COLUMBIA | SIPA
School of International and Public Affairs

The 2017 Global Digital Futures Forum
A Fragmented Internet?

Welcome to the 2017 Global Digital Futures Forum. Now in its third year, the Forum is a signature event of the School of International and Public Affairs (SIPA) meant to reimagine our digital future. The purpose of this forum is not only to identify immediate policy, technology, and societal challenges and opportunities, but also to look ahead to emerging challenges and possible policy responses. We are pleased that this year's theme – the dynamic tension between internet fragmentation and globalization – has generated tremendous interest from our participants.

Through five expert panel discussions and two framing conversations, we will ask what fragmentation means for cyber issues, covering topics such as fragmentation and global trade, trust and assurance, global platforms and international development, cyber conflict and democratic institutions, and financial institutions and systemic risks. We will also hear from Eric Schmidt, Executive Chairman of Alphabet, in a keynote conversation, and we will feature other business leaders, policymakers, academics, entrepreneurs, technologists, and legal experts throughout the day.

The Global Digital Futures Forum is a core component of the Tech and Policy Initiative at SIPA. Launched in 2014, this initiative is an ambitious effort to explore international policy-making in the 21st century. It includes interdisciplinary research that examines and anticipates digital public policy problems and offers innovative solutions, focusing on internet governance, cybersecurity, and the digital economy. It also seeks to identify and help solve future digital policy issues for policymakers, entrepreneurs, and the public, and directly engages in global debates through workshops, applied projects, and major conferences, including today's Forum.

SIPA is grateful for the support of Carnegie Corporation of New York. We also thank Microsoft Corporation as well as our collaborators across Columbia University: the Data Science Institute, The Columbia Institute for Tele-Information, and the Tow Center for Digital Journalism. Finally, we thank the Internet Society for live-streaming the event to further our global reach.

We hope you enjoy the Forum and appreciate your contributions.

Merit E. Janow

Merit E. Janow

Dean, School of International and Public Affairs

Professor of Practice, International Economic Law and International Affairs

8.30 – 9am
BREAKFAST AND REGISTRATION

9 - 10am

Framing Conversation 1: What Would Internet Fragmentation Mean for the Digital Economy?

Merit E. Janow, Moderator
Dean, Columbia SIPA

Eli Noam
Professor, Columbia Business School

William Drake
International Fellow and Lecturer, University of Zurich

Niloofar Howe
SVP Strategy & Operations, RSA

10 – 10.45am

Framing Conversation 2: What Would Internet Fragmentation Mean for Global Governance?

Gordon Goldstein, Moderator
Managing Director, Silver Lake Partners

Joseph Nye
University Distinguished Service Professor, Harvard University

Ambassador Lana Nusseibeh
Permanent Representative of the UAE to the UN

Coffee Break

11 – 11.45am

KEYNOTE BY ERIC SCHMIDT, EXECUTIVE CHAIRMAN, ALPHABET INC.

Fireside Chat with **Dean Merit E. Janow**, *Columbia SIPA*

Coffee Break

12pm – 1.15pm

Panel 1: What Would Internet Fragmentation Mean for Global Trade?

Merit E. Janow, Moderator
Dean, Columbia SIPA

Usman Ahmed
Head of Global Public Policy, PayPal

Anupam Chander
Professor, U.C. Davis

Victoria A. Espinel
President and CEO, BSA | The Software Alliance

Ricardo Meléndez-Ortiz
Co-Founder, and Chief Executive, ICTSD

Malcolm Lee
Managing Director & Head of Policy, Alibaba Group

1.15 – 2pm

LUNCH DISCUSSION
Douglas Brent
Senior VP Technology Innovation, Trimble

2.15 – 3.30pm

(Teatro)

Panel 2A: Developing Trust and Assurance, a Global Issue with National Solutions

Steven M. Bellovin, Moderator
Professor of Computer Science, Columbia University

Laura DeNardis
Professor, American University

Angela McKay
Director of Cybersecurity Policy, Microsoft

Andrea Glorioso
Counselor, Digital Economy & Cyber, EU Delegation to the US

Joshua Corman
Director, Cyber Statecraft Initiative, Atlantic Council

2.15 – 3.30pm

(Library)

Panel 2B: Global Platforms, National Citizens and International Development

Ronaldo Lemos, Moderator
Director, Instituto de Tecnologia & Sociedade do Rio de Janeiro

Peter Micek
General Counsel, Access Now

Ambassador Karen Kornbluh (ret.)
Senior Fellow for Digital Policy, Council on Foreign Relations

Jeff Brueggeman
VP Global Public Policy, AT&T

Coffee Break

3.45 – 5pm

Panel 3: Cyber Conflict and Democratic Institutions

Susan McGregor, Moderator
Tow Center for Digital Journalism. Columbia Journalism School

Sean Kanuck
Affiliate, Stanford CISAC

Matthew Waxman
Professor, Columbia Law School

Camille Francois
Principal Researcher, Jigsaw

Ronaldo Lemos
Director, Instituto de Tecnologia & Sociedade do Rio de Janeiro

Coffee Break

5.15 – 6.30pm

Panel 4: Financial Institutions and Systemic Risks

Jason Healey, Moderator
Senior Fellow, Columbia SIPA

Paul Twomey
Co-Founder, Stash.global

Katheryn Rosen
Senior Fellow, Cyber Statecraft Initiative, Atlantic Council

Christine Cumming
Adjunct Senior Research Scholar and Adjunct Professor, Columbia SIPA

Siobhan MacDermott
SVP Global Cyber Policy Executive, Bank of America

7 – 9pm

DINNER – by invitation only

Part 1: Framing

What Would Internet Fragmentation Mean for the Digital Economy?

Merit E. Janow, Moderator
Dean, Columbia SIPA

Eli Noam
Professor, Columbia Business School

William Drake
International Fellow and Lecturer, University of Zurich

Niloofar Howe
SVP Strategy & Operations, RSA

MODERATOR: Merit E. Janow, *Dean, Columbia SIPA*

Merit E. Janow is an internationally recognized expert in international trade and investment, with extensive experience in academia, government, international organizations, and business. She has been a professor of practice at Columbia University's School of International and Public Affairs (SIPA) and affiliated faculty at Columbia Law School since 1994. Currently, in addition to being dean of SIPA, she is codirector of the APEC Study Center. In December 2003, Professor Janow was elected for a four-year term as one of the seven members of the World Trade Organization's (WTO) Appellate Body—the first female to serve on the Appellate Body. From 1997 to 2000, she served as the executive director of the first international antitrust advisory committee of the U.S. Department of Justice. Prior to joining Columbia's faculty, she was deputy assistant U.S. trade representative for Japan and China (1989–93). Professor Janow is on the board of directors of several corporations and not-for-profit organizations. In 2009, she became a charter member of the International Advisory Council of China's sovereign wealth fund, China Investment Corporation or CIC. She has written several books, numerous articles and frequently speaks before business, policy, and academic audiences around the world. She grew up in Tokyo, Japan, and is fluent in Japanese.

