

## 2016 GLOBAL TECHNOLOGY SUMMIT

DECEMBER 6, 2016 TO DECEMBER 7, 2016 | BANGALORE

### EVENT HIGHLIGHTS

**Jobs and Technology:** The panel on *Automation and Jobs* (Day 1) examined the prospect of severe job losses to automation. There is no doubt that increased automation will profoundly affect job creation in sectors like manufacturing and agriculture. However, job loss in those areas will be balanced by job creation in high-paying, high-skill sectors, panelists asserted. As a result, there is a need to develop a social safety net to help reduce the negative fallouts, if any, of this transition. Panelists also expressed concern that the new jobs being created might be situated within existing tech hubs in the United States, China, and Western Europe.

**Infrastructure and Technology:** The panel on *Technologies for a Smart Future* (Day 2) explored disruptive technological advances and their potential transformative effect on mobility, energy, and urban infrastructure. Experts highlighted data protection and security as additional concerns with new technologies and business models due to the zettabytes of data being accumulated. Ensuring adequate protection and responsible use of this data calls for serious deliberation. Finally, they added, no technology can be considered 'smart' unless it is economically viable, socially inclusive, and environmentally sustainable.

**Need for Responsive Government:** Technological innovation is dependent to a great degree on governments being responsive to ongoing changes. Conference participants explained that the government has a dual role: first, as a regulator and policymaker, and second, as an enabler and promoter of new technologies. Speakers pointed out that while the first role is well known, the second is just as important. Governments can take the lead in establishing viable markets for potentially disruptive technologies. In India, this is being done through the government's IndiaStack initiative, creating knowledge parks and incubators, and envisioning proactive partnerships with industry.

**Need for Responsive Industry:** Panelists also noted that industry itself must be responsive to the government's policy signals by pushing for policies and reacting swiftly to the needs of national and local governments. There is therefore a pressing need for greater interaction between the government and the industry, panelists concluded. A mutually beneficial relationship between the two is needed not only for innovation but also for making technologies market-ready.

**Promises and Challenges of Technology:** Some of the technological advances and initiatives showcased at the Summit, such as Bibop Gresta on the Hyperloop, a novel technology for high-speed transportation; Ruslan Yunusov on quantum computing; TeamIndus' private moon mission; and Nandan Nilekani on transitioning India to a less-cash society, reveal both the promises and challenges of technology. Governments can no longer be passive recipients of technology's offerings or mere regulators of its processes, panelists asserted. The state must anticipate the future, constantly monitor and assess technology's impact and consequences, interact regularly with industry stakeholders, and leverage technology for public service delivery.

**India in an Interconnected World:** Speakers identified technology as a key driver of social and economic development, even contributing to shifts in the global balance of power and influence. Speakers shared the view that for India to emerge as a leading power, it must fully develop both its technological and human resource capabilities. In this regard, they said, it is important for India to both foster a vibrant technology-focused, entrepreneurial culture and to establish regulatory standards on issues like intellectual property that are beneficial to Indian interests. There was considerable divergence in panelists' views on the current openness of the Indian digital economy. In the panel on *Borders and Innovation* (Day 2), some panelists advocated for relaxed foreign capital norms but restricted foreign firm access, while others supported open digital borders coupled with free and fair competition. But as summed up by the concluding panel on India Rising, the way forward for India is to learn from the mistakes of the past, avoid technological isolation, and discover its own path through global partnerships.

**A Conducive Regulatory Environment:** From a regulatory standpoint, both the ease of adoption of new technologies and appropriate incentive structures to develop the same are important, panelists agreed. In the panel on *Regulation and Innovation* (Day 1), speakers argued that there is currently a paradigm shift in the way regulation is understood, with regulatory authorities now necessarily having to adopt a multi-faceted approach directed toward outcomes. The network effect of financial technology companies, for example, underscores the importance of regulators moving beyond their traditional roles and creating a space for dialogue between different ecosystems, such as the technology and banking systems

**Government and Research:** In the panel on *Intellectual Property and Innovation* (Day 2), panelists argued that research and development initiatives in India are mostly driven by foreign entities, with minimal domestic industry-led efforts. They also emphasized the significance of government-led innovation. Even in the most technologically advanced nations, they said, such research often resulted in the most long-lasting innovations. Universities are at the core of this research and innovation environment, panelists added. In the absence of exceptional universities with a strong research focus, it becomes very difficult to develop an innovation infrastructure. Speakers also stressed that intellectual property safeguards need to be tailored to the specifics of current and emerging technologies.

