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2020

**GLOBAL
TECHNOLOGY
SUMMIT**

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INTRODUCTION

Balkanization of the internet, digital sovereignty, and data localization are some of the more popular terms that have come to define the debate on the future of data, and, more broadly, on the future of technology. Most governments around the world have not been able to develop norms or standards to govern emerging technologies. Even if national governments develop effective policies, harmonization of different national approaches at an international level is a bigger challenge. With emerging technologies introducing new dimensions to diplomacy, Carnegie India, in collaboration with the Ministry of External Affairs, organized its 5th annual Global Technology Summit (GTS), themed the *Geopolitics of Technology*, from December 14 to 18, 2020.

The first virtual edition of the Summit brought together leading senior ministers and other government officials, expert practitioners, industry leaders, public policy professionals, entrepreneurs, civil society representatives, academics, and scholars from all over the world to deliberate on five sub-themes— Geopolitics of Technology: Technical Gets Political, Data: Linking the World, Digital Payments: The Future of Global Financial Highways, Digital Inclusion: Taking the Local to the Global, and Transforming Healthcare for a Post-COVID World.

The Summit commenced with five simultaneous workshops, organized as part of our *KnowledgeTransfer@CarnegieIndia* initiative on decoupling and its effects, future of open-source architectures, fintech and cybersecurity, the road ahead for vaccine research, and the future of personal and non-personal data. The workshops were well attended by students, researchers, government officials, young professionals, entrepreneurs, and journalists.

This was followed by five days of captivating discussions on geopolitical alliances of the future, role of multilateral institutions in global governance of technology, the future of technology and innovation, India's emerging data architecture, prospects of central bank digital currencies (CBDCs), India's Unified Payments Interface (UPI), the future of digital infrastructures, digital and financial inclusion, importance of digital IDs, opportunities and challenges of India's digital health mission, challenges of developing a COVID-19 vaccine, and the role of emerging technologies in preventing and combating pandemics.

The Summit witnessed contribution from over ninety speakers including ministerial participation from India, Austria, Nigeria, Australia, Vietnam, and Bavaria, alongwith other senior government officials, entrepreneurs, public policy researchers, tech leaders, civil society representatives, scientists, academics, and scholars. Some of the notable speakers at the Summit include S. Jaishankar, External Affairs Minister of India; Cina Lawson, Minister of Digital Economy and Digital Transformation of Togo; Nguyen Huy Dong, Deputy Minister of Information and Communications of Vietnam; Paul Fletcher, Minister for Communications, Cyber Safety, and the Arts of Australia; Margarete Schramböck, Austrian Minister of Digital and Economic Affairs; Isa Ali Ibrahim Pantami, Minister of Communications and Digital Economy of Nigeria; Toomas Hendrik Ilves, Former President of Estonia; Florian Herrmann, Head of the State Chancellery-Minister of State for Federal and European Affairs and the Media, Bavaria; C.N. Ashwath Narayan, Deputy Chief Minister of Karnataka; Fabrizio Hochschild-Drummond, Undersecretary General at the United Nations; Malcolm Johnson, Deputy Secretary-General of the International Telecommunications Union; K. VijayRaghavan, Principal Scientific Adviser to the Government of India; Amitabh Kant, Chief Executive Officer (CEO) of NITI Aayog; Taranjit Singh Sandhu, Ambassador of India to the



Inaugural Address by External Affairs Minister of India



Conversation on Geopolitics of Technology



Panel on the Challenges of Developing a COVID-19 Vaccine



Conversation on India's Tech Partnerships: Opportunities & Challenges



Special Address by Secretary (ER), Ministry of External Affairs



Conversation on Global Governance of Technology: Role of Multilateral Institutions

United States; Rahul Chhabra, Secretary (Economic Relations) in the Ministry of External Affairs; Renu Pall, Additional Secretary (NEST) in the Ministry of External Affairs; R.S. Sharma, Former Chairman of the Telecom Regulatory Authority of India; Satya Nadella, CEO of Microsoft; Adar Poonawalla, CEO of Serum Institute of India; Kris Gopalakrishnan, Chairman of Axilor Ventures; Katherine Charlet, Director of Data Governance at Google; Mahendra Nerurkar, Director & CEO of Amazon Pay India; Julie Brill, Chief Privacy Officer at Microsoft; Ritesh Shukla, CEO of NPCI International Payments Limited; Rajeev Chandrasekhar, National Spokesperson for the BJP; Bhavish Aggarwal, Chairman & Group CEO of Ola; Esselina Macome, CEO of Financial Sector Deepening Mozambique; Ralf Sauer, Deputy Head of the International Data Flows and Protection Unit at the European Commission; Kiran Mazumdar-Shaw, Executive Chairperson of Biocon; Ajit Mohan, Vice President and Managing Director of Facebook India; T.V. Mohandas Pai, Co-founder and Chairman, Aarin Capital & Chairman, Manipal Global Education Services; Seth Berkley, CEO of GAVI, the vaccine alliance; Soumya Swaminathan, Chief Scientist at the World Health Organization; Nandini Kannan, Executive Director of the Indo-U.S. Science & Technology Forum; Nivruti Rai, Country Head of Intel India; Penny Pritzker, Founder and Chairman of PSP partners; among others.

The Summit attracted over 4,000 registrations from over 30 countries including Slovenia, Germany, Nigeria, U.S., U.K., India, Bhutan, Colombia, Japan, Kenya, Singapore, France, Lebanon, Greece, Sri Lanka, Thailand, Zambia, Turkey, Netherlands, New Zealand, Peru, Switzerland, Myanmar, Belgium, Poland, Papua New Guinea, Australia, Cambodia, Indonesia, Nepal, etc. The Summit observed attendance from the diplomatic community, industry leaders, tech experts, scientists, researchers, young professionals, civil society actors, venture capitalists, and government representatives from all over the world.

The Summit was hosted on a fully customized virtual platform and the sessions were livestreamed on Facebook, YouTube, Twitter, and Carnegie India's website. The discussions observed approximately 340,000 views across all social media platforms, with almost 1.3M impressions on Twitter.

The Summit was supported by the Ministry of External Affairs, the Government of Karnataka, K-Tech, Innovate Karnataka, Biocon, Facebook, Google, Amazon, Intel, and National Payments Corporation of India.

Discussions at the Summit were covered extensively with 48 news reports emerging over the five days of the Summit from over 30 news organizations, including NDTV, *The Hindu*, *The Times of India*, *Hindustan Times*, *Indian Express*, *Scroll.in*, *Economic Times*, *Mint*, and *Financial Express*. *The Print*, our digital partner and *Bloomberg Quint*, our media partner, carried media and video content for some key conversations and panels as well as a few dedicated columns and opinion pieces surrounding different aspects of the Summit. *India Ahead*, our broadcast partner also featured key sessions of the Summit.

DISCUSSION HIGHLIGHTS

The **first day** of the Summit, themed the *Geopolitics of Technology: Technical Gets Political*, began with an inaugural address by Honorable S. Jaishankar, External Affairs Minister of India, who highlighted that the world today is politically very different than it was five or ten years ago and that the prospect of multipolarity with less multilateralism suggests a more difficult future. The

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Conversation on Examining Global Privacy Legislations: Lessons for India



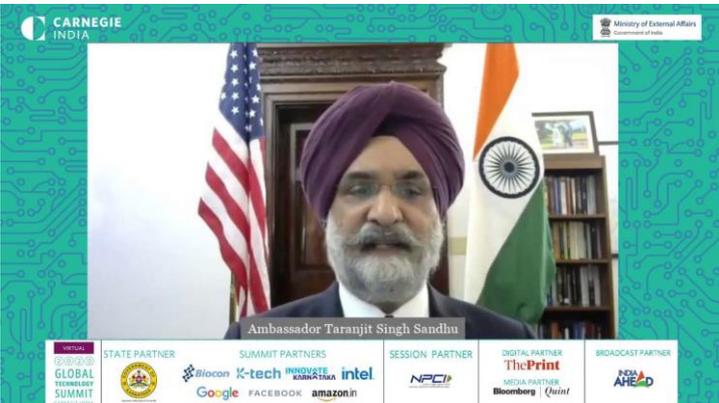
Panel on Localization & Internationalization of Data: Getting the Balance Right



Special Address by Austrian Minister for Digital and Economic Affairs



Panel on The World We Live In



Special Address by the Indian Ambassador to the United States



Panel on Personal & Non-Personal Data: India's Emerging Data Architecture

Minister also emphasized that technology is a core part of diplomacy and is something every foreign ministry should focus on.