Eli Noam, *Professor, Columbia Business School*

Eli Noam is Professor of Economics and Finance at the Columbia Business School since 1976, and its Garrett Professor of Public Policy and Business Responsibility. He is the Director of the Columbia Institute for Tele-Information, a research center focusing on management and policy issues in communications, internet, and media. Noam has published 30 books and over 300 articles. Recent books and projects include: *Who Owns the World's Media (Oxford); Media Management* (3-volumes, forthcoming); and the project: A National Initiative for Next Generation Video.

Noam's advisory board memberships have included the Federal government's telecommunications network, the Nexus Mundi Foundation (Chairman), the Electronic Privacy Information Center, Oxford Internet Institute, Jones International University, and several committees of the National Research Council. He received the degrees of BA, MA, Ph.D (Economics) and JD from Harvard University, and honorary doctorates from the University of Munich (2006) and the University of Marseilles Aix-la-Provence (2008).

What Would Internet Fragmentation Mean for the Digital Economy?

William Drake, *International Fellow and Lecturer, University of Zurich*

William Drake is an International Fellow and Lecturer in the Institute of Mass Communication and Media Research at the University of Zurich. He is also a member of the Nominating Committee of the Internet Corporation for Assigned Names and Numbers (ICANN); a faculty member of the European and South schools on Internet governance; and an Affiliated Researcher at the Institute for Tele-Information, Columbia University. Previous work experience has included: Senior Associate at the Centre for International Governance at the Graduate Institute for International and Development Studies; President of Computer Professionals for Social Responsibility; Senior Associate and Director of the Project on the Information Revolution and World Politics at the Carnegie Endowment for International Peace; founding Associate Director of the Communication, Culture and Technology Program, Georgetown University; Assistant Professor of Communication at the University of California, San Diego; and adjunct professor at the School of Advanced International Studies and the Georgetown School of Business.

Drake's previous activities in the academic and practitioner environments have included: three terms as Chair of the NonCommercial Users Constituency, seven terms on the Board of Directors of the European At Large Organization, and two terms on the Council of the Generic Names Supporting Organization, all in ICANN; co-editor of the MIT Press book series, *The Information Revolution and Global Politics*; member of the Multistakeholder Advisory Group of the Internet Governance Forum; expert advisor to the high-level Panel on Global Internet Cooperation and Governance Mechanisms; member of the UN Working Group on Internet Governance; member of the inaugural Coordination Committee of the NETmundial Initiative; member of the Coordination Committee of the 1Net initiative; member of the Group of High-Level Advisors of UN Global Alliance for ICT and Development; Vice Chair and founding Steering Committee member of the Global Internet Governance Academic Network; advisor to the World Economic Forum's Future of the Internet Initiative and its Task Force on the Global Digital Divide; and a member of the US delegations to three International Telecommunication Union negotiations, including the 2012 World Conference on International Telecommunications. Recent books include, Drake (ed.), *The Working Group on Internet Governance: 10th Anniversary Reflections* (Johannesburg: The Association for Progressive Communications, 2016); and Drake and Monroe Price (eds.), *Internet Governance: The NETmundial Roadmap* (Los Angeles: USC Annenberg Press, 2014). He holds PhD, M.Phil and M.A. degrees in Political Science from Columbia University.

What Would Internet Fragmentation Mean for the Digital Economy?

Niloofar Howe, *SVP Strategy & Operations, RSA*

Niloofar Razi Howe has been Chief Strategy Officer and Senior Vice President at RSA since November 2015. Ms. Howe leads the overall RSA corporate strategy, corporate development, and planning. She has more than 25 years of experience working and investing in the technology industry, with a particular focus on the security industry over the past decade. Previously she served as the Chief Strategy Officer of Endgame, Inc. where she was responsible for driving market and product strategy, as well as leading marketing, product management, corporate development and planning. Prior to Endgame, Ms. Howe was Managing Director and led the investment teams at Paladin Capital Group, a $1billion private equity fund focused on investing in next generation security companies. Her previous experience includes as an entrepreneur and operator at early stage companies, Principal at Zone Ventures, an early-stage VC firm in Los Angeles, as a consultant with McKinsey & Co. (focused on technology, retail and healthcare), and as a lawyer with O'Melveny & Myers.

Her non-profit work includes serving on the Board of Sibley Memorial Hospital (a member of Johns Hopkins Medicine) as co-chair of its Investment Committee, Executive Committee of Sibley Memorial Hospital Foundation, as well as on the board of IREX, an international non-profit organization focused on promoting lasting change. Previously, she served on the Board and as Board Chair of Global Rights, an international human rights organization.

What Would Internet Fragmentation Mean for Global Governance?

Gordon Goldstein, Moderator
Managing Director, Silver Lake Partners

Joseph Nye
University Distinguished Service Professor, Harvard University

Ambassador Lana Nusseibeh
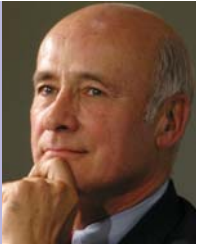*Permanent Representative of the UAE to the UN*

MODERATOR: Gordon Goldstein, *Managing Director, Silver Lake Partners*

Gordon M. Goldstein joined Silver Lake in 2010. He is a Managing Director with responsibility for global external affairs, including domestic and international government relations, public policy, strategic communications and media relations for Silver Lake as well as key public affairs issues and initiatives for the firm's portfolio companies. Dr. Goldstein represented Silver Lake as a member of the United States delegation to the World Conference on International Telecommunications convened in 2012 in the United Arab Emirates and also served on the American delegation to the United Nations International Telecommunication Union Plenipotentiary Conference in South Korea in 2014. Dr. Goldstein currently serves on the Executive Committee and Board of Directors of the Private Equity Growth Capital Council, an industry trade group based in Washington, D.C.