## KEY TAKEAWAYS

*A set of actionable policy recommendations from the various talks and panel discussions at the Global Technology Summit.*

### Building a Vibrant National Innovation System

- Fund public-spirited research on breakthrough technologies in universities.
- Establish technology incubators that provide access to mentorship, industry networks, and venture capital in academic institutions. This will enable a mutually beneficial relationship between academia and the innovation ecosystem.
- Promote international management practices and impart new technologies and skills through extensive interactions and strong partnerships between international and domestic start-ups.
- Encourage India's competitive advantage in frugal innovation, which combines quality products with low costs, through suitable policies and institutions.

### Preparing for the Future

- Focus on helping students develop problem-solving, creative, and analytical skills. Education, from the elementary level onwards, should focus on inculcating in the general populace the skills necessary to survive and thrive in an era of increasing automation.
- Evolve an economic and regulatory framework that incentivizes job creation. The coming fourth industrial revolution will create a number of new jobs, mostly in the high-paying, high-skill sectors. India must evolve an economic and regulatory framework that incentivizes job creation in these sectors.
- Establish robust privacy and data protection policies. Future technological evolution will generate enormous online data containing the private information of millions of citizens, and will require safeguards.
- Bridge the digital divide in India to ensure sustainable economic growth for all citizens. This divide manifests itself in a variety of ways, from negligible broadband connections to intermittent electricity. Bridging this divide can be done in two ways: first, by upgrading connectivity infrastructure, especially fixed-line broadband connections and mobile networks, and second, by designing and implementing digital literacy programs.

## Regulating and Rewarding Technological Innovation

- Create an accessible platform for interaction between innovators and regulators. Such a platform must necessarily be multi-sectoral in representation and multi-faceted in approach.
- Construct regulatory sandboxes that allow for the testing of innovative products and services that may not be fully compliant with current regulations. This model, launched in countries like Hong Kong, Singapore, and Australia, permits businesses to pilot cutting-edge technologies without having them run afoul of existing regulations. Regulatory co-creation, where the regulator works with financial institutions and start-ups to provide necessary funding and share risk, is another model that has been used to shape financial technology regulation in Singapore. This allows the regulator to stay abreast of emerging technologies and draft effective regulations.
- Develop intellectual property standards tailored to India's social and economic environment and ensure that they do not become a barrier to product development and market access.
- Design bespoke regulations for sectors undergoing constant technological change such as pharmaceuticals, semiconductors, mechanical engineering, biotechnology, material sciences, and software, all of which have different innovation thresholds and innovator reward requirements.
- Find a middle-of-the-road governmental solution that resolves the tension between foreign technology companies backed by massive capital resources and domestic firms with relatively less access to funding. Panelists' opinions varied on the merits of adopting a more protectionist stance regarding the activities of foreign companies as compared to a more liberal regime for the digital economy. The impact of this debate will be felt on both the availability of foreign capital and expertise and the growth of domestic companies and industries, both of which are essential for long term economic growth.
- Encourage open-source platforms that are created and supported by government, academia, industry, and other stakeholders to integrate solutions from different technologies.

## Paving the Way for Global Partnerships

- Harness the intellectual and financial power of the Indian diaspora to boost India's technological progress. A number of measures can be undertaken to facilitate such interactions, including a more liberalized visa regime, providing easier investment mechanisms for non-resident Indians and persons of Indian origin, and encouraging Indian academics abroad to teach in Indian universities.
- Extend joint projects like the short-term exchanges of young scientists between India and Israel to other countries in order to expose India's youth to the best global practices and ideas in technology research.
- Play a bigger role in international debates on issues such as cyber governance and data security.
- Evolve a larger vision to export India's innovations and technology-driven solutions to other nations by facilitating partnerships between India's technology leaders and foreign governments. Through such initiatives, India can leverage its technological capabilities for the greater global good.

## AGENDA

### DECEMBER 6

10:30 to 11:30 a.m.

#### Registration

11:30 a.m. to 1:00 p.m.

#### The Big Picture

- R.S. Sharma, chairman, Telecom Regulatory Authority of India
- Foreign Secretary S. Jaishankar
- Chair: C. Raja Mohan, director, Carnegie India

1:00 to 1:30 p.m.

#### Lunch

1:30 to 2:40 p.m.

**Getting it Right: Harmonizing Regulation and Innovation**

- Chair: Pankaj Mishra, editor-in-chief and co-founder, FactorDaily
- Mark Skidmore, former civil aviation regulator, Australia
- Rahul Matthan, partner, Trilegal Bangalore
- Rajiv Anand, executive director, Axis Bank
- Sopnendu Mohanty, chief fintech officer, Monetary Authority of Singapore

2:40 to 3:10 p.m.

**Internet-of- Things and the Future**

- Sameer Sharma, general manager, IoT Solutions, Intel

3:10 to 3:40 p.m.