This was followed by an insightful conversation on the *Geopolitics of Technology* with the Hon'ble Minister, William J. Burns, and Rudra Chaudhuri who made a strong case for a reformed multilateralism to maximize the benefits and minimize the dislocations rising from the revolution of technology, climate change, and global health. Speakers argued that the world has now become less trusting and that national security now encompasses data, food, health, and energy security. Further, the Hon'ble Minister explained that the *Aatmanirbhar Bharat Abhiyaan* is not about protectionism but building India's domestic capabilities and talent to compete more effectively abroad.

Following this, the session on *Global Governance of Technology: Role of Multilateral Institutions* highlighted the importance of digitization. The session emphasized the importance of global cooperation to overcome the digital divide and fulfill the 2030 agenda for sustainable development. The speakers highlighted that there needs to be value at the micro-level for companies and countries, and at the macro-level for international institutions, to come together to globally govern emerging technologies. This should be supported by a common denominator, like the World Trade Organization, which would look at existing principles, rules, and frameworks in line with the current context.

This conversation was followed by a special address by India's Ambassador to the United States who highlighted that both countries have shared interests and common challenges and underscored that technological cooperation between India and the U.S has broadened over time to include information and communications technology and healthcare sector.

Building up on this special address, a panel on *Fostering Digital Ties: The Future of India-U.S. Relationship* emphasized that trust between nations is one of the most important facets of any forthcoming digital cooperation. While such levels of trust will be difficult to establish in broad multilateral settings as each nation will inevitably prioritize their own geopolitical and national interests in the digital space, such trust and cooperation can be identified between certain like-minded countries. In the context of India, such common values can be found in other democracies such as United States and Japan, for example, who represent natural allies of potential digital cooperation. Further, the panelists identified that the digital infrastructure partnership will need to be transparent, accountable, equitable, inclusive, and dynamic enough to meet human centric values in a non-discriminatory manner.

This was followed by a panel on *The Future of Technology* which highlighted that while there are acute differences between nation states, there would be some common interest which could be articulated that could simplify the process of technological collaboration.

The last conversation of the day on *Examining Global Privacy Legislations: Lessons for India* suggested that India should consider four key points before it enacts a formal privacy legislation — ensure that the law sets out priorities on how data can be collected, used, and shared; introduce accountability mechanisms for companies' collecting, using, and sharing the data; guarantee strong law enforcement; and ensure consumer control over their data. After that, it is important for the



Panel on India's Unified Payments Interface: Ready for Global Acceptance?



Conversation on Regulating Digital Markets: The Road Ahead



Special Address by Deputy Minister of Information and Communications, Government of the Socialist Republic of Vietnam



Panel on The Future of Technology



Panel on Fostering Digital Ties: The Future of India-U.S. Relationship



Conversation on Governance of Technology

regulator to start developing guides to explain what these provisions mean.

The **second day** of the Summit themed *Data: Linking the World* began with a conversation on *Governance of Technology* that highlighted that information and communication technologies are going to be a key part in building back a better, a more connected, safer, and sustainable world in a post-COVID era. The speakers, however, highlighted that almost half of the world's population is still not connected to the internet and most of this population resides in rural and remote areas. It is therefore important to introduce innovations that can address this issue of connectivity and inclusiveness.

This conversation was followed by a special address by the Austrian Minister for Digital and Economic Affairs who emphasized the need to identify best practices for India and Austria to work together in the field of digital transformation to combat global challenges such as health and food security, access to education, and climate change.

Following this, a panel on *The World We Live In* highlighted that fracturing of the global order into splintered parts and the implications of that splintering for different countries ought to be watched. Further, participants suggested that the next few years will be spent consolidating recovery from the COVID-19 pandemic. The pace at which countries recover, in terms of both the economy and public health, will impact the balance of power.

Pertinent to the theme of the day the next session focused on *Personal and Non-personal Data: India's Emerging Data Architecture*. The discussion explored the three objectives that India's Personal Data Protection Bill, 2019 is trying to achieve. First is to strike a balance between privacy and innovation without large compliance burdens, second is to ensure state's access to data for law enforcement, and third is to allow the jurisprudence of the Bill to evolve with changing times. While every country will implement a data protection law based on the local definition of privacy, speakers suggested that it is important that these different laws have interoperability.

Building on these discussions, the next panel focused on *Localization and Internationalization of Data: Getting the Balance Right*. The panel highlighted that the aim of data protection legislations should not be to restrict free flow of data but to foster cooperation to create interoperable laws that ensure cross-border flow of data while also protecting rights of individual consumers. Further, speakers discussed the economic ramifications of data flows, in which they highlighted that while setting up of data centers offer limited monetary benefits both from a jobs and revenue perspective, cross border flow of data have broader and long-term economic benefits which should be considered.

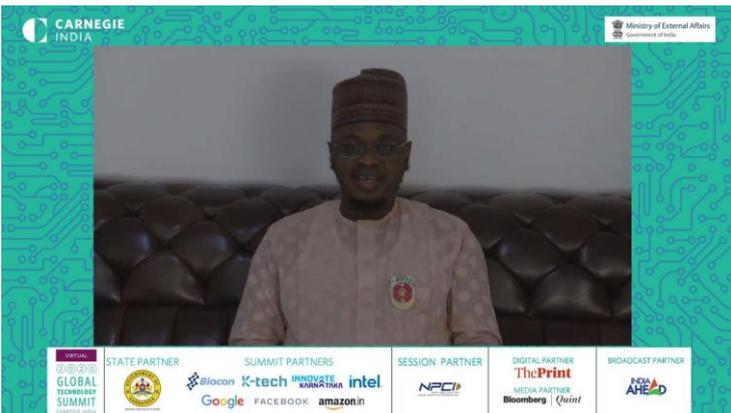
The last conversation of the day on *Regulating Digital Markets: The Road Ahead* discussed the outdated nature of laws, which were better placed to tackle industrial revolution as opposed to digital revolution. Further, speakers highlighted that during the pandemic big tech firms were quick in expanding their operations to adapt to new consumer needs. While acknowledging big tech's role in fostering innovation, speakers suggested that its total control over the digital ecosystem sometimes stifles innovation. Therefore, these technology companies need to be regulated without harming smaller players. One way to do it, as participants suggested, is to have multilateral framework on digital rights which would give countries stronger ground to regulate and tax big tech firms, even in



Panel on Central Bank Digital Currencies: End of the Road for Cash?



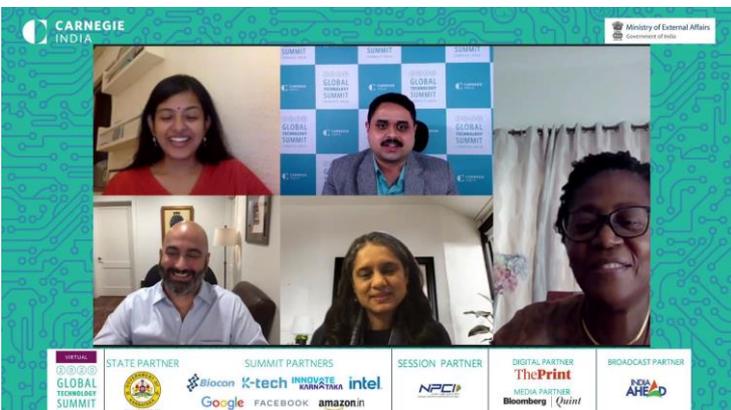
Panel on The Future of Digital Infrastructures



Special Address by Nigerian Minister of Communications & Digital Economy



Discussion on Open Digital Ecosystems: The Way Forward for India



Panel on Digital Finance: Connecting the Next Billion in India & Africa



Special Address by the Chief Executive Officer of NITI Aayog

the case of smaller countries. The practical dimensions of introducing a global framework however seems difficult due to geopolitical arrangements, added participants.