Dr. Goldstein is a former Managing Director at Clark & Weinstock, a government relations, corporate communications, and strategy consulting firm and formerly served as a consultant to the Albright Stonebridge Group, a strategy advisory firm in Washington, D.C. He is a former Senior Adviser to the Strategic Planning Unit of the Executive Office of the United Nations Secretary General and previously served as Co-Director of the Council on Foreign Relations Project on the Information Revolution and as Co-Director of the Brookings Institution Project on Sovereign Wealth Funds and Global Public Investors. Dr. Goldstein is a former Wayland Fellow and visiting lecturer at the Watson Institute for International Studies at Brown University and was a visiting lecturer at the U.S. Defense Intelligence Agency. He is the author of *Lessons In Disaster: McGeorge Bundy and the Path to War in Vietnam,* a study of national security strategy and White House decision-making which was a Foreign Affairs bestseller published by Times Books.

Dr. Goldstein has appeared on the ABC, CNN, MSNBC, and BBC television networks and his articles, op-eds and book review essays have appeared in the New York Times, Wall Street Journal, Washington Post, Financial Times, The Atlantic, Newsweek, Politico, Foreign Policy and the Spanish language weekly El Pais, for which he is a contributing commentator on the global technology industry, the Internet and Cybersecurity. Dr. Goldstein is a graduate of Phillips Academy, Andover and Columbia University, where he was an International Fellow and was awarded a B.A. and M.I.A. through the combined degree program of Columbia College and the School of International and Public Affairs as well as the M.Phil and Ph.D degrees in political science and international relations. He continues his affiliation with the university as a non-resident Fellow of the Roger Hertog Program on Law and National Security at the Columbia Law School and as a member of the Advisory Council to the Internet Governance and Cybersecurity Initiative at the School of International and Public Affairs.

What Would Internet Fragmentation Mean for Global Governance?

Joseph Nye, *University Distinguished Service Professor, Harvard University*

Joseph S. Nye, Jr., is University Distinguished Service Professor and former Dean of the Kennedy School of Government at Harvard University. He received his bachelor's degree summa cum laude from Princeton University, studied at Oxford University on a Rhodes Scholarship, and earned a Ph.D. in political science from Harvard where he joined the faculty in 1964. In 2008, a poll of 2700 international relations scholars listed him as the most influential scholar on American foreign policy, and in 2011 Foreign Policy listed him among the 100 leading global thinkers.

From 1977-79, Nye was a deputy Undersecretary of State and chaired the National Security Council Group on Nonproliferation of Nuclear Weapons. In 1993-94 he chaired the National Intelligence Council which prepares intelligence estimates for the president, and in 1994-95 served as Assistant Secretary of Defense for International Security Affairs. He won Distinguished Service medals from all three agencies.

Nye has published fourteen academic books, a novel, and more than 150 articles in professional and policy journals. Recent books include *Soft Power, The Powers to Lead, The Future of Power,* and *Is the American Century Over?*

He is a fellow of the American Academy of Arts and Sciences, the British Academy, the American Academy of Diplomacy, and an honorary fellow of Exeter College, Oxford. He is the recipient of Princeton University's Woodrow Wilson Award, the Charles Merriam Award from the American Political Science Association, France's Palmes Academiques, Japan's Order of the Rising Sun, and numerous honorary degrees.

What Would Internet Fragmentation Mean for Global Governance?

Ambassador Lana Nusseibeh, *Permanent Representative of the UAE to the UN*

Her Excellency Ambassador Lana Nusseibeh was appointed Permanent Representative of the United Arab Emirates to the United Nations in New York in September 2013. In this role, she works to advance the UAE's multilateral priorities at the United Nations (UN), in particular on regional peace and security issues, humanitarian assistance, women's empowerment, sustainable development and human rights.

In June 2015, Ambassador Nusseibeh was appointed as co-facilitator of the overall review of the implementation of the outcomes of the World Summit on the Information Society (WSIS) by the President of the 69th Session of the General Assembly along with H.E. Ambassador Jānis Mažeiks, Permanent Representative of Latvia to the United Nations. She also currently serves, along with the Permanent Representative of Norway, as co-Chair of the Friends of the Future of the UN (FFUN), an informal group of UN Permanent Representatives working to strengthen the UN's capacity to deliver on its priority mandates.

Prior to her appointment as Permanent Representative to the UN, Ambassador Nusseibeh served in a number of capacities within the UAE Ministry of Foreign Affairs, most recently launching the Ministry's Policy Planning Department and serving as its first Director for three years.

Previously, Ambassador Nusseibeh served as the Head of the International Renewable Energy Agency (IRENA) Task Force at the Ministry of Foreign Affairs, and as Director of Research and Communications for the Ministry of State for Federal National Council Affairs.

Ambassador Nusseibeh received a Bachelors and Masters in History from the University of Cambridge in the United Kingdom, and a Masters with distinction in Israeli and Jewish Diaspora Studies from the School of Oriental and African Studies (SOAS) at the University of London.

Eric Schmidt, Executive Chairman of Alphabet Inc. will share his thoughts about the major tensions between globalization and fragmentation arising in the world today and in the digital economy. What is the role of global technology companies like Alphabet in increasing trust? How will the digital economy continue to evolve? What are the consequences of fragmentation for Alphabet's operations and the development of new technologies? Please join us for a fireside chat discussion with the executive chairman of one of the world's largest technology companies, moderated by Dean Merit E. Janow.

Eric Schmidt, *EXECUTIVE CHAIRMAN, ALPHABET INC.*

Eric Schmidt is the executive chairman of Alphabet, responsible for the external matters of all of the holding company's businesses, including Google Inc., advising their CEOs and leadership on business and policy issues. Eric joined Google in 2001 and helped grow the company from a Silicon Valley startup to a global leader in technology. He served as Google's Chief Executive Officer from 2001-2011, overseeing the company's technical and business strategy alongside founders Sergey Brin and Larry Page. Under his leadership Google dramatically scaled its infrastructure and diversified its product offerings while maintaining a strong culture of innovation.

FIRESIDE CHAT WITH **DEAN MERIT E. JANOW**, *COLUMBIA SIPA*

Part 2: Discussion

What Would Internet Fragmentation Mean for Global Trade?

In the trade domain, key issues now include data protection, data localization and cross-border data flows. This session will focus on the emerging differences between national systems.

- How is global trade impacted by technical fragmentation (e.g. the Great Firewall of China), commercial fragmentation (e.g. zero-ratings or geo-blocking) or by governmental fragmentation (e.g. data localization policies)?

- Is protectionism driving internet fragmentation, or is fragmentation enabling states to enforce protectionist policies?

- In light of recent political changes in the US, Europe and elsewhere, what are likely changes of relevance for the digital economy?

MODERATOR: Merit E. Janow, *Dean, Columbia SIPA*

(Please see biography on page 6.)

