

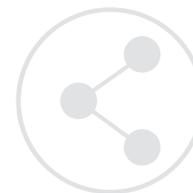
**CARNEGIE**  
INDIA

# GLOBAL **TECHNOLOGY** SUMMIT 2017

WHERE TECHNOLOGY MEETS POLICY



**DECEMBER 7 AND 8, 2017**  
BENGALURU

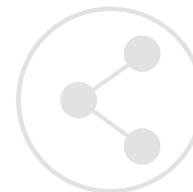
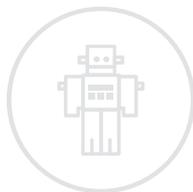


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**#GlobalTechSummit**



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## INTRODUCTION

From its founding, Carnegie India's research has focused on the policy implications of technological transformation. Our Technology Forum Initiative focuses on in-depth study of the tensions between technology innovation and effective regulation, collective benefits and individual rights, state autonomy and global governance, and between national security and international controls.

Our annual flagship event, the Global Technology Summit (GTS) held in Bengaluru as part of our mission to continually engage with India's technology capital, has been a major component of this initiative.

The inaugural edition of this summit, GTS 2016, was supported by the Ministry of External Affairs and the Government of Karnataka, along with leading technology companies. This effort to bring together policy makers and the technology community generated much enthusiasm in Delhi, Bengaluru and beyond, and was followed up with research and programming on issues relating to artificial intelligence, biotechnology, data protection, civilian drones, and electric vehicles.

Building on this, Carnegie India convened the second Global Technology Summit on December 7 and 8 at the Hotel Leela Palace in Bengaluru. The 2017 summit comprised two days of vibrant conversations on a range of themes including technology diplomacy, regulating the bio-economy, building innovation ecosystems, data governance, and sustainable mobility.

GTS 2017 attracted over 400 attendees from twenty countries, and saw the participation of fifty-seven distinguished speakers. The government officials speaking at the summit included the Foreign Secretary of India, the Ministers of Large and Medium Industries and Information Technology of the government of Karnataka, the Ambassador of Japan to India, the Chairpersons of the National Technical Research Organization and the Unique Identification Authority of India, the convener of the National Security Advisory Board, and a former judge of the Indian Supreme Court heading the government of India's expert committee on data protection.

Several industry leaders and experts including Kiran Mazumdar-Shaw of Biocon, Nivruti Rai of Intel, Sarv Saravanan of Dell EMC India, Jeffrey Eisenach of NERA Economic Consulting, Arun Malhotra of Nissan, and Stephen Deadman of Facebook participated in the summit.

Union Minister for Commerce and Industry Suresh Prabhu and Ann Cavoukian of the Privacy and Big Data Institute at Ryerson University also joined the summit through video.

The summit was generously supported by the Ministry of External Affairs, the Government of Karnataka, Intel, Biocon, Dell EMC, Nissan India, Baghirathi, Mahindra Electric, Ola Cabs, and the U.S. Chamber of Commerce.



## DISCUSSION HIGHLIGHTS

The inaugural session of the summit featured Dr. S Jaishankar, Foreign Secretary of India, Ambassador Kenji Hiramatsu, Ambassador of Japan to India, and Dr. C. Raja Mohan, Director, Carnegie India. Dr. Jaishankar spoke about the historic relationship between technology, international affairs, and the internal development of nations. He also highlighted Japan's longstanding presence in Indian economy and society, and its contributions to India's technological progress from the days of Maruti Suzuki to the Delhi Metro to the ongoing High-Speed Rail projects.

The first day of the summit focused on two broad themes – technology diplomacy and innovation policy. Panelists discussed the policy implications of emerging technologies like artificial intelligence and robotics, gene editing and nanotechnology, and the internet-of-things. They underscored the need for nations to anticipate such shifts and develop norms to ensure that human rights, whether individual or collective, are sufficiently protected. The need for interdisciplinary and collaborative approaches to combat the security and business mounted by such technologies received significant attention. Panelists also emphasized the need to co-create intellectual property beyond the traditional confines of domestic protection, bridging the gap between technology producers and consumers, and framing national policies to fuel innovation. The panel on Indo-Japan technology cooperation explored opportunities beyond the ongoing bullet train project, cultural and trust barriers that stand in the way of deeper partnership between the two nations, and policy responses to overcome these barriers.