The **third day** of the Summit, themed *Digital Payments: The Future of Global Financial Highways*, began with a special address by Vietnamese Deputy Minister of Information and Communications, who noted that India and Vietnam are like-minded nations with plenty of room for cooperation such as exchange of representatives from the two countries to conduct research in Vietnam; develop policy frameworks for new business models and technologies; and cooperate at government, department, and industry levels.

The next conversation on *India's Tech Partnerships: Opportunities & Challenges* highlighted shared values of India & Germany—democracy, pluralism, and the rule of law—which acts a backbone for the partnership between the two countries. Emphasizing the Bavarian government's push to develop aerospace technology, speakers suggested that aerospace technology could be a potential sector for cooperation between Karnataka and Bavaria. Cooperation in the field of internet-of-things, artificial intelligence, robotics, mechatronics, and automation can further deepen ties between India and Germany, suggested participants.

This was followed by a special address by Secretary (Economic Relations) in the Ministry of External Affairs, Government of India, who underscored that India needs to become far more self-reliant. Secondly, he mentioned that India needs to play a key role in leading the game of harnessing data. He reiterated that India cannot play catch up anymore. He appreciated the role of India's diplomacy in widening India's access to technology and cited India's civil nuclear agreement with the United States as an example. He said that the future of this geopolitics of technology is going to become progressively complex and challenging for policymakers, and India needs to make sure that it has access to these technologies and is not kept out. He emphasized that it is very important for India to shape key negotiations and deliberations happening at international forums.

The next panel on *India's Unified Payments Interface (UPI): Ready for Global Acceptance* highlighted that UPI is an example of a digital public good, which allows anyone to conduct transactions directly through their bank accounts without any additional costs by just downloading any of the UPI apps. Given the smooth user experience from start to finish of the UPI platform, participants noted that the platform could be used to provide social benefits such as low-cost insurance and pension fund schemes to lower income groups. Further, the commercial benefits of the platform were also discussed across all forms of businesses. While for small businesses, UPI has been key in digitizing the smaller merchant groups, for bigger corporations it has had a similar effect, reducing cash dependency whilst promoting online payment platforms.

The last session of the day on *Central Bank Digital Currencies (CBDCs): End of the Road for Cash?* discussed that CBDCs can be considered as a potential complement for cash, but not its replacement. Participants underscored that there are several motivations for introducing CBDCs to prepare for a future contingency where cash disappears and discussed a few security challenges that need to be addressed before successful rollout of CBDCs.

The **fourth day** of the Summit, themed *Digital Inclusion: Taking the Local to the Global* started with a special address by the Nigerian Minister of Communications and Digital Economy who commended India's digitization journey so far in terms of broadband penetration and digital literacy which he

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Conversation on The Future of Innovation



Conversation on Fueling India's Digital Transformation:
The Role of Technology & Regulation



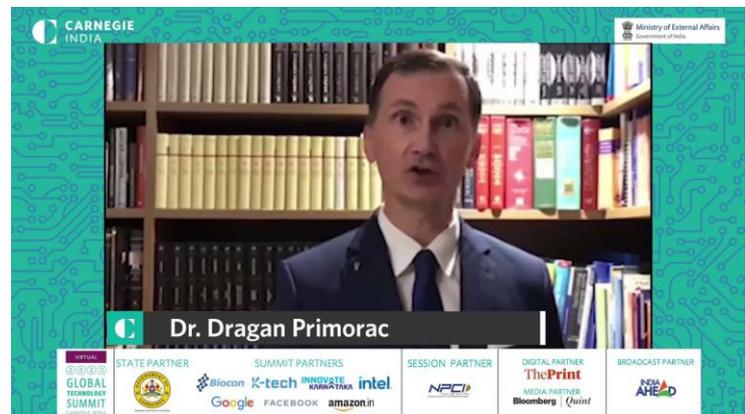
Conversation with Joint Secretary (PP&R) in the Ministry of External Affairs



Conversation on Lessons from the Pandemic: Innovating for the Future



Keynote on Digital IDs: The Way Forward



Special Address by the Chair of International Affairs Committee of the American Academy of Forensic Sciences

highlighted has inspired Nigeria's National Broadband Plan 2020-25 that aims to cover 90% broadband penetration.

The next session on the *Future of Digital Infrastructure* emphasized that robust digital infrastructure is needed to support digital transformation in critical areas, such as telecommunications, finance, and health. Speakers emphasized that each country has its own competencies and gaps. Instead of developing a one size fits all model, every country should develop digital infrastructure that caters to its local needs and demands.

Following this, the next panel on *Digital Finance: Connecting the Next Billion in India & Africa* highlighted that to measure the success of financial inclusion, it is important to see how financial services respond to beneficiaries' needs but also how financial services respond to the beneficiaries' quality of life. Further, participants discussed that the coronavirus pandemic has increased inequality—not just inside a country but also among countries. While citizens of richer countries with existing digital infrastructure were able to access digital financial services, citizens of poorer countries did not have an equivalent of digital financial security, subject to poor or absent digital infrastructure.

This was followed by a special address by Amitabh Kant, the chief executive officer of NITI Aayog, who underlined that digital revolution has completely transformed financial inclusion in India. He added that the triad of Jan Dhan bank accounts, Aadhar, and mobile phones forms the bedrock of financial inclusion in India. He further noted that the government's service delivery mechanism under the direct benefit transfer was not only a technological advancement, but the foundation of a new mechanism for the delivery of public goods, which is now paving way for financial integration. He concluded by stating that India is the perfect playground for enterprises and institutions to develop scalable solutions, and that if India were able to solve its problems pertaining to water, health, education, and agriculture, it would indeed be solving the world's problems as well.

Assessing the long-term impact of COVID-19, the next conversation on the *Future of Innovation* discussed the transformative aspect of technology and its ability to grow broadly. During these unprecedented times, the two things that have become apparent to business organizations are transformative effects of digital technology and the impact technology can have on resilience. Further, the panelists highlighted that India is a good example of the state prioritizing digital infrastructure as a public good that can help lift all companies and benefit all citizens.

The next conversation on *Fueling India's Digital Transformation: The Role of Technology and Regulation* highlighted that like-minded countries that believe in democratic setups should form an alliance to form a global framework for internet governance. The framework should retain the elements of an interconnected world especially, in terms of the connection between democratic societies that share values, suggested participants.

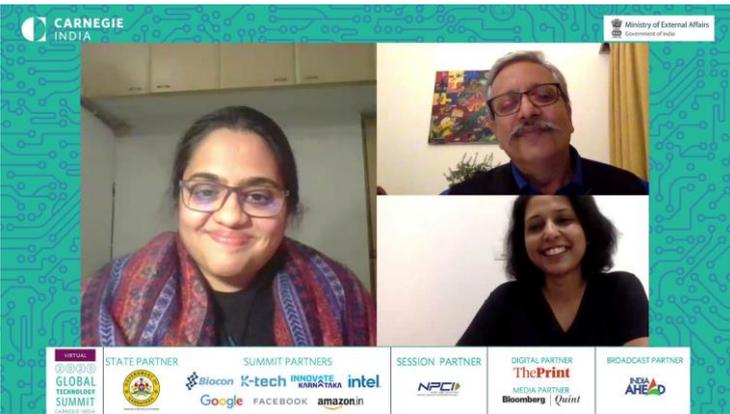
This was followed by a conversation between Anupam Ray, Joint Secretary in the Policy Planning & Research (PP&R) Division in the Ministry of External Affairs and Rudra Chaudhuri, the Director of Carnegie India. The session highlighted that as an emerging country with aspirations of becoming a global player, India needs to be active in the public diplomacy space. To become a great nation, speakers underscored that India needs to generate intellectual property in all fields of national



Special Message by Chief Executive Officer of GAVI, The Vaccine Alliance



Keynote on India's Digital Health Mission



Conversation on Building Health Stack for India



Curtain Raiser on Personal & Non-Personal Data: India's Emerging Data Architecture



Panel on India & Africa: Collaborating in a Post-Pandemic World



Conversation on Preempting Pandemics: Preparing for the Future

endeavor including diplomacy.