Usman Ahmed, *Head of Global Public Policy, PayPal*

Usman Ahmed is the Head of Global Public Policy at PayPal Inc. His work covers a variety of global issues including financial services regulation, innovation, international trade, and entrepreneurship. He has given talks on these subjects at conferences and universities around the world and has published in the World Economic Forum Global Information Technology Report, Journal of World Trade, and the Boston University International Law Journal. Ahmed is also an Adjunct Professor of Law at Georgetown University Law School where he teaches courses on international law and policy issues related to the Internet. Prior to PayPal, Usman worked at a number of policy think tanks in the Washington DC area focusing on good governance issues. Ahmed earned his JD from University of Michigan, his MA from Georgetown University's School of Foreign Service, and his BA from University of Maryland.

What Would Internet Fragmentation Mean for Global Trade?

Ricardo Meléndez-Ortiz, *Co-Founder and Chief Executive, ICTSD*

Co-founding Chief Executive of ICTSD. Co-convener of the E15initiative, an ICTSD-World Economic Forum undertaking bringing together 400 experts to support critical thinking on the future of the global trade and investment system. Co-chair, T20 Task Force on Trade and Investment for the German G20 Presidency. Board member, Research Centre for Global Value Chains (Beijing); Meridian Institute (Washington, DC); IP Watch (Geneva). Advisor to the Global Commission on Business and Sustainable Development (London); member of the World Economic Forum's Network of Future Councils and its Council on the Future of Trade and Investment; Adjunct Professor, Shanghai University of International Business and Economics. Served on the U.N. Secretary General Millennium Project Task Force on Trade. Co-founder and inaugural Executive Director of Fundación Future Latinoamericano (Quito). Previously delegate and negotiator of Colombia at GATT/WTO; UNCED; UNCTAD; UNFCCC; IPCC, and bilateral negotiations. G77 spokesperson. Author, editor and speaker on global economic governance, sustainable development.

Victoria A. Espinel, *President and CEO, BSA | The Software Alliance*

Victoria A. Espinel, President and CEO of BSA | The Software Alliance, is a respected authority on the intersection of technology innovation, global markets and public policy and leads efforts that help shape the technology landscape in 60 countries through work in BSA's 10 global offices. Prior to heading BSA, Espinel served for a decade in the White House, for both Republican and Democratic Administrations as President Obama's first advisor on intellectual property and, before that, as the first ever chief US trade negotiator for intellectual property and innovation at USTR. Victoria is a founding sponsor of Girls Who Code's Washington, DC, summer immersion program, which empowers young women to pursue careers in STEM fields. She speaks at conferences around the world to build visibility for the amazing things people can do with software and highlight the need for a strong talent pipeline within the software industry.

What Would Internet Fragmentation Mean for Global Trade?

Anupam Chander, *Professor, U.C. Davis*

Anupam Chander is Director of the California International Law Center and Martin Luther King, Jr. Professor of Law at the University of California, Davis. A graduate of Harvard College and Yale Law School, he has been a visiting professor at Yale, Chicago, Stanford, and Cornell. The author of *The Electronic Silk Road* (Yale University Press), he has published widely in the nation's leading law journals, including the Yale Law Journal, the NYU Law Review, and the California Law Review. He practiced law in New York and Hong Kong with Cleary, Gottlieb, Steen & Hamilton. He served on the executive council of the American Society of International Law and serves as a judge for the Stanford International Junior Faculty Forum. The recipient of Google Research Awards and an Andrew Mellon grant on the topic of surveillance, he has served as a member of the ICTSD/World Economic Forum E15 expert group on the digital economy and the World Economic Forum expert group on internet fragmentation.

Malcolm Lee, *Managing Director & Head of Policy, Alibaba Group*

Malcolm R. Lee is the Managing Director and Head of Policy at Alibaba Group, based in Washington DC. Before joining Alibaba, Malcolm Lee was a non-resident senior fellow in the John L. Thornton China Center at the Brookings Institution. He previously served at the White House as senior director for intellectual property enforcement coordination, and at the Commerce Department as counselor to the secretary and head of policy and strategic planning. Under President Clinton, he was special assistant to the president for international trade and economic policy in the National Economic Council and National Security Council, helping negotiate China's entry into the WTO, and served as deputy assistant secretary and U.S. coordinator for international telecommunications and information policy at the State Department. In the private sector, Malcolm Lee led global trade policy, then China policy, strategy and corporate affairs, from Redmond then Beijing for Microsoft, after leading Asia government relations and global trade policy for Cisco Systems. He began his career as a trade lawyer in private practice, and worked for U.S. Senator Arlen Specter prior to law school.

Douglas Brent, *Senior VP Technology Innovation, Trimble*

Doug Brent joined Trimble as Senior Vice President of Technology Innovation in July 2011. In this role, he is a leader for Trimble technology strategy, catalyzes cross-company technology collaboration, and works to enhance Trimble-wide engineering and innovation culture. Active projects at Trimble include augmented reality (particularly HoloLens-based), software re-platforming and autonomy components and solutions.

Doug has a thirty-plus year record of management and leadership in high technology companies in Silicon Valley – as VP of Engineering of several start-ups including Whistle Communications and Packet Design, as a general manager at IBM and in product development at Apple. Doug also served as Chief Operating Officer at the international Internet governance organization ICANN from 2006 to 2010.

Doug also serves on the advisory board of Piaggio Fast Forward (focusing on new forms of transportation) and is on the Board of Student Mentor.

Developing Trust and Assurance, a Global Issue with National Solutions

As a growing number of objects are connected to the internet, new threats are appearing and countries are pursuing different strategies and regulations. This session will focus on how to tackle this global problem of trust and assurance in the digital world when these regulations are country-specific.

- Are there global policies companies can put in place to enhance trust and assurance in their products?

- What are the governance responsibilities of global platforms, including with respect to global economic governance questions?

- Will security concerns drive national regulations, or can we build trust-enhancing regulatory frameworks in a cross-jurisdictional way?

- Where does regulation matter most, and what are its costs?

