

Science and Technology in Society *forum* (STS *forum*)  
15<sup>th</sup> Annual Meeting  
Kyoto, Japan, October 9, 2018  
**STATEMENT**

1. The 15<sup>th</sup> Annual Meeting of the Science and Technology in Society *forum* took place from October 7 to 9, with the participation of more than 1,400 global leaders in science and technology, policy-making, business, and media from nearly 80 countries, regions, and international organizations.
2. Science and technology issues concern all of us, and they should not be left only to science and technology professionals. We must all think of them as our own problem. Open science encourages the broader participation of other scientists as well as citizens, reinforcing the idea of open societies. The problems also cannot be solved by one or two countries alone, and therefore it is important for scientists, policy makers, business executives, and other leaders to gather and discuss the issues. Beyond that, effective communication of science and research findings to the public, thereby encouraging better understanding and greater participation of stakeholders as science and technology continue to transform society.
3. For the 15<sup>th</sup> anniversary of the STS *forum*, we had a special plenary session on the “Lights and Shadows of Science and Technology” reviewing the past 15 years to advance the discussion for the next 15 years. Even in this short span of time, the speed of innovation has been astounding, leading to exciting developments in science and technology. Our foundational concept of strengthening the lights and controlling the shadows remains unchanged, but we must now focus on new areas pioneered by scientific progress. The STS *forum*’s role in encouraging dialogue and actions on science and technology and the future of humanity is more important than ever.
4. Based on discussion at the STS 15<sup>th</sup> Annual Meeting, we would like to highlight the following points.

### **Energy and Environment**

5. Lowering emissions remains a global priority. Harnessing existing and emerging scientific and technological knowledge for new energy solutions will be essential to rapidly reach a Net Zero Emissions future. Although global investment in renewable energy was on the decline last year, technical innovations improved the efficient management of energy supply and demand. As we move toward the continued reduction of carbon in our economies, improving energy storage technologies will be key for the further development of electric vehicles and other innovations. While new sources of renewable energy are absolutely needed, nuclear energy remains a critical source for energy generation under strict conditions of safety, security, and non-proliferation.
6. Despite prior efforts to mitigate climate change, some nations are not achieving their Nationally Defined Contributions, leading to projections consistent with a 3 or 4°C temperature increase rather than the 2°C predicted. In a drastically changing environment, we can expect even more extreme weather events and other hazards, including rising sea levels. We must reinforce the global efforts to meet these global challenges. We should urgently enhance the collection, storage, analysis, and deployment of scientific knowledge on space, earth, and oceans to monitor the effects of our actions on the environment and to estimate the likely consequences. This should help us better design our programs for mitigating and adapting to climate change.

### **Life Sciences and Healthcare**

7. Progress in the new genetics has opened new doors for human gene-based therapy. Genetic science can also enhance food security when applied to plant cultivation and animal breeding. As we move in these directions, it is essential that there be a broadly based societal discussion on the ethics and legal aspects that should govern the application of this new technology to humans.

8. While life expectancy is increasing worldwide, the incidence of age-related diseases is also increasing. The rapid development of science and technology in advanced and preventive medicine provides new opportunities to support healthy aging.
9. The fight against infectious disease is still a global mission. We must continue to make an effort to build an international system to help nations deliver good health care to all parts of the world with the cooperation of WHO and other organizations.

### **Digital Society**

10. Robotics, machine-human interaction, Artificial Intelligence, the Internet of Things, and Big Data analytics offer opportunities for changing production processes, the conduct of economic activity, and many other aspects of our lives. Other promising technologies include blockchains (subject to curbing their enormous energy consumption), quantum computing, and novel applications for Augmented Reality and Virtual Reality. Global cooperation and joint projects among governments, industries, and academia on standards and security measures are needed even as we move towards more Open Science and even the promotion of co-creation with stakeholders and SMEs. At the same time, we need to manage job disruption and protect society against the misuse of personal data. Preserving individual freedoms, respecting privacy, and guaranteeing a certain degree of anonymity must be the rule.

### **Research and Innovation**

11. Education is going through a revolution, not just in terms of content but also in terms of teaching methods and the incorporation of ICT throughout basic schooling, university, and graduate studies, with its potential to provide much wider access to an excellent education around the globe. The role of universities must include both the advancement of science and technology as well as concern with the Ethical, Legal, and Social Issues associated with these advances.
12. Environmental concerns and sustainability should be the most important forces driving industrial innovation. The costs of pollution and excessive resource depletion should be factored into all of our economic strategies, and governments should create the frameworks that will induce economic actors to take these into account.
13. The challenges for the food and agricultural industries with respect to the international community are related to initiatives for improving food security through smart and integrated production. This includes incorporating ICT and other leading-edge technologies, including the breeding and engineering of plants to be more salinity and drought resistant with a shorter growing season and with greater resistance to suffering post-harvest losses. It is essential that each country make an effort, through policies, initiatives, and concrete strategies, to tackle technical problems in smart agriculture, to encourage high value urban agriculture and hydroponics, and to help develop a highly productive food industry under a sustainable development agenda.

### **Cooperation in Science and Technology**

14. Science is increasingly moving toward an open framework for knowledge exchange, protected by appropriate intellectual property rights and increasingly encouraged by governments with policies for Science, Technology, and Innovation. The links between peoples will increasingly require that a greater role be given to S&T diplomacy in a world where many tensions still exist and all could benefit from more harmonious scientific cooperation and exchanges.
15. Although the challenges are great, human intelligence and innovation are up to the task of finding appropriate solutions. It is essential that academia, governments, and industry promote a climate for innovation and the legal framework that will encourage the transformation of new ideas into viable and sustainable enterprises that benefit society and the environment we all depend on.
16. We look forward to meeting here again next year and have agreed to hold the 16<sup>th</sup> Annual Meeting of the STS forum in Kyoto from Sunday, October 6 to Tuesday, October 8, 2019.