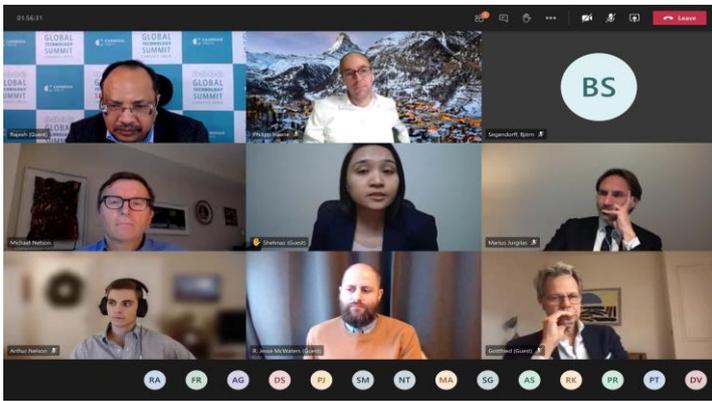
The last session of the day on *Lessons from the Pandemic: Innovating for the Future* emphasized that the pandemic threw more opportunities than challenges across the spectrum as the world observed major technological shifts in a year. Talking about India's *Aatmanirbhar Bharat Abhiyaan*, speakers highlighted that the mission's focus is to strengthen India's supply chain and capabilities and discover its strengths, in terms of its talent, domestic market, and strong supply base in many parts of the value chain. Concluding, speakers underscored that India has a good opportunity to be a manufacturing leader in the industry 4.0 era because it has a good manufacturing talent at relatively lower costs and has software and digital technology talent to play an active role in the industry 4.0 era.

The **fifth day** of the Summit, themed *Transforming Healthcare for a Post-COVID World* started with a keynote address on *Digital IDs: The Way Forward* by the Former President of Estonia. He underscored that the provision of digital IDs is the first step towards digitizing government services and creating a secure digital infrastructure. He elaborated to emphasize that digital IDs should be made mandatory. He further explained that if they are optional, a small proportion of the population will procure digital IDs, which will deter public and private services to digitize since they will be investing in both online and offline services. On the other hand, people will be incentivized to procure digital IDs only if digital services are advanced. According to him, this is a classic chicken-and-egg situation, where benefits of digitization will only accrue to stakeholders if most users possess digital IDs.

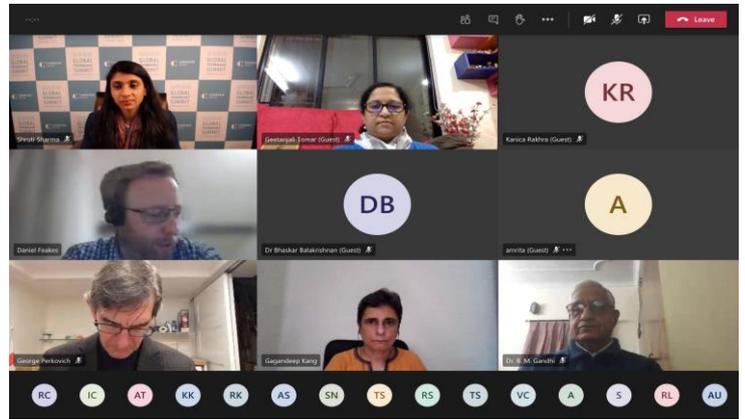
Pertinent to the theme of the day, the special address by Dragan Primorac, Chair of the International Affairs Committee of the American Academy of Forensic Sciences highlighted that building a strong public healthcare system should be a prime consideration for every country. He further emphasized that remote deliverable care and telemedicine will become a reality and noted that new technologies such as machine learning, and artificial intelligence will help in integrating data into clinical practice. He also underlined that the world should focus on improving global healthcare supply chains while scientists and pharmaceutical industry should work on timely development of vaccines. Looking into the future, the speaker believed that new healthcare innovations such as multi-omics diagnostics, personalized medicine, and customized treatments will soon be materialized into practice.

This was followed by a special address by Seth Berkley, Chief Executive Officer of GAVI, who emphasized the importance of COVAX, an alliance of global vaccine manufacturers and governments, which was created to facilitate rapid, fair, and equitable access to COVID-19 vaccines. He commended India on playing a critical role in this alliance by reiterating its commitment towards providing domestic production of vaccines to COVAX as well as the rest of the world. Talking about public confidence in vaccines, the speaker highlighted that creating new international standards or bending intellectual property laws will not improve trust in the vaccines, rather will give the impression that sufficient rigor and transparency was not already applied. He recommended that public needs to be reminded that scientists have followed stringent protocols, while saving years in vaccine development.

The next special address on *India's Digital Health Mission* highlighted that the coronavirus pandemic has enabled the shift toward digital mode of healthcare delivery. The speaker highlighted that the Indian government announced the National Digital Health Mission to first, create an open digital ecosystem for health, second, support universal health coverage to ensure access, quality, and



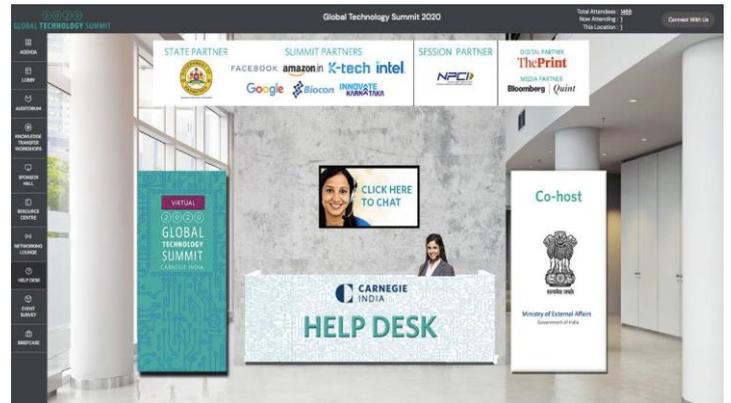
Discussion on Central Bank Digital Currencies and Global Interoperability Standards



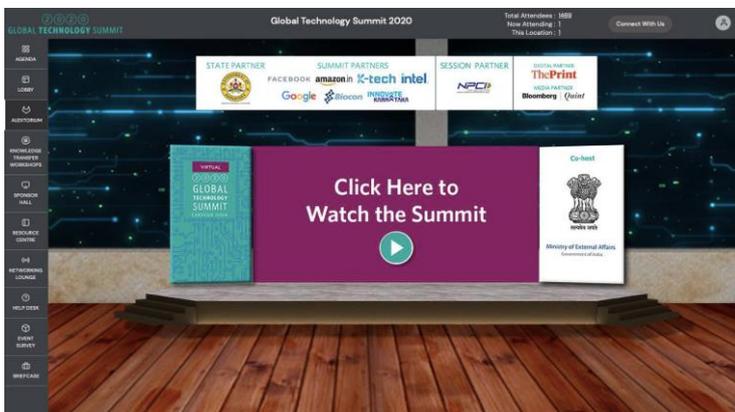
Discussion on Biological Risks in India: Perspectives and Analysis



Virtual Platform: Lobby



Virtual Platform: Help Desk



Virtual Platform: Auditorium



Virtual Platform: Sponsors Hall

affordability of care to all citizens, third, create an API-based architecture for siloed healthcare entities to communicate with one another, and fourth, to ensure security, confidentiality, and privacy of all patient-level data. Just as the UPI and the India Stack paved way for creating a cashless economy and improved financial inclusion, the National Digital Health Mission will drive healthcare inclusion and create benefits for all players in the ecosystem. Its structure will enable private players to participate, innovate, and build on this framework.

This was followed by a conversation on *Building Health Stack for India* which highlighted that the national health stack is a digital health infrastructure that can make the health system more transparent and robust. The key possibilities from the health stack, as discussed by participants, include but are not limited to increasing transparency, empowering individuals, and facilitating market innovation. The participants explained that these possibilities, if realized, will enable better care, better public health management, and better allocation of resources.

The next session on *The People Need to Know: The Challenges of Developing a COVID-19 Vaccine* highlighted that there needs to be common understanding and trust between the global south and north to ensure fair and equitable access to vaccines around the world. Countries should develop their own methods of monitoring to ensure safety and efficacy of vaccines, which should then be followed up by the World Health Organization, noted participants.