MODERATOR: Steven M.Bellovin, *Professor of Computer Science, Columbia University*

Steven M. Bellovin is the Percy K. and Vidal L. W. Hudson Professor of Computer Science at Columbia University and member of the Cybersecurity and Privacy Center of the university's Data Science Institute. He does research on security and privacy and on related public policy issues. In his copious spare professional time, he does some work on the history of cryptography. He joined the faculty in 2005 after many years at Bell Labs and AT&T Labs Research, where he was an AT&T Fellow. He received a BA degree from Columbia University, and an MS and PhD in Computer Science from the University of North Carolina at Chapel Hill. While a graduate student, he helped create Netnews; for this, he and the other perpetrators were given the 1995 Usenix Lifetime Achievement Award (The Flame). Bellovin has served as Chief Technologist of the Federal Trade Commission and as the Technology Scholar at the Privacy and Civil Liberties Board. He is a member of the National Academy of Engineering and is serving on the Computer Science and Telecommunications Board of the National Academies of Sciences, Engineering, and Medicine. In the past, he has been a member of the Department of Homeland Security's Science and Technology Advisory Committee, and the Technical Guidelines Development Committee of the Election Assistance Commission; he has also received the 2007 NIST/NSA National Computer Systems Security Award and has been elected to the Cybersecurity Hall of Fame.

Bellovin is the author of *Thinking Security* and the co-author of *Firewalls and Internet Security: Repelling the Wily Hacker*, and holds a number of patents on cryptographic and network protocols. He has served on many National Research Council study committees, including those on information systems trustworthiness, the privacy implications of authentication technologies, and cybersecurity research needs; he was also a member of the information technology subcommittee of an NRC study group on science versus terrorism. He was a member of the Internet Architecture Board from 1996-2002; he was co-director of the Security Area of the IETF from 2002 through 2004.

Developing Trust and Assurance, a Global Issue with National Solutions

Laura DeNardis, *Professor, American University*

Laura DeNardis, M.Eng, Ph.D., is a Professor of Internet architecture and governance and Faculty Director of the Internet Governance Lab at American University in Washington, D.C., as well as an Adjunct Senior Research Scholar at Columbia University's School of International and Public Affairs. With a background in information engineering and a doctorate in Science and Technology Studies, her books include The Global War for Internet Governance (Yale University Press 2014); Opening Standards: The Global Politics of Interoperability (MIT Press 2011); Protocol Politics: The Globalization of Internet Governance (MIT Press 2009); Information Technology in Theory (2007) and a recently published co-edited volume The Turn to Infrastructure in Internet Governance (Palgrave 2016). Dr. DeNardis recently served as the Director of Research for the Global Commission on Internet Governance and previously served as the Executive Director of the Yale Information Society Project from 2008-2011. Her expertise and scholarship have been featured in Science Magazine, The Economist, National Public Radio, New York Times, ABC news, Bloomberg, Time Magazine, Christian Science Monitor, Slate, Reuters, Forbes, The Atlantic, the Globe and Mail, and the Wall Street Journal. She has more than two decades of experience as an expert consultant in Internet architecture and governance to industry, foundations, and government and is currently an appointed member of the United States Department of State's Advisory Committee on International Communications and Information Policy. Dr. DeNardis holds an AB in Engineering Science from Dartmouth College, a Master of Engineering degree from Cornell University, a PhD in Science and Technology Studies from Virginia Tech, and was awarded a postdoctoral fellowship from the Information Society Project at Yale Law School.

Joshua Corman, *Director, Cyber Statecraft Initiative, Atlantic Council*

Joshua Corman is Director of the Cyber Statecraft Initiative for the Atlantic Council and Founder of I am The Cavalry (dot org). Corman previously served as CTO for Sonatype, Director of Security Intelligence for Akamai, and in senior research & strategy roles for The 451 Group and IBM Internet Security Systems. He co-founded @RuggedSoftware and @IamTheCavalry to encourage new security approaches in response to the world's increasing dependence on digital infrastructure. Josh's unique approach to security in the context of human factors, adversary motivations and social impact has helped position him as one of the most trusted names in security. He also serving as an adjunct faculty for Carnegie Mellon's Heinz College and on the 2016 HHS Cybersecurity Task Force.

Developing Trust and Assurance, a Global Issue with National Solutions

Andrea Glorioso, *Counselor, Digital Economy & Cyber, EU Delegation to the US*

Mr. Andrea Glorioso is the Counsellor for the Digital Economy at the Delegation of the European Union to the USA, in Washington DC. In this role, he acts as the liaison between the EU and US on policy, regulation and research activities related to the Internet and Information and Communication Technologies. Mr. Glorioso worked for eight years at the European Commission in Brussels (Belgium) on cyber-security, personal data protection, cloud computing and Internet governance. He was part of the teams that produced a number of key strategies of the European Commission, including the Action Plan on the Internet of Things and the Cloud Computing Strategy.

Before joining the European Commission, he worked at the NEXA Research Center for Internet and Society of the Politechnic University of Turin, at the Media Innovation Unit of the Chamber of Commerce of Florence, at the Centro Tempo Reale Research Centre for Contemporary Music and in the private sector as a software developer and IT project manager for a number of multinational firms.

A native of Padua (Italy), Mr. Glorioso has a MSc (summa cum laude) in Political Sciences / Sociology from the University of Padua, an LLM (summa cum laude) in Intellectual Property Law from the University of Turin / WIPO Worldwide Academy and post-graduate degrees in IT law (Centro Study Informatica Giuridica), international diplomatic law (Diplo Foundation / University of Malta) and global Internet governance (Diplo Foundation).

Developing Trust and Assurance, a Global Issue with National Solutions

Angela McKay, *Director of Cybersecurity Policy, Microsoft*

Ms. Angela McKay is Director of the Government Security Policy and Strategy Team within Trustworthy Computing at Microsoft. She focuses on driving strategic change, both within Microsoft and externally, to advance trust in the computing ecosystem. Ms. McKay leads Microsoft's public policy work on cybersecurity, cloud security, and norms, and on public sector use of cloud. Her team includes professionals working on these topics across Africa, Asia, Europe, Latin America, and the U.S.

Ms. McKay combines technical expertise and public policy acumen to develop policies that improve security and stability of cyberspace, and support development, growth, and innovation. She serves on the Board of Councilors for the East West Institute, a think tank focused on international conflict resolution, and as Microsoft's Point of Contact for the National Security Telecommunications Advisory Committee, which provides the President of the United States with recommendations to maintain reliable, secure, and resilient communications.

Ms. McKay previously led Microsoft's cybersecurity policy work in the U.S., and its work to increase cybersecurity capacity internationally. Before joining Microsoft in 2008, she worked at Booz Allen Hamilton on cybersecurity policy and communications resiliency, and at BellSouth Telecommunications as an engineer. Ms. McKay holds a Bachelor's of Industrial and Systems Engineering from the Georgia Institute of Technology.

Global Platforms, National Citizens and International Development

As digital platforms gain their next billion users, they increasingly face challenges from local politics, cultural standards, laws and social norms. Examples include different regimes for data protection and privacy and the right to be forgotten, but also internet shutdowns, data localization laws and provisions for law enforcement access.

