize-awarded achievements and stimulates interest in science, literature and peace in line with Alfred Nobel's vision and legacy.

The company reaches a global audience of millions through its high quality productions within broadcast and digital media which included the official Nobelprize.org website and podcast, the Nobel Prize Concert, as well as a series of intercontinental, inspirational lecture events featuring Nobel Laureates.

The company also manages a portfolio of publishing licenses, footage sales, and live broadcast rights to the Nobel Prize Award ceremonies.

Official website   www.nobelprize.org

Twitter: @NobelPrize, Facebook: facebook.com/Nobelprize, YouTube: www.youtube.com/nobelprize

Nobel Foundation

The Nobel Foundation is a private institution established in 1900 based on the will of Alfred Nobel. The main tasks are to manage the assets made available through the will, and the intellectual property related to the Nobel Prize that has developed over the years.

Organizing Committee

Nobel Prize Dialogue Tokyo 2017
Organizing Committee Members

Chair

Yuichiro Anzai	President, Japan Society for the Promotion of Science Chair, Strategic Council for AI Technology

Vice Chair

Kazuo Iwano	Chief Digital Officer, Mitsubishi Chemical Holdings Corporation

Member

Mitsuo Kawato	Director, Brain Information Communication Research Laboratory Group, Advanced Telecommunications Research Institute International (ATR)
Masaru Kitsuregawa	Director General, National Institute of Informatics, Research Organization of Information and Systems Professor, Institute of Industrial Science, The university of Tokyo
Yasuo Kuniyoshi	Professor, Graduate School of Information Science and Technology, The University of Tokyo Director, Next Generation Artificial Intelligence Research Center (AI Center), The University of Tokyo
Junichi Tsujii	Director, Artificial Intelligence Research Center, National Institute of Advanced Industrial Science and Technology
Tomohiko Fujiyama	Principal Fellow, Center for Research and Development Strategy, Japan Science and Technology Agency

Advisor

Susumu Tonegawa	Director, RIKEN Brain Science Institute

*Affiliation and Title are as of Nobel Prize Dialogue Tokyo 2017.

Partners of Nobel Prize Dialogue Tokyo 2017

Nobel International Partners

3M

3M will collaborate with Nobel Media over several years to bring light to important global issues, like the future of scientific education and sustainability. The partnership gives us the opportunity to jointly focus on educating, inspiring and engaging a broader audience on big issues that impact people's lives around the world.

ERICSSON

Ericsson is the world's leading provider of communications technology and services. We are enabling the Networked Society with efficient real-time solutions that allow us all to study, work and live our lives more freely, in sustainable societies around the world. Today more than 40 percent of the world's mobile traffic goes through Ericsson networks and we support customers' networks servicing more than 2.5 billion subscribers.

SCANIA

Scania has a strong focus on research and development and is at the forefront in developing efficient and smart transport solutions and innovations. More than 3,500 researchers are working in the very forefront when it comes to future key areas as alternative fuels, connectivity, automation and electrification. The aim is to maintain and continue to develop a broad competence, ensuring that Scania retains its leading position within the automotive industry.

VOLVO

Volvo Cars, the premium car maker, is investing heavily in developing new technologies in the areas of autonomous driving, active safety and electrification. Our 6,000 colleagues dedicated to Research and Development are spread across three continents. We strengthen the automotive cluster in Western Sweden and establish an emerging hub for automotive software engineering.

Event Partners

FUJITSU

Fujitsu is the leading Japanese information and communication technology (ICT) company offering a wide range of technology products and services. Our vision is "Human Centric Intelligent Society", so approximately 160,000 Fujitsu people aims to bringing about a prosperous future that fulfills the dreams of people，and support customers in more than 100 countries.

SMBC SUMITOMO MITSUI BANKING CORPORATION

Sumitomo Mitsui Banking Corporation (SMBC)'s competitive advantages include its solid and extensive client base, the expeditious implementation of strategies, and also the service providing capability of its predominant Group companies. SMBC, as a core member of Sumitomo Mitsui Financial Group, integrally work with other Group companies to provide highly sophisticated and comprehensive financial services to clients.

Supporting Organizations

RECRUIT

Founded in 1960, Recruit Holdings is a leading information services and human resources company in Japan. Through a wide range of services, Recruit is focused on variety of areas, including employment, education, housing, marriage, travel, restaurants, beauty, cars, hobbies, and lifestyles. Recruit has more than 38,000 employees and operates in Asia and North America. Its holdings include Indeed, the world's largest job site.

SCSK

SCSK Corporation support customers' businesses by providing a complete lineup of all the IT services required, from systems development to IT infrastructure construction, IT management, business process outsourcing (BPO), and sales of IT hardware and software.

Special Thanks to

Embassy of Sweden

Promotional Activities

Number of promotional activities of Nobel Prize Dialogue Tokyo 2017

Press release 7, JSPS website 8, JSPS Monthly 9, JSPS Quarterly 3, SNS 15 Total 42