Following this, a panel on *India & Africa: Collaborating in a Post-Pandemic World* highlighted that both India and Africa should be inspired from each other's centuries of wisdom on one hand and the opportunities to democratize modern science on the other. From a funding perspective, participants noted that in India and Africa, the Wellcome trust has funded both research which has some sort of innovative impact and invested in capacity building to create well-motivated researchers who are trained within excellent research environments.

The last session of the day focused on *Preempting Pandemics: Preparing for the Future* highlighted that diseases can be controlled using public health measures. Specific to the issues around vaccine production and delivery for COVID-19, speakers noted a few concerns, including the level of transmissibility after vaccination, the potential for vaccine-related long-term issues, and the longevity of neutralizing antibodies. In addition to impacting people's health, panelists noted that the coronavirus pandemic has had lethal effects on the economy, which has resulted in social disruptions, further complicating the situation. Speakers concluded by suggesting that countries should setup a commission to examine its response to the coronavirus pandemic, following which a proper public healthcare infrastructure should be developed which should be tied to the World Health Organization.

SUBSIDIARY EVENTS

- **KnowledgeTransfer Workshops**

On the sidelines of the public sessions at the Summit, Carnegie India announced five simultaneous workshops for students and young professionals, under the *KnowledgeTransfer@CarnegieIndia* initiative.

The **first** workshop on '*Decoupling*' and its Effects unpacked the evolution of U.S.-China relations, dividing it into four phases. The first phase involved Chinese dependency on the U.S. tech ecosystem



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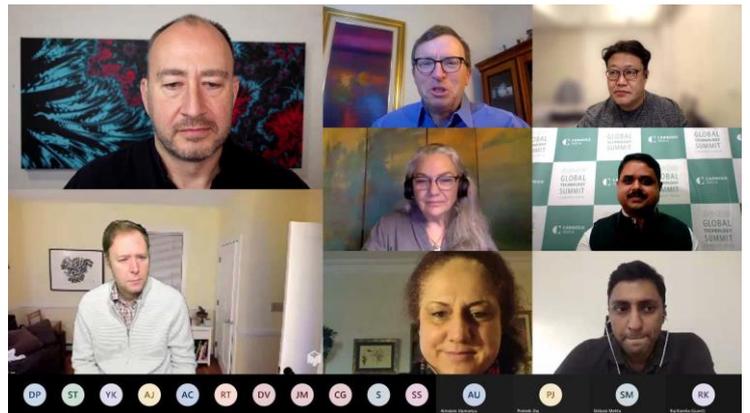
Virtual Platform: KnowledgeTransfer Workshops Lobby



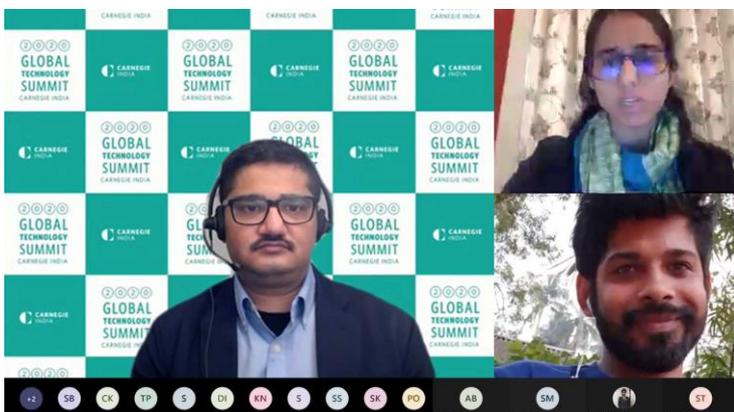
KnowledgeTransfer Workshop on Decoupling and its Effects



KnowledgeTransfer Workshop on Fintech & Cybersecurity: Opportunities & Challenges



KnowledgeTransfer Workshop on Future of Open-Source Architectures



KnowledgeTransfer Workshop on Future of Personal and Non-Personal Data



KnowledgeTransfer Workshop on Vaccine Research: The Road Ahead

for talent, money, and ideas. The second phase which started in the year 2010 marked a significant turning point, when American giants such as Facebook, Twitter, and Google were consecutively banned. The third phase involved bans through firewalls on one hand and exchange of people, money, and ideas on the other. The most recent phase, which started around 2018 is called the 'Age of Decoupling.' Participants further assessed the impact of decoupling on U.S.-China tech flows, where they pointed out that being entirely reliant on international talent, the U.S. stands to lose considerably from people-to-people decoupling with China in the long run. Speakers speculated that India should draw from the U.S.' experience with China to shape its contemporary relationship with both U.S. and China.

The **second** workshop on the *Future of Open-source Architectures* discussed that while internet governance is in disarray, governments should build on/invest in open-source technology alternatives. Participants highlighted that the coronavirus pandemic provided an opportunity for open-source technology. They emphasized that the development of several contact-tracing mobile applications was a testament to the power of collaboration on open-source data sharing platforms. Talking about key pieces of infrastructure in open-source architecture today, speakers discussed the absence of 'data unions,' policy infrastructure around data security, and communication around individual trade-offs. Participants further noted that nation states must push their domestic talent to come up with and develop their own open-source databases. They also emphasized that no new global data consortium would be able to satisfy the criteria of every country. However, this is where an active, robust civil society is essential to voice out concern to government, noted speakers.

The **third** workshop on *Fintech and Cybersecurity: Opportunities and Challenges* identified that increasing the adoption of technology to improve last-mile access to financial services raises cybersecurity concerns. Participants underlined the need for coordination between industries and countries without which cybersecurity would be a major concern for the fintech space. In the Indian context, speakers noted that while most users lack basic cybersecurity awareness, corporations have also not taken the opportunity to improve technological infrastructure. Moreover, unlike the formal banking sector, India only has sparse compliances for fintech firms, which has led to the prevalence of fintech companies where cybersecurity remains an after-thought. Participants concluded by recognizing five key priorities that would be pivotal in instituting effective cooperation in the cyber security domain. This includes cyber resilience, development of international norms that prevents states from manipulating financial data, need for a collective response, creation of a robust cybersecurity infrastructure, and digital transformation for financial inclusion.

The **fourth** workshop on *Vaccine Research: The Road Ahead* began with a brief history of vaccine development. The speaker discussed that a vaccine, in an ideal scenario, should be suitable for all ages and for pregnant/lactating women, should be safe and cause no side-effects, have at least 70% efficacy against disease, protect against disease transmission, have a long duration of protection, should preferably be single dose, and should be stored at room temperature or high temperature. While no ideal vaccine has been developed so far, our experience of dealing with outbreaks, epidemics, and pandemics made it easier for scientists to develop a COVID-19 vaccine in this constricted time span. She further highlighted that Coalition for Epidemic Preparedness and Response (CEPI), which was setup after Ebola, acted as a catalyst for development of COVID-19 vaccines. In addition, GAVI, the vaccine alliance, has been responsible for providing

vaccines to poorer countries around the world. CEPI, alongwith GAVI are leading the vaccine pillar of ACT (Access to COVID-19 tools) accelerator, added the speaker.

The **fifth** workshop on *Future of Personal and Non-personal Data* unwrapped a few dominant developments in data-driven technology. Participants discussed five steps in data products value chain: i) data collection (from populous countries with internet penetration like India and China), ii) data storage (in colder places which leads to reduced storage costs because data heats up servers – e.g., Brazil, USA, Nordic countries), iii) data preparation/analysis (by people who have familiarity and dexterity with computers – e.g., India, South East Asia), iv) algorithm training (highest skill part of the value chain which takes place in the United States and China), v) deployment, which can be done anywhere but particularly USA, China, India, Kenya. Since firms are developing new technologies at a rapid pace, speakers noted that data policy should equally be nimble. Specific to the future of data, participants noted that data will be stored in a less centralized manner, will entail less movement of personal data, and personal data processing will be concentrated to a few companies.

- **Closed-door Discussions**

In addition to these workshops, five closed-door discussions were organized during the Summit.