**Artificial Intelligence: A Natural Pursuit**

- Shivaram Kalyanakrishnan, assistant professor, IIT Mumbai
- Chair: Shivnath Thukral, managing director, Carnegie India

3:40 to 3:50 p.m.

**Coffee Break**

3:50 to 4:15 p.m.

**Fourth Industrial Revolution**

- Ravi Venkatesan, chairman, Bank of Baroda

4:15-4:40 p.m.

**Factories of the Future**

- GNV Subba Rao, head of India centre for global research and development, ABB Ltd.

4:40 to 5:40 p.m.

**Killing Jobs or Creating Them: Automation and Employment**

- Chair: Sharad Sharma, co-founder and governing council member, iSPIRT
- Kiran Mazumdar Shaw, chairman and managing director, Biocon
- Manish Sabharwal, chairman and co-founder, TeamLease
- Wilfried Aulbur, managing partner, Roland Berger

5:40 to 6:10 p.m.

**Space Policy and Technological Innovation**

- Avi Blasberger, director, Israeli Space Agency

6:10 to 6:40 p.m.

**Leapfrogging Legacy: Hyperloop**

- Bibop Gresta, chairman, Hyperloop Transportation Technologies
- Chair: Vishal Gondal, founder and CEO, GOQii

6:45 p.m.

**Cocktails and Dinner**

**DECEMBER 7**

9:30 to 10:00 a.m.

**Breakfast and Coffee**

10:00 to 10:20 a.m.

**Touching the Moon: Showcasing TeamIndus**

- Rahul Narayan, fleet commander, TeamIndus

10:20 to 10:45 a.m.

**The Future of Computing**

- Ruslan Yunusov, CEO, Russian Quantum Center

10:45 to 11:30 a.m.

**Making New Markets: Role of Government**

- Deepanwita Chattopadhyay, chairman and CEO, IKP Knowledge Park
- Nivruti Rai, vice president in platform engineering group, Intel

11:30 to 11:40 a.m.

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

- M.J. Akbar, union minister of state for external affairs of India (by videolink)

11:40 a.m. to 12:00 p.m.

**Technology and Diplomacy**

- K. Nagaraj Naidu, joint secretary in the economic diplomacy division of the ministry of external affairs of India

12:00 to 12:30 p.m.

**Responsive Government: Role of Technology**

- RV Deshpande, minister for industries, State of Karnataka

12:30 to 1:30 p.m.

**Technologies for a "Smart" Future: Enhancing Efficiency and Connectedness**

- Chair: RK Misra, founder director, Center for Smart Cities
- Craig Garen, general manager of communication technologies, connected home division, Intel
- Kamal Bali, managing director, Volvo
- Ravi Puvvala, founder and CEO, Savari Tech
- Vikram Gandotra, general manager (marketing and strategy), Siemens Ltd.

1:30 to 1:50 p.m.

**Lunch**

1:50 to 2:30 p.m.

**Intellectual Property and Innovation: Emerging Economies and Global Standards**

- Chair: Ananth Padmanabhan, fellow, Carnegie India
- Vijay Chandru, chairman and managing director, Strand Life Sciences
- GS Madhusudan, principal scientist, IIT Madras
- Sarv Saravanan, corporate senior vice president and general manager, EMC

2:30 to 3:10 p.m.

**Road to Cashless Economy: How Government, Regulation, Technology and Markets Come Together**

- Nandan Nilekani, former chairman, Unique Identification Authority of India

3:10 to 4:20 p.m.

**Borders and Innovation: Balancing the Internal and External**

- Chair: Mohandas Pai, chairman, Manipal Global Education and Aarin Capital
- Anand Rangarajan, engineering director, Google
- Bhavish Aggarwal, co-founder and CEO, Ola Cabs
- Navneet Kapoor, president and managing director, Target India
- Sachin Bansal, executive chairman and co-founder, Flipkart

4:20 to 4:45 p.m.

**Future of Karnataka as an Innovation Hub**

- Priyank Kharge, minister of IT, BT and S&T of Karnataka

4:54 to 5:15 p.m.

**Special Address**

- Ofir Akunis, minister of science, technology and space, Israel

5:15 to 6:00 p.m.

**India Rising: From Technological Isolation to Global Partnerships**

- Chair: C. Raja Mohan, director, Carnegie India
- Ashley Tellis, senior fellow, Carnegie Endowment DC
- Vijay Chauthaiwale, in-charge, department of foreign affairs, Bharatiya Janata Party
- Ulf Petrusson, director, Center for Intellectual Property, and professor of law, University of Gothenburg

6:00 p.m.

**Concluding Session**

- C. Raja Mohan, director, Carnegie India
- RK Misra, founder director, Center for Smart Cities
- Shivnath Thukral, managing director, Carnegie India