The second day of the summit built upon the wide-ranging insights from the first day to dive deeper into specific industries transformed by technology. Starting the day with the relationship between technology and governance, experts debated the desirability of delivering public goods and services through e-governance and the challenges of grappling with poorer digital literacy and last-mile access.

Carnegie India's efforts to convene various stakeholders to facilitate the Karnataka government's electric vehicles policy, the first in the country, received appreciation and acknowledgment from R.V. Deshpande, Minister for Large and Medium Industries, earlier this year. The panel discussion on intelligent and sustainable mobility built on this pioneering work to examine the Indian government's goal of a complete transition to electric mobility by 2030. Panelists deliberated upon the policy and market challenges that need to be resolved to achieve this target.

Similarly, we built on an earlier paper on modern biotechnology and India's regulatory regime to curate an expert panel on this theme. This panel discussed how inadequate enabling legislations and policies, such as the Biological Diversity Act of 2002, have impeded the growth of the Indian biotechnology sector, and provided policy suggestions to circumvent this gridlock.

The question of data governance, a central theme across several panels this year, emerged as a serious issue that requires greater policy attention. Across mobility, smart cities, biotechnology, and digital finance, experts emphasized the need for robust guidance on data generation, sharing, and protection, so that technology solutions can be designed with appropriate architectural features in place to satisfy such guidelines. The summit also showcased the idea of "privacy by design," which could potentially change the paradigm of global discussions on online privacy by engineering systems that respect this



fundamental right. The panel on navigating big data challenges outlined a number of innovative methods to balance the requirements of the state with the concerns of individual citizens, especially in light of recent controversies surrounding India's Aadhaar program.

As the digital transition accelerates, the resolution of key questions such as the composition of data, data ownership, and the balancing of citizen, state, and business interests, constitute significant policy challenges. Carnegie India considers data governance as a paradigmatic shift in the technology policy discourse in India, and will produce further research on this theme in the coming year.

The above conversations drew significant attention from the Indian media, with the summit's proceedings finding mention in leading Indian newspapers such as the Indian Express, Mint, the Hindu, and the Financial Express, along with wire services like the Press Trust of India and the Indo-Asian News Service, as well as online portals dedicated to the technology space such as YourStory and PCMag.

## SUBSIDIARY EVENTS

There were two closed-door discussions held on the sidelines of the summit: the Bengaluru-Tokyo Technology Initiative (BT<sup>2</sup>I) roundtable and the Startups Session.

The BT<sup>2</sup>I roundtable facilitated discussions among industry leaders, senior academics, and policymakers on deeper technology collaboration between Japan and India. Responding to the enthusiastic discussions in the roundtable, the Karnataka Minister of Information Technology proposed to establish a similar permanent biannual roundtable hosted alternatively in Bengaluru and Tokyo. All participants at the roundtable agreed that international collaborations are critical to innovation-driven growth, and that policy frameworks must focus on facilitating technology transfers and promoting research and development.

At the Startups Session, twelve Indian startups in diverse fields ranging from biotechnology and the internet of things to artificial intelligence and drone technologies received the opportunity to interact with over thirty leading Japanese investors and companies such as NEC and Hitachi. The objective behind this initiative was to go beyond facilitating innovation through policy guidance to leveraging Carnegie India's country partnerships to help home-grown startups access funding and mentorship opportunities.

As the Global Technology Summit achieves prominence among international technology and policy conferences, Carnegie India endeavors to continue convening diverse stakeholders to provide policy recommendations and shape public dialogue on emerging technologies. We look forward to your support and guidance in this journey.



## POLICY PATHWAYS

Several concrete policy recommendations emerged from the summit's discussions. The most significant among these are:

### Technology Adoption

- By adapting new technologies for governance, governments can act as important market-makers and address the trust deficit on the safety and effectiveness of such technologies.
- Policy frameworks for emerging technologies must focus on the development of supporting infrastructure. With electric mobility for instance, charging infrastructure is necessary for widespread adoption. Similarly, reliable internet connectivity and safe data collection and analytics architecture are critical for the transition to smart cities.
- Policies are also required to ensure that the initial levels of momentum associated with new technological interventions do not dissipate. While financial incentives are helpful for early adoption, especially when a new technology is more expensive than existing options, withdrawing them prematurely can hinder sustained use.
- Government agencies must ensure citizen involvement in the policy development process to provide them with a direct stake in the adoption of new technologies, with full awareness of their costs, benefits, and potential drawbacks.