First, a discussion on *Technology, Data, and the Future of U.S.-India Relations* discussed that strategic understanding of the India-U.S. cooperation is well developed, but there are significant divergences when it comes to the reality of data governance in both countries. There is a need to look at localization in a broader sense, beyond just the hard binary of data governance frameworks with localization and no localization. Access to data should be decoupled from location of data, added participants. Further, they noted that data governance frameworks in both countries must be interoperable but not uniform. In India, with respect to both data access and data transfers issues, there is an imminent need for both domestic reform (such as in the law enforcement sector to build trust and efficacy) to bring institutions up to par with international standards, and to serve as guiding principles for what India's negotiating position in a multilateral/bilateral forum should be. The latter can lead to a model CLOUD Act for India, which defines what India needs and what it can provide in an international agreement, discussed participants.

Second, a discussion on *Localization and Internationalization of Data: Getting the Balance Right* argued that data localization does not equal data access and jurisdictional claims must be made directly. Participants further underscored that international agreements may be the best method to access data for law enforcement. They further noted that data localization is not necessary for non-personal data and localization can improve demand for storage related goods and services which in turn will affect GDP. Concluding, participants underlined that in the absence of international norms, the remit of state extends only to territorial space of a country and therefore needs physical access to data. But if all countries enter into an agreement then data can be governed globally based on source of data, added participants.

Third, a discussion on *Central Bank Digital Currencies and Global Interoperability Standards* highlighted that CBDCs offer an efficient, transparent, and seamless way of conducting transactions. However, there are two challenges to the adoption of digital currencies. First is the cybersecurity concern and the second is the lack of financial access in cross-border payments because global correspondent banks follow strict anti-money laundering rules. Participants discussed that CBDCs can resolve the underlying issues of global correspondent banking. Standardization is crucial to

overcome fundamental issues faced by central banks and to ensure global interoperability of CBDCs, noted participants. In addition to building technical standards, countries should work toward developing interoperable business practices when it comes to CBDCs, stated participants.

Fourth, a discussion on *Open Digital Ecosystems: The Way Forward for India* defined open digital ecosystem (ODE) as a secure digital platform that enables a community of partners to unlock transformative solutions based on robust governance framework. Elaborating further, participants highlighted three different layers of ODEs: the platform layer, i.e., the technology infrastructure that enables the creation of services for users, which has the tech core, and the end user solutions are built on top of it. On top of this, is the community layer, which is about builders or innovators who can build creative use cases and applications on top of these platforms. Lastly, and the most important is the governance layer, which is about the rules of engagement that will ensure that the platform performs its duties correctly, in terms of accountable institutions, safeguards around data privacy, and domain specific security standards. Participants further discussed the role of ODEs in the healthcare sector, with extensive discussions on India's National Digital Health Mission and its components, India's experience with Direct Benefit Transfer, and UPI.

Fifth, a discussion on *Biological Risks in India: Issues & Perspectives* highlighted India's vulnerability to three major biological threats: naturally occurring infections in humans or animals, or agricultural infestations; infections arising from accidental release of pathogens into the environment; and possible outbreaks caused by deliberate weaponization of dangerous pathogens that affect humans, animals, or crops. Participants discussed the possibility and importance of setting up a new agency for preventing and managing biological threats. On the continuous development of biosecurity & biosafety issues during a pandemic, participants suggested that a protocol/strategy paper must be developed describing the role of scientists, technicians etc. which enables them to coordinate even amid a nation/state-wide lockdown. This was based on the premise that during the nationwide lockdown imposed in India due to the coronavirus pandemic in March'20, even the scientific labs had to close down operations. In such a scenario, it was difficult for scientists to work and collaborate on finding a cure. As a preventive measure, participants underlined outlined the need for a protocol that considers such a situation.



POLICY PATHWAYS

As the Summit achieves prominence among global technology and policy debates on the geopolitics of technology, Carnegie India endeavors to continue convening diverse stakeholders to shape public dialogue on the future of emerging technologies. Several concrete substantive recommendations emerged from the discussions at this edition of the Summit. The most significant among these are:

Governance of Emerging Technologies

- Building trust between countries in a privacy arena or a national security environment. This can be developed if the law enforcement and the intelligence communities interact with each other.
- For India to leverage technology to drive the international order, the country should be active participant in reforms at a global level and should focus on improving and scaling the reservoir of its domestic talent.
- With the tremendous dynamism and progression seen in the field of emerging technologies, it is important for governments to channelize their impact in transforming their knowledge economy, in bringing depth to the social political systems, and in expanding the everyday interfaces available to their citizens. It is therefore mandatory to avoid barriers or disconnect between knowledge generators, implementers, and the users.

India-U.S. Technology Partnership

- India and the U.S. need to develop a model that maximizes synergy and provides opportunity for global leadership. The model should be able to balance the benefits of emerging technologies with operational challenges and cumbersome questions such as commercial taxes and data standards.
- Technology partnership between India and the U.S. has been enhanced due to cooperation between communities at the grassroot levels. Such ties can be intensified in the future with these communities being able to focus on issues of data access and devise measures to inform a joint policy on digital ties.
- One way to harmonize the digital policies of India and the U.S. could be to work on specific projects around the creation of digital public goods to build and enhance trust between the two countries through public private partnership. Shared understanding and alignment of each other's strategic interests and compatible models of data governance are the two pillars for the harmonization of interest.

Future of Technology

- With cyberthreats increasing from foreign nation states, governments should be looking to tools like end-to-end encryption to increase cyber-security, instead of looking for ways to get past it.
- International cooperation is important to prevent further balkanization of the digital space. One way is to create a global body which then might be easier for technology companies, like

WhatsApp, to figure out a path between differing privacy and localization regimes rather than dealing with each country individually.

- With respect to internet regulation and human rights, it is important to get the user/citizen in the decision-making matrix which would contribute to the ‘trust’ factor which often seems missing in the digital ecosystem. Human rights can be weaved into regulation, by steps as simple as rolling out human rights impact assessments or, by designing transparency mechanisms, redressal mechanisms etc.

India’s Emerging Data Protection Architecture: The Role of Data Protection Authority

- The Personal Data Protection Bill, 2019 (PDP Bill) should be consistent with data protection regimes around the world. This consistency is important for consumers' trust, and for businesses seeking to comply with laws. This must overlap with strong rights, strong institutions, and regulations. These consistencies ensure that there is interoperability, but not if there is fragmentation in data protection regimes around the world. Small differences are costly for small businesses, but not so much for big ones. India can be a leader in this space and can find regimes that match its consistencies.
- Consent is talked about as being legalistic, top down, compliance heavy, and is often too complex, which makes it difficult to understand. Therefore, people remain subliminally anxious. In India, with challenges of literacy and digital readiness this anxiety is exacerbated. One way to address this challenge is for the Data Protection Authority (DPA) to recognize different groups (age, gender, race) and approach them on communicating privacy and consent.
- It is important to ensure that the DPA is independent, has appropriate powers, and is staffed with experts who can create case laws. It is imperative to prioritize DPA’s resources to make sure the authority is not overburdened, or over-notified due to frivolous disputes. The DPA should also work closely with the international community to learn and adopt innovative regulatory solutions.

Localization and Internationalization of Data: Getting the Balance Right

- The European Union (EU) General Data Protection Regulation (GDPR) provides an adequacy clause, which lets the EU facilitate free flow of data with countries that share similar degrees of data protection. Data localization, however, as proposed in the Indian privacy bill, has the capacity to prohibit adequate law enforcement access even further by denying the usage of critical information required for law enforcement purposes. Hence, it is important to ensure that India creates an interoperable privacy law that facilitates cross-border flow of data whilst protecting consumers’ privacy.
- Certification mechanisms, which are increasingly becoming a part of privacy agreements between countries guarantee trust between two nations when it comes to data flows while also providing a degree of business certainty. Such certifications indicate commitment toward promoting digital trade while ensuring privacy requirements of the base level consumer was met. India and other countries should therefore seriously contemplate adopting such measures without placing unnecessary localization requirements. This change does not need substantive

edits in the PDP Bill but would go a long way in building interoperable data flow mechanisms with other nations.

- Alternative multilateral solutions to data localization, such as law enforcement access, should be brainstormed. To create a more evidence-based policy, the consultation process for India's PDP Bill should take feedback from civil society members, instead of just state agencies and big tech companies.