- How can global companies comply with national rules without driving fragmentation?
- What are the governance responsibilities of global platforms, including with respect to global economic governance questions?
- How can countries cooperate to develop regulations across jurisdictions on such issues?
- Will emerging countries create regulation for the digital economy that is compatible with existing regulation and international norms, or will bridging the digital divide increase internet fragmentation?

MODERATOR: Ronaldo Lemos,
Director, Instituto de Tecnologia & Sociedade do Rio de Janeiro

Ronaldo Lemos is an internationally respected Brazilian scholar and commentator on technology, intellectual property and culture. He is a director of the Institute for Technology & Society of Rio de Janeiro (ITS Rio) and professor of law and innovation at the Rio de Janeiro State University (UERJ). He holds law degrees from University of Sao Paulo Law School and Harvard Law and has published a number of books and journal articles. He is currently a Tinker Visiting Professor at Columbia University´s School of International and Public Affairs. He has served as the project lead of Creative Commons Brazil since 2003. He is a non-resident visiting scholar with the MIT Media Lab and was a visiting fellow at Princeton University´s Center for Information Technology Policy (CITP) in 2011 and 2012. Lemos is a founder of Overmundo, for which he received the Prix Ars Electronica Golden Nica in the category of digital communities. Lemos was one of the creators of the Marco Civil, a law enacted in 2014 regulating the internet in Brazil, protecting civil rights, privacy and net neutrality. He is a member of the Council for Social Communication in Congress, a governmental body created by the Brazilian Constitution to deal with matters related to communication, media and freedom of expression. Lemos writes weekly to Folha de S.Paulo, the largest national newspaper in Brazil. He hosts a TV show focused on innovation at Globonews, a cable news channel, and has contributed to a number of other publications, including Foreign Affairs, Harper's Bazaar and Bravo!. In 2015 he was appointed a Young Global Leader by the World Economic Forum. In 2016 he was appointed a fellow with Ashoka. Lemos serves as a board member in various organizations, such as the Mozilla Foundation and Access Now.

Global Platforms, National Citizens and International Development

Peter Micek, *General Counsel, Access Now*

Peter Micek is General Counsel at Access Now, an international organization that defends and extends the digital rights and security of at-risk users. Peter leads the Access Now policy team's business and human rights work, advocating for a more rights-respecting tech sector. Through corporate engagement, norm-building, and strategic advocacy and litigation, Access Now promotes transparency and accountability for human rights online. Peter is also Adjunct Professor at the Columbia University School of International and Public Affairs. He teaches Communications Policy in the Digital Age, exploring the actors, values, and processes that govern the internet and its platforms. Peter also sits on the World Economic Forum's Global Future Council on Cybersecurity. A lawyer by training, Peter completed a JD cum laude at the University of San Francisco School of Law, and in 2010 published "A Genealogy of Home Visits," critiquing surveillance of at-risk communities, in U.S.F. Law Review. He earned a B.S. studying journalism and political science at Northwestern University. He is licensed by the state bars of California and New York, and has no cats.

Jeff Brueggeman, *VP Global Public Policy, AT&T*

Jeff Brueggeman is Vice President-Global Public Policy for AT&T. He is responsible for developing and advocating AT&T's global public policy positions on privacy, cybersecurity and Internet policy issues.

Mr. Brueggeman is based in AT&T's Washington, DC office. He represents AT&T in a wide range of legislative, regulatory and policy development proceedings. Mr. Brueggeman also leads AT&T's engagement with various privacy and technology policy organizations.

Prior to assuming his current role, Mr. Brueggeman was AT&T's Deputy Chief Privacy Officer. In this role, he helped manage AT&T's privacy policies and coordinate the implementation of data privacy and security programs across the company.

Before joining AT&T, Mr. Brueggeman was an attorney in private practice, specializing in communications law. He holds a J.D. from the University of Virginia and a B.A. in Journalism from the University of Minnesota. He lives in Bethesda, Maryland with his wife and daughter.

Global Platforms, National Citizens and International Development

Ambassador Karen Kornbluh (ret.)
Senior Fellow for Digital Policy, Council on Foreign Relations

Ambassador Karen Kornbluh is Executive Vice President of External Affairs and holds responsibility for leading Nielsen's global efforts in key areas, including privacy strategy, public policy, and corporate social responsibility. She is also a senior fellow for Digital Policy at the Council on Foreign Relations and a Governor on the Broadcasting Board of Governors. Previously, Karen was unanimously confirmed as U.S. Ambassador to the Organization for Economic Co-operation and Development. During her tenure, the U.S. spearheaded development of the first global Internet Policymaking Principles, gained OECD agreement to provide open access to its data, and launched the OECD Gender Initiative. Karen served as policy director for President Barack Obama when he served in the Senate. In the Clinton Administration, she was deputy chief of staff at the Treasury Department and director of the Office of Legislative and Intergovernmental Affairs at the Federal Communications Commission. Earlier, Karen was a management consultant at Telesis and an economic forecaster at Townsend-Greenspan & Company. Karen founded the New America Foundation's Work and Family Program and has written extensively about technology policy, women, and family policy for The Atlantic, The New York Times and The Washington Post. New York Times columnist David Brooks cited her Democracy article "Families Valued," focused on "juggler families" as one of the best magazine articles of 2006. Karen earned a bachelor's degree from Bryn Mawr College and a Master of Public Policy degree from the John F. Kennedy School of Government at Harvard University.

Cyber Conflict and Democratic Institutions

Initially thought to enhance democracy, we are realizing that insecure digitization open to attack can undermine liberal democratic processes, especially elections. Demagogues, dictators, hackers, and foreign powers can disrupt critical institutions and infrastructure in ways that can shake the international order.

- What major threats does increased dependence on cyberspace pose to democratic processes?
- What kind of international institutions and/or private sector initiatives can help foster cooperation in addressing them?

MODERATOR: Susan McGregor,
Tow Center for Digital Journalism, Columbia Journalism School

Susan McGregor is Assistant Director of the Tow Center for Digital Journalism & Assistant Professor at Columbia Journalism School, where she helps supervise the dual-degree program in Journalism & Computer Science. She teaches primarily in areas of data journalism & information visualization, with research interests in information security for journalists and other professions that deal with sensitive information, as well as organizational knowledge management and resilient systems of digital content distribution.