### Data Governance

- India generates a vast amount of data that holds transformative possibilities for both economic activity and better governance. Analyzing such data demands greater public investment in artificial intelligence technologies and automated data processing.
- Data aggregation is also necessary to accrue the benefits of this technological change. This requires developing policies that incentivize companies and data holders to share data both within and across silos or sectors.

### A New Approach to Privacy

- Effective legal standards, such as the European Union's General Data Protection Regulation, need to be developed to protect the rights of individual citizens, prevent any possible harm from misuse of such data and encourage organizations to report data breaches to regulators and to the general public.
- Instead of mandating that data-collecting actors obtain consent from individuals, privacy protection regulations must consider making it easier for individuals to revoke consent if needed. An independent data commissioner can be established to manage such a process.



- Greater flexibility must be offered to data platforms and companies to manage the notice and consent framework for users. These platforms are better positioned to appreciate the nuances in specific use cases and offer innovative solutions for problems such as consent fatigue and the lack of clarity in the use of personal data.

### **Innovation-friendly Regulatory Environment**

- The ideal regulatory structure for innovation, while taking into account the needs and rights of citizens, must be flexible enough to allow entrepreneurs and innovators to develop new ideas, and even fail, without too many negative repercussions.
- Digital platforms for startups and their products, such as virtual marketplaces, can be part of policy measures focused toward building India's innovation ecosystem.
- Regulations must refrain from drawing artificial distinctions between Indian and foreign innovators, as has been done in the Biodiversity Act, and must allow equal access to all actors as long as the benefits can be accrued to India and Indian citizens.
- In order to encourage economy-wide innovation, the government must refrain from picking technology winners beforehand, and enable a competitive innovation marketplace where different ideas can freely compete. Panelists noted that picking winners through government policies not only distorts markets but also has a negative effect on innovation in the long term.

### **India-Japan Cooperation**

- A certain amount of handholding by the government, especially in cultural training, is required for Indian entrepreneurs to overcome the cultural barriers to cooperating with Japanese technology companies.
- The Indian state must also be wary of making sudden policy changes and renege on existing business contracts, and provide a stable investment environment for major Japanese corporations. Technology transfers from Japan can be facilitated by instituting intellectual property protections that guard against unauthorized use and copying.



# AGENDA

THE GLOBAL TECHNOLOGY SUMMIT | DECEMBER 7 AND 8 | THE LEELA PALACE | BENGALURU

## Day One

### Bengaluru Tokyo Technology Initiative Roundtable

#### Technology Diplomacy: Prospects for India and Japan

- Kenji Hiramatsu, Ambassador of Japan in India
- S. Jaishankar, Foreign Secretary of India
- Chair: C. Raja Mohan, Carnegie India

#### Beyond the Bullet Train: Shaping Indo-Japanese Collaboration

- Masahiro Fujita, University of Tokyo
- Hideaki Shiroyama, University of Tokyo
- Sanjeev Sinha, President of the India Japan Partnership Group and Advisor to the Indian High-Speed Rail Project
- Teruhide Sato, Beenext
- Ashok Chawla, Advisor (Japan), Ministry of External Affairs
- Chair: R.K. Misra, Carnegie India

#### Entrepreneurship, Intrapreneurship, and the Digital Transformation

- Ankit Jain, Ola Cabs
- Navneet Kapoor, Maersk GSC
- Chair: Ananth Padmanabhan, Carnegie India

#### Indo-Israel Technology Collaboration

- Dana Kursh, Consul General, Consulate General of Israel to South India, Bengaluru

#### New Technologies: Business and Security Imperatives

- Katherine Charlet, Carnegie Endowment for International Peace
- Arvind Gupta, Vivekananda International Foundation
- Claude Smadja, Smadja & Smadja Strategic Advisory
- Chair: Alok Joshi, National Technical Research Organization

#### Fintech in India: Reaching the Underserved

- A.P. Singh, India Post Technology Center
- Bala Parthasarthy, MoneyTap
- Sashank Rishyasinga, Capital Float
- Chair: Sahil Kini, Aspada Investments

#### Special Message to Carnegie India's Global Technology Summit

- Suresh Prabhu, Union Minister for Commerce and Industry of India (video recording)