India's Unified Payments Interface: Way Forward for Its Global Acceptance

- There are three broad areas where UPI could gain international salience. First, in nations where there is no fast payments system. Second, in countries where fast payments systems do exist but without gaining much market traction. Third, in states that wish to give a fillip to their fast-payments system either in terms of technological expertise or on questions surrounding implementation and market penetration.
- Another area where UPI could expand globally, including in developed countries, is with the quality of services to Indian consumers. The National Payments Corporation of India could work with countries abroad to allow Indian consumers to use its platform to make payments across global e-commerce sites, something which is not available now.
- Given the pertinent issues with the cost of transmitting remittances, UPI adoption in cross-border transfer of funds can reduce the friction inherent in the remittance system and can also foster digital inclusivity.

Central Bank Digital Currencies: The Road Ahead

- CBDCs, whenever introduced into the market, should not be isolated and should not appear like a closed loop system from other instruments such as cash and bank deposit. In addition to this domestic interoperability, the proposal of international interoperability between different CBDCs should be considered.
- Like the physical currency world, measures need to be taken to avoid counterfeiting of CBDC. To avoid cybersecurity risks, the CBDC architecture should be layered upon viz. security aspects should constantly evolve to stay ahead of imminent risks. Secondly, a feedback loop should be created in the digital architecture such that the quantum of currency in circulation is always known. Lastly, to ensure cybersecurity, risks should be countered not only at the Central Bank level, but also at the level of handsets, e-operators, and commercial banks.
- In remote areas, with limited internet connectivity, interoperability between online and offline environments needs to be established. Different use cases will require different solutions, and various tech options need to be considered to design the best choice.

Future of Digital Infrastructures

- In society 5.0, a huge amount of data will be accumulated in the cyberspace which will be converted into a new type of intelligence, the value of which will reach to every corner of the society. From this value creation point of view, it is crucial to secure the international cyberspace. In this context of international cooperation, countries that share the vision of free and open Indo-Pacific can collaborate to develop collective countermeasures and collective

action of cybersecurity, that can contribute to building a common cyberspace which is crucial for value creation.

- India needs four components to develop a robust digital infrastructure in India. First, 5G for enhanced connectivity in India. Second, an artificial intelligence-based model for successful value creation. Third, a suitable computing and cloud infrastructure. Fourth, a reliable security infrastructure.
- Digital infrastructure needs to be collaboratively developed by government and private sector, including both homegrown and foreign companies.

Digital Finance: Connecting the Next Billion in India & Africa

- Attempts should be made to recognize a link between digital finance and the aims of sustainable development goals. Financial inclusion should be brought to the real life, to the real economy; and should have a meaning for the people – not just for financial service providers by opening bank accounts for the people. Digital financial products should be developed to cater to the needs and quality of specific target groups.
- It is critical to know what the user/beneficiary/customer thinks of a financial product – and therefore, a very good grievance redressal mechanism & feedback loop must be in place. Reaching the last mile typically would require partnerships with different groups – such as, with for-profit entrepreneurs, social entrepreneurs, and government.
- An aspect of inclusion that requires increased impetus is about the ecosystem provided to small, rural businesses. A major hurdle to such an aspect would however be the regulatory mechanisms that are currently in place. While some regulatory communities are supportive of adoption of fintech structures (such as adoption of M-PESA in Kenya), some suffer from a ‘digital knowledge gap’ regarding newer technologies such as AI, quantum computing etc. which makes it difficult to adopt digital financial services. It is therefore important to create a favorable environment that is conducive enough to foster innovation with the role of a regulator (government) to balance the scales with innovator to reach the last mile and the role of academia to envision and plan for financial inclusion.

Building Health Stack for India

- The private sector should be encouraged to not shy away from regulatory hurdles. They should be encouraged to invest in the health stack venture. Corporations must be incentivized to refrain from putting their own agendas above public good.
- Since there is little reason for the State to create a wide-ranging database without a clear objective, the government should not push down the health stack solution on to people before it is ready.
- Data protection Bill in India should include penalties for non-consensual use of data. It should also include provisions that mitigate the level of risk by providing access to the transfer of data to a very limited number of responsible individuals. Consent managers, without adequate safeguards in the law, will not be enough. Lessons must be taken from consent management in the financial services sector to implement the health stack.

Challenges of Developing a COVID-19 Vaccine

- There are three elements that ensure human security—vaccines, diagnostics, and drugs. It is therefore important to ensure financial commitment in these areas and encourage south-south cooperation to increase manufacturing capacity of vaccines in Africa.
- Government should protect manufactures against all lawsuits. This is because such matters could potentially increase fears about getting vaccinated and could also work to distract companies that would be producing vaccines.
- Community trust and engagement is critical to effective deployment of vaccines. Timely and good information, alongwith active involvement of social and behavioral scientists, is key to addressing vaccine hesitancy.

India & Africa: Collaborating in a Post-Pandemic World

- Education training programs of mutual benefit should be introduced in both India & Africa, where we get the best of science and technology which is accessible to all including citizens, scholars, students, and so on.
- Data analysis is crucial to pandemic preparedness and response. Therefore, education in data analysis in India, Africa, and other countries in the global south should be encouraged to empower people with domain understanding.
- Recognizing recent advancements in the field of genomics, both India and Africa should build toward recognizing opportunities and challenges across the continent and the country.



AGENDA

THE GLOBAL TECHNOLOGY SUMMIT | DECEMBER 14-18

DECEMBER 14, 2020

Knowledge Transfer Workshops

- *'Decoupling' and its Effects*
- *Future of Open-Source Architectures*
- *Fintech & Cybersecurity: Opportunities & Challenges*
- *Vaccine Research: The Road Ahead*
- *Future of Personal & Non-personal Data*

PUBLIC SESSIONS

DECEMBER 14, 2020

Sub-theme: *Geopolitics of Technology: Technical Gets Political*

Welcome Remarks

- *Rudra Chaudhuri, Director, Carnegie India*

Inaugural Address

- *S. Jaishankar, External Affairs Minister of India*

Geopolitics of Technology: Technical Gets Political

- *S. Jaishankar, External Affairs Minister of India*
- *William J. Burns, President, Carnegie Endowment for International Peace*
- *Rudra Chaudhuri, Director, Carnegie India*

Global Governance of Technology: Role of Multilateral Institutions

- *Fabrizio Hochschild-Drummond, Undersecretary General and Special Advisor for UN 75, United Nations*
- *Nivruti Rai, Country Head, Intel India & Vice President, Data Center Group, Intel Corporation*
- *Michael Nelson, Director, Technology and International Affairs Program, Carnegie Endowment for International Peace*

Special Address

- *Taranjit Singh Sandhu, Ambassador of India to the United States*

Fostering Digital Ties: The Future of India-U.S. Relationship

- *Renu Pall, Additional Secretary for New Emerging & Strategic Technologies, Ministry of External Affairs, Government of India*
- *Nandini Kannan, Executive Director, Indo-U.S. Science & Technology Forum*
- *Jay Gullish, Director, Digital Policy, U.S.-India Business Council*
- *Modan Saha, Chief Executive Officer, Tata Strategic Management Group*
- *Rudra Chaudhuri, Director, Carnegie India*

Curtain Raiser

- *Evan Feigenbaum, Vice President for Studies, Carnegie Endowment for International Peace*

The Future of Technology

- *Cina Lawson, Minister of Digital Economy and Digital Transformation, Government of Togo*
- *Elonnai Hickok, Nonresident Scholar, Technology and International Affairs Program, Carnegie Endowment for International Peace*
- *Jonathan Lee, Director, Global Public Policy, WhatsApp*
- *David Kirkpatrick, Founder and Editor-in-chief, Techonomy Media*
- *Rahul Matthan, Partner, Trilegal*

Examining Global Privacy Legislations: Lessons for India

- *Julie Brill, Chief Privacy Officer, Microsoft Corp*
- *Rahul Matthan, Partner, Trilegal*

Closing Remarks

Closed-door discussion: *Technology, Data, and the Future of U.S.-India Relations*