Sean Kanuck, *Affiliate, Stanford CISAC*

Sean Kanuck is an attorney and strategic consultant who advises governments, corporations, and entrepreneurs on the future of information technology. Sean is affiliated with Stanford University's Center for International Security and Cooperation and has received several international appointments, including: Chair of the Research Advisory Group for the Global Commission on the Stability of Cyberspace (Hague, Netherlands), Distinguished Visiting Fellow at Nanyang Technological University (Singapore), and Distinguished Fellow with the Observer Research Foundation (New Delhi, India). Sean regularly gives keynote addresses for global audiences on a variety of cyber topics, ranging from risk analysis to identity intelligence to arms control.

Sean served as the United States' first National Intelligence Officer for Cyber Issues from 2011 to 2016. He came to the National Intelligence Council after a decade of experience in the Central Intelligence Agency's Information Operations Center, including both analytic and field assignments. In his Senior Analytic Service role, he was a contributing author for the 2009 White House Cyberspace Policy Review, an Intelligence Fellow with the Directorates for Cybersecurity and Combating Terrorism at the National Security Council, and a member of the United States delegation to the United Nations Group of Governmental Experts on international information security.

Prior to government service, Sean practiced law with Skadden Arps in New York, where he specialized in mergers and acquisitions, corporate finance, and banking matters. He is admitted to the bar in New York and Washington DC, and his academic publications focus on information warfare and international law. Sean holds degrees from Harvard University (A.B., J.D.), the London School of Economics (M.Sc.), and the University of Oslo (LL.M.). He also proudly serves as a Trustee of the Center for Excellence in Education, a charity promoting STEM education that is based in McLean, Virginia.

Cyber Conflict and Democratic Institutions

Matthew Waxman, *Professor, Columbia Law School*

Matthew C. Waxman is the Liviu Librescu Professor of Law and the faculty chair of the Roger Hertog Program on Law and National Security.

Waxman is an expert in national security law and international law, including issues related to executive power; international human rights and constitutional rights; military force and armed conflict; and terrorism. He clerked for Supreme Court Justice David H. Souter and Judge Joel M. Flaum of the 7th U.S. Circuit Court of Appeals.

Before joining the the Law School faculty, he served in senior positions at the State Department, the Department of Defense, and the National Security Council. Waxman was a Fulbright Scholar to the United Kingdom, where he studied international relations and military history. He is a member of the Council on Foreign Relations, where he also serves as Adjunct Senior Fellow for Law and Foreign Policy, and he is the co-chair of the Cybersecurity Center at the Columbia Data Science Institute.

He holds a J.D. from Yale Law School.

Ronaldo Lemos, *Director, Instituto de Tecnologia & Sociedade do Rio de Janeiro*

(Please see biography on page 22.)

Cyber Conflict and Democratic Institutions

Camille Francois, *Principal Researcher, Jigsaw*

Camille Francois is Principal Researcher at Jigsaw, a think tank and technology incubator within Google / Alphabet, where she is leading an interdisciplinary research program focused on State-sponsored cyber threats against civil society, and media manipulation. She also established an internal working group on fairness and algorithmic biases in machine learning.

Previously, Camille served as a Special Advisor to the CTO of France within the Prime Minister's Office, led research projects on cybersecurity and human rights for the Mozilla Foundation or the U.S. Defense Advanced Research Projects Agency, and worked for Google's Market Insights team.

A Fulbright Fellow, Camille holds a Masters Degree in Human Rights from the French Institute of Political Sciences (Sciences-Po) & a Masters Degree in International Security from the School of International and Public Affairs at Columbia University. Camille was also a Fellow at the Harvard Berkman Center for Internet & Society (where she remains an Affiliate), and a visiting scholar at the Columbia Arnold A. Saltzman Institute for War and Peace Studies and at King's College War Studies Department

Camille's research has focused on building out the notion of cyber peace, and on the intersection of human rights, cybersecurity and cyber operations. A frequent speaker in international conferences, her work has appeared in various publications, including WIRED, Defense Dossier, Le Monde Diplomatique, and Scientific American.

Camille serves as a member of the Freedom Online Coalition's Working Group on a Free & Secure Internet and is involved several free culture advocacy projects. She serves as a Digital Advisor for Libraries Without Borders, and on the Scientific Committee of the French Wikimedia Foundation.

Financial Institutions and Systemic Risks

Cyber attacks on the financial sector could have systemic consequences. This panel will examine the lessons from recent work by SIPA and colleagues in the financial industry to see how risks from each sector, including the risks of fragmentation, can lead to more secure and stable networks and financial markets.

• What are the interactions between technological risks and financial stability?

• Does internet fragmentation help or hurt the stability of financial markets?

MODERATOR: Jason Healey, *Senior Research Scholar, Columbia SIPA*

Jason Healey is Senior Research Scholar at Columbia University's School for International and Public Affairs, specializing in cyber conflict and risk. He started his career as a US Air Force intelligence officer, before moving to cyber response and policy jobs at the White House and Goldman Sachs. He was founding director for cyber issues at the Atlantic Council where he remains a Senior Fellow and is the editor of the first history of conflict in cyberspace, *A Fierce Domain: Cyber Conflict, 1986 to 2012.* He is on the DEF CON review board and served on the Defense Science Board task force on cyber deterrence.

Siobhan MacDermott, *Global Cybersecurity Public Policy Executive*

Siobhan MacDermott leads the Global Information Security Cybersecurity Public Policy team. She is responsible for GIS Public Policy 2.0 and the bank's participation in programs dedicated to improving cyber resiliency of the financial system's core institutions including engagement, real-time threat sharing, risk analysis and contingency planning.

Siobhan joined Bank of America in July 2016 after serving as the Risk and Cybersecurity Principal at EY (formerly Ernst & Young) for almost two years. Prior to EY, she was the Chief Information Security Officer for Utilidata, Inc. and Chief Policy Officer for AVG. Siobhan helped direct strategy, government relations, global policy and issue management for a number of financial services and technical companies across the globe. In addition, she's an accomplished author, with a fifth book expected in 2017.

Siobhan graduated from Temple University with a Bachelor of Arts in German Language and Literature. She holds a Master of Business Administration from Thunderbird School of Global Management and a Global Master of Arts in Law and Diplomacy from the Fletcher School at Tufts University. Siobhan serves as Vice Chair of the Fund for Peace and an Associate Fellow for the Global Fellowship Initiative for the Geneva Centre for Security Policy in Switzerland. She speaks English, German and French.

Financial Institutions and Systemic Risks

Paul Twomey, *Co-Founder, Stash.global*

Paul is a co-founder of Stash, the secure digital storage and messaging company.

Paul is also a founding figure of ICANN, the international organization that coordinates many of the key functions of the global Internet. After four years as Chair of its Governmental Advisory Committee (charged with conveying observations and concerns of its national government members to the ICANN Board and to other ICANN constituencies), Paul served from 2003 to 2010 as President and CEO of ICANN.