#### The Intellectual Property Bridge: Accessing Global Innovation

- Avi Luvton, Israel Innovation Authority (video recording)
- Sarv Saravanan, Dell EMC India
- S.K. Murthy, Intel India
- David Keynan, Federation of Indo-Israel Chamber of Commerce
- Chair: B.V. Naidu, Startupxseed LLP

#### Pathways to Innovation Ecosystems

- Patrick Kilbride, U.S. Chamber of Commerce
- Manji Suzuki, DENSO International America Inc.
- Chair: Ananth Padmanabhan, Carnegie India

#### Startup Pitching Session

## Day Two

### Emerging Technologies, Evolving Policy Design

- R.V. Deshpande, Minister for Large and Medium Industries of Karnataka

### Using Technology for Governance

- Charru Malhotra, Indian Institute of Public Administration
- Arvo Ott, Estonian E-Governance Academy
- Osama Manzar, Digital Empowerment Foundation
- Rohan Samarajiva, LIRNEasia
- Chair: P.S. Raghavan, National Security Advisory Board

### Digitizing Public Services

- J. Satyanarayana, Unique Identification Authority of India

### Intelligent and Sustainable Mobility

- Arun Malhotra, Nissan Motor India
- Christina Bu, Norwegian Electric Vehicle Association
- Mahesh Hariharan, Baghirathi
- Amit Gupta, Yulu Bikes
- Chair: Chetan Maini, Sun Mobility

### Regulating the New Digital Economy

- Jeffrey Eisenach, NERA Economic Consulting
- Chair: Nikhil Narendran, Trilegal Bangalore

### Navigating Big Data Challenges

- Ann Cavoukian, Ryerson University (video recording)
- Rahul Matthan, Trilegal Bangalore
- Vishnu Shankar, Sidley Austin
- Stephen Deadman, Facebook
- Sunil Abraham, Center for Internet and Society
- Chair: B.N. Srikrishna, Supreme Court of India

### The Digital Last Mile

- Nivruti Rai, Intel Corporation
- Chair: Naganand Doraswamy, Ideaspring Capital

### Building Smart Cities

- Aamer Azeemi, Smarten Spaces
- Sidhartha Mohanty, Intel Corporation
- Anirban Choudhury, Andhra Pradesh Aerospace Defence Electronics Park
- Chair: Ravinder Singh, Dell EMC India

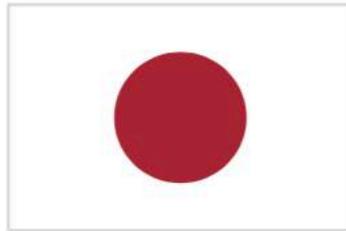
### Governing Modern Biotechnology

- Taslimarif Saiyed, Centre for Cellular and Molecular Platforms
- Gary Marchant, Arizona State University
- Shrikumar Suryanarayan, Sea6 Energy
- Anand Anandkumar, Bugworks Research
- Chair: Vijay Chandru, Strand Life Sciences

### Concluding Remarks

- C. Raja Mohan, Carnegie India
- R.K. Misra, Carnegie India
- Ananth Padmanabhan, Carnegie India

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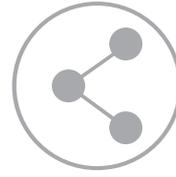
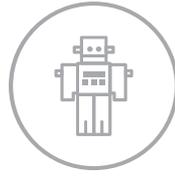
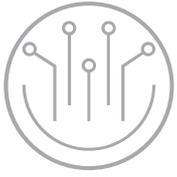
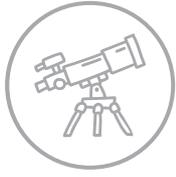
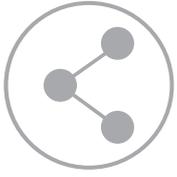
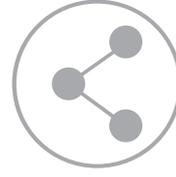
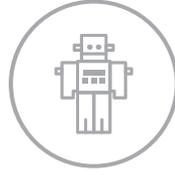
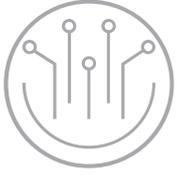
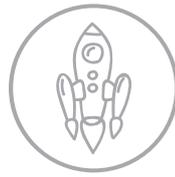
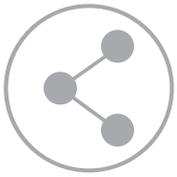
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Carnegie India  
12, Dr. APJ Abdul Kalam Road  
New Delhi - 110011, India

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