DECEMBER 15, 2020

Sub-theme: *Data: Linking the World*

Closed-door discussion: *Localization and Internationalization of Data: Getting the Balance Right*

Governance of Technology

- *Malcolm Johnson, Deputy Secretary General, International Telecommunication Union*
- *Suyash Rai, Fellow, Carnegie India*

Special Address

- *Margarete Schramböck, Minister for Digital and Economic Affairs, Republic of Austria*

The World We Live In

- *Ashley J. Tellis, Tata Chair for Strategic Affairs, Carnegie Endowment for International Peace*
- *C. Raja Mohan, Director, Institute of South Asian Studies, National University of Singapore*
- *Vijay Gokhale, Nonresident Senior Fellow, Carnegie India & Former Foreign Secretary of India*
- *Tanvi Madan, Senior Fellow, Foreign Policy Program, & Director, India Project, Brookings Institution*

Curtain Raiser

- Anirudh Burman, Associate Fellow, Carnegie India

Personal and Non-Personal Data: India's Emerging Data Architecture

- Melinda Claybaugh, Privacy Policy Director, Facebook
- Rajeev Chandrasekhar, Member of Parliament, Rajya Sabha
- Varad Pande, Partner, Omidyar Network India
- Annabel Lee, Public Policy Lead for Data, APAC, Amazon Web Services
- Anirudh Burman, Associate Fellow, Carnegie India

Localization and Internationalization of Data: Getting the Balance Right

- Rishab Bailey, Legal Consultant, National Institute of Public Finance and Policy
- Katherine Charlet, Director, Data Governance, Government Affairs and Public Policy – Centers for Excellence, Google
- Ralf Sauer, Deputy Head of Unit for International Data Flows and Protection, European Commission
- Rob Sherman, Deputy Chief Privacy Officer, Facebook
- Smriti Parsheera, Researcher, National Institute of Public Finance and Policy

Regulating Digital Markets

- R.S. Sharma, Former Chairman, Telecom Regulatory Authority of India
- T. V. Mohandas Pai, Co-founder & Chairman, Aarin Capital & Chairman, Manipal Global Education
- Urvashi Aneja, Co-founder and Director, Tandem Research

Closing Remarks

DECEMBER 16, 2020

Sub-theme: Digital Payments: The Future of Global Financial Highways

Special Address

- Nguyen Huy Dung, Deputy Minister of Information and Communications, Government of the Socialist Republic of Vietnam

India's Tech Partnerships: Opportunities and Challenges

- C. N. Ashwath Narayan, Deputy Chief Minister of Karnataka and Minister for Higher Education, Information Technology, Biotechnology, Science and Technology, Skill Development, Entrepreneurship, and Livelihood
- Florian Herrmann, Head of the State Chancellery-Minister of State for Federal and European Affairs and the Media, Bavaria
- R.K. Misra, Nonresident Scholar, Carnegie India

Special Address

- Rahul Chhabra, Secretary (Economic Relations), Ministry of External Affairs, Government of India

India's Unified Payments Interface: Ready for Global Acceptance

- Victor Malu, Head, Future Financial Systems, Financial Sector Deepening Kenya
- Mahendra Nerurkar, Director & Chief Executive Officer, Amazon Pay India
- Abhijit Bose, Head of India, WhatsApp
- Ritesh Shukla, Chief Executive Officer, National Payments Corporation of India
- Pia Bernadette Roman Tayag, Director of the Office of the United Nations Secretary-General's Special Advocate for Inclusive Finance for Development
- Ajay Kaushal, Co-Founder and Director, BillDesk

Curtain Raiser

- Rajesh Bansal, Senior Advisor, Technology & Society Program, Carnegie India

Central Bank Digital Currencies: End of the Road for Cash?

- Hanna Armelius, Senior Advisor, Payments Department, Analysis and Policy Division, Sveriges Riksbank
- Jonathan Dharmapalan, Chief Executive Officer, eCurrency
- Neha Narula, Director, Digital Currency Initiative, MIT Media Lab
- Scott Hendry, Senior Special Director, Financial Technology (FinTech) in the Funds Management and Banking Department, Bank of Canada
- Rajesh Bansal, Senior Advisor, Technology & Society Program, Carnegie India

Closing Remarks

Closed-door Discussion: Central Bank Digital Currencies and Global Interoperability Standards

DECEMBER 17, 2020

Sub-theme: Digital Inclusion: Taking the Local to the Global

Roundtable: Open Digital Ecosystems: The Way Forward for India

Special Address

- Isa Ali Ibrahim Pantami, Minister of Communications and Digital Economy of Nigeria

The Future of Digital Infrastructures

- Nivruti Rai, Country Head, Intel India & Vice President Data Center Group, Intel Corporation
- Nobuhiro Endo, Chairman of the Board, NEC Corporation

- *Paul Fletcher, Minister for Communications, Cyber Safety and the Arts, Government of Australia*
- *Laura Lucas Magnuson, Vice President for Communications and Strategy, Carnegie Endowment for International Peace and Former Communications Director, Obama Foundation*

Digital Finance: Connecting the Next Billion in India & Africa

- *Esselina Macome, Chief Executive Officer, Financial Sector Deepening Mozambique*
- *Shilpa Kumar, Partner, Omidyar Network India*
- *Malavika Raghavan, Advisor and Former Head, Future of Finance Research, Dvara Research*
- *Sultan Meghji, Chief Executive Officer & Co-founder, Neocova*
- *Suyash Rai, Fellow, Carnegie India*

Special Address

- *Amitabh Kant, Chief Executive Officer, NITI Aayog*

The Future of Innovation

- *Satya Nadella, Chief Executive Officer, Microsoft*
- *Penny Pritzker, Founder and Chairman, PSP Partners, & Former U.S. Secretary of Commerce*

Fueling India's Digital Transformation: The Role of Technology & Regulation

- *Ajit Mohan, Vice President and Managing Director, India, Facebook*
- *Evan Feigenbaum, Vice President for Studies, Carnegie Endowment for International Peace*

Conversation

- *Anupam Ray, Joint Secretary (Policy Planning & Research), Ministry of External Affairs, Government of India*
- *Rudra Chaudhuri, Director, Carnegie India*

Lessons from the Pandemic: Innovating for the Future

- *Bhavish Aggarwal, Co-founder and Chairman, Ola Group*
- *Matt Sheehan, Fellow, Macropolo*

Closing Remarks

DECEMBER 18, 2020

Sub-theme: Transforming Healthcare for a Post-COVID World

Digital IDs: The Way Forward

- *Toomas Hendrik Ilves, Former President of Estonia*

Special Address

- *Dragan Primorac, Chair, International Affairs Committee of the American Academy of Forensic Sciences*

Special Message

- *Seth Berkley, Chief Executive Officer, GAVI, The Vaccine Alliance*

India's Digital Health Mission

- *Kris Gopalakrishnan, Chairman, Axilor Ventures and Co-founder, Infosys*

Building Health Stack for India

- *Renuka Sane, Associate Professor, National Institute of Public Finance and Policy*
- *Priya Karnik, Volunteer for the Health Stack, iSPIRT Foundation & Founder, Dvara Money*
- *Neeraj Jain, Country Director, PATH India*

The People Need to Know: The Challenges of Developing a COVID-19 Vaccine

- *Adar Poonawalla, Chief Executive Officer, Serum Institute of India*
- *John N. Nkengasong, Director, Africa Centres for Disease Control and Prevention*
- *Soumya Swaminathan, Chief Scientist, World Health Organization*
- *Kiran Mazumdar-Shaw, Executive Chairperson, Biocon*

India & Africa: Collaborating in a Post-Pandemic World

- *K. VijayRaghavan, Principal Scientific Adviser, Government of India*
- *Manu Prakash, Associate Professor of Bioengineering, Stanford University*
- *Simon Kay, Head, International Operations, Wellcome Trust*
- *Gagandeep Kang, Professor, Department of Gastrointestinal Sciences, Christian Medical College*

Preempting Pandemics: Preparing for the Future

- *William A Haseltine, Chair and President, ACCESS Health International*
- *Kiran Mazumdar-Shaw, Executive Chairperson, Biocon*

Concluding Remarks

Closed-Door Discussion: Biological Risks in India: Issues & Perspectives



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