Paul founded Argo P@cific, a cybersecurity consulting firm for governments and Fortune 500 companies worldwide. He was formerly the CEO of the Australian Government's National Office for the Information Economy and the Federal government's Special Adviser for the Information Economy and Technology. Paul was the Executive General Manager of the Australian Trade Commission from 1994-97. Paul is a former senior consultant with McKinsey & Company.

A recognized thought leader, Paul is Chairman of the CyberGreen Institute, a non-profit dedicated to promoting a public health approach to improving global cyber safety, Commissioner of the Global Commission on Internet Governance, Commissioner of the Global Information Infrastructure Commission, Advisory Board Member of Electronic Markets — The International Journal on Networked Business, and Board member of the Atlantic Council of the United States since 2007. He is the Board-lead on cybersecurity and instigated the Council's Cyber Statecraft Initiative. Paul is also a Founding Chair of the Global Agenda Council on the Future of the Internet at the World Economic Forum. Paul holds a Ph. D. from the University of Cambridge.

Christine Cumming,
Adjunct Senior Research Scholar and Adjunct Professor, Columbia SIPA

Christine Cumming is Adjunct Senior Research Scholar in the School of International and Public Affairs at Columbia University. She retired in 2015 as First Vice President and Chief Operating Officer of the Federal Reserve Bank of New York. Her 35-year career at the Bank involved her in international working groups on financial institution capital, liquidity, risk management and resolution of financial institutions. At the time she retired, Ms. Cumming chaired the Financial Stability Board's Cross-Border Crisis Management Group, which coordinates resolution planning for global financial institutions. Ms. Cumming has a Ph.D. and a B.S. in Economics from the University of Minnesota.

Financial Institutions and Systemic Risks

Katheryn Rosen, *Senior Fellow, Cyber Statecraft Initiative, Atlantic Council*

Katheryn is an Adjunct Professor at Columbia University's School of International Public Affairs focusing on cybersecurity and a non-Resident Senior Fellow at the Atlantic Council – Brent Scowcroft Center on International Security's Cyber Statecraft Initiative. Over a 25 year career, Katheryn has been active in both the public and private sectors. She served at the U.S. Department of Treasury as Deputy Assistant Secretary for Financial Institutions Policy and Senior Advisor to the Assistant Secretary of Financial Institutions. Central to her portfolio were bank and non-bank regulatory implementation, housing finance reform, modernization of insurance regulation, critical infrastructure, and developing and executing the Department's cybersecurity agenda. On Capitol Hill, she served as Senior Policy Advisor to House Financial Services Chairman Barney Frank, working primarily on the Dodd-Frank Act and housing finance reform.

Prior to her public service, Katheryn spent 14 years at JPMorgan's Investment Bank. As Managing Director, she led the Government Institutions Coverage Group and was a senior leader within the Investment Grade Debt Capital Markets team. In these roles, respectively, she was responsible for delivering the Firm's full range of services and products to GSEs, multilateral-lending institutions, and government corporations and advising clients across a wide range of industries and executing transactions for fundraising, capital, liability restructuring, and risk management. Most recently at BlackRock, Katheryn was a senior member of the Financial Markets Advisory team where she focused on the impact of regulation, policy, and official sector actions on clients' businesses across banks, Government-Sponsored Enterprises, central counterparties, and official institutions.

This conference is hosted by Columbia University's School of International and Public Affairs. For 70 years, SIPA has been equipping future leaders with the skills, knowledge and intellectual curiosity to solve the world's most critical public policy challenges. Through a rigorous and multidisciplinary curriculum, practical capstone projects and field work that engage real world issues, and connections to world-renowned scholars and practitioners, SIPA students learn to make a positive difference in the world, whether in the public, private, or nonprofit sector. At home in Columbia's university community and the global City of New York, SIPA is also a uniquely diverse, international and entrepreneurial community that brings together world leaders of diverse backgrounds, skills, and perspectives.

In 2014, SIPA launched the Tech and Policy Initiative, an ambitious effort to explore the intersection of technology, data, and the future of policymaking. The initiative encompasses a variety of activities, including the Global Digital Futures Policy Forum; workshops; interdisciplinary research in the areas of cybersecurity, internet governance, and the digital economy; a Challenge Grant that invites graduate students to solve urban challenges globally using ICT and data; tech-related courses; participation with Columbia Entrepreneurship in a start-up lab in lower NYC; and visits from tech leaders and others. Importantly, the initiative seeks to support next generation scholars and to bridge the gap between scholars and policymakers. The initiative cuts across SIPA's core subject areas, including international finance, economic development, human rights, urban policy, international security, and energy and the environment. It also draws upon faculty from across Columbia University and engages a broad and interdisciplinary network of experts in government, the private sector, and the non-governmental community.

COLUMBIA | SIPA
School of International and Public Affairs

SPONSORS

With support from:

Carnegie Corporation of New York was established by Andrew Carnegie in 1911 to promote the advancement and diffusion of knowledge and understanding. In keeping with this mandate, the Corporation's agenda focuses on the issues that Andrew Carnegie considered of paramount importance: international peace, the advancement of education and knowledge, and the strength of our democracy.

Microsoft Corporation is an American multinational corporation headquartered in Redmond, Washington, United States that develops, manufactures, licenses and supports a wide range of products and services related to computing. The company was founded by Bill Gates and Paul Allen on April 4, 1975. Microsoft is the world's largest software maker measured by revenues. It is also one of the world's most valuable companies

With the participation of:

The Columbia Institute for Tele-Information (CITI) is a university-based research center focusing on strategy, management, and policy issues in telecommunications, computing, and electronic mass media. Founded in 1983 at Columbia University, the institute is the first research center for communications economics, management, and policy established at a US management school. Its location in New York City provides a unique foundation for these activities. Research collaboration among academic, corporate, and public sectors is vital in analyzing the complex problems associated with managing communications enterprises, systems, and policy in environments of rapidly changing technology and regulation.

The Data Science Institute at Columbia University is training the next generation of data scientists and developing innovative technology to serve society. With nearly 200-affilated faculty working in a wide range of disciplines, the Institute seeks to foster collaboration in advancing techniques to gather and interpret data, and to address the urgent problems facing society. The Institute works closely with industry to bring promising ideas to market.

The Tow Center for Digital Journalism, established in 2010, provides journalists with the skills and knowledge to lead the future of digital journalism and serves as a research and development center for the profession as a whole.

And assistance with livestreaming from:

The Internet Society