Details

1	14-12-2015	The 1st press release "Nobel Prize Dialogue Tokyo 2017"
2	14-12-2015	JSPS website Topics "Nobel Prize Dialogue Tokyo 2017"
3	3-2016	JSPS Quarterly #55 "JSPS and Nobel Media AB Agreed to Hold Nobel Prize Dialogue Tokyo 2017"
4	17-06-2016	JSPS website Topics "Donation for Nobel Prize Dialogue Tokyo 2017"
5	04-07-2016	JSPS Monthly (July, 2016) "Donation for Nobel Prize Dialogue Tokyo 2017"
6	01-08-2016	JSPS Monthly (August, 2016) "Donation for Nobel Prize Dialogue Tokyo 2017"
7	05-09-2016	JSPS Monthly (September, 2016) "Donation for Nobel Prize Dialogue Tokyo 2017"
8	03-10-2016	JSPS Monthly (October, 2016) "Donation for Nobel Prize Dialogue Tokyo 2017"
9	21-10-2016	The 2nd press release "Official website was opened"
10	21-10-2016	JSPS website Topics "Official website was opened"
11	21-10-2016	Facebook (JSPS Research Cooperation Division) "Official website was opened"
12	07-11-2016	JSPS Monthly (November, 2016) "Nobel Prize Dialogue Tokyo 2017"
13	05-12-2016	JSPS Monthly (December, 2016) "Nobel Prize Dialogue Tokyo 2017"
14	07-12-2016	The 3rd press release "Panellists and Partners"
15	12-12-2016	JSPS website Topics "Panellists and Partners were opened"
16	12-2016	JSPS Quarterly #58 "Upcoming Nobel Prize Dialogue Tokyo 2017"
17	04-01-2017	JSPS Monthly (January, 2017) "Nobel Prize Dialogue Tokyo 2017"
18	16-01-2017	The 4th press release "Registration for General Participants"
19	16-01-2017	JSPS website Topics "Registration for General Participants will open"
20	17-01-2017	Facebook (JSPS Research Cooperation Division) "Registration for General Participants"
21	27-01-2017	JSPS website Topics "Registration for General Participants was closed"
22	06-02-2017	JSPS Monthly (February, 2017) "Nobel Prize Dialogue Tokyo 2017"
23	08-02-2017	The 5th press release "Registration for Press"
24	08-02-2017	The 6th press release "Panellists and Programme"
25	08-02-2017	Facebook (JSPS Research Cooperation Division) "Registration was closed"
26	09-02-2017	JSPS website Topics "Updated Panellists and Programme"
27	15-02-2017	Facebook (Nobel Prize) "Exploring the Future of Intelligence in Tokyo!"
28	17-02-2017	The 7th press release "Reception for Nobel Prize Dialogue Tokyo 2017 and the 9th HOPE Meeting"
29	17-02-2017	Twitter (Nobel Prize) "Exploring the Future of Intelligence!"
30	22-02-2017	Facebook (Nobel Prize) "Exploring the human brain with Susumu Tonegawa at Nobel Prize Dialogue Tokyo!"
31	22-02-2017	Twitter (Nobel Prize) "Exploring the human brain with Susumu Tonegawa at Nobel Prize Dialogue Tokyo!"
32	24-02-2017	Facebook (Nobel Prize) "Make sure to join the Dialogue in digital form!"
33	25-02-2017	Facebook (Nobel Prize) "Exploring the Future of Intelligence!"
34	28-02-2017	Twitter (Nobel Prize) "Exploring the Future of Intelligence."
35	26-02-2017	Facebook (Nobel Prize) "Jean-Pierre Sauvage discussing the Future of Intelligence at Nobel Prize Dialogue Tokyo."
36	26-02-2017	Twitter (Nobel Prize) "Jean-Pierre Sauvage discussing the Future of Intelligence at Nobel Prize Dialogue Tokyo."
37	27-02-2017	Facebook (Nobel Prize) "What is the Future of Intelligence?"
38	27-02-2017	Facebook (Nobel Prize) "Will a robot ever be awarded the Nobel Prize?"
39	28-02-2017	Facebook (JSPS Research Cooperation Division) "Nobel Prize Dialogue Tokyo 2017"
40	03-2017	JSPS Quarterly #59 "Nobel Prize Dialogue Tokyo 2017"
41	02-03-2017	JSPS website Topics "Nobel Prize Dialogue Tokyo 2017"
42	06-03-2017	JSPS Monthly (March, 2017) "Nobel Prize Dialogue Tokyo 2017"

Materials

Poster（A2）/Flyer（A4）（JPN/ENG）　　　Official website（JPN/ENG）　　　JSPS website（JPN/ENG）

Programme book

ID cards

Photo: Alexander Mahmoud

Nobel Week Dialogue and Nobel Prize Dialogue Tokyo

Nobel Week Dialogue is a free of charge, full-day symposium and part of the official Nobel Week programme. The event is held yearly on the day before the Nobel Prize Award Ceremony. JSPS and Nobel Media organized the first Nobel Prize Dialogue outside Sweden in March 2015.

The theme of Nobel Week Dialogue

Nobel Week Dialogue 2012：
The Genetic Revolution and its Impact on Society
The inaugural Nobel Week Dialogue brought together 35 panellists and 1100 participants in Stockholm, Sweden. The events were dedicated to reviewing the past half century of progress in genetics and genomics, assessing the implications for today's society and looking towards future trends.

Nobel Week Dialogue 2013：
Exploring the Future of Energy
Nobel Week Dialogue 2013, visiting Gothenburg for the first time, provided an opportunity for discussions that cross the traditional boundaries between science and society, introducing the theme of energy.

Nobel Week Dialogue 2014：
The Age to Come
The third Nobel Week Dialogue was held in Stockholm and explored new scientific and cultural perspectives on ageing. While increasing average life expectancies is undoubtedly one of humanity's greatest achievements, a steadily ageing global population brings with it a range of new challenges and opportunities.

Nobel Week Dialogue 2015：
The Future of Intelligence
The Future of Intelligence was the theme for the 2015 edition of Nobel Week Dialogue held in Gothenburg. Speakers considered the question 'what is intelligence', highlighting both its diversity and its complexity as well as the exponential growth in the technological development.

Nobel Week Dialogue 2016：
Your Plate - Our Planet : The Future of Food
The fifth Nobel Week Dialogue event was held in Stockholm, where visitors and experts joined in a discussion about Food. Issues such as global sustainability, poverty, malnutrition and food waste were explored during the day.