



BUILDING **Cyber Defenses** FOR U.S. ELECTIONS

by **Josh Burek**

Outdated technology. A patchwork of different systems. Front-line staff without formal training. From the standpoint of malicious hackers, U.S. political campaigns and election systems present a rich array of vulnerable targets without critical information or training.

“Frankly, the United States is under attack,” Director of National Intelligence **Dan Coats** told the Senate Intelligence Committee in February, adding that Russia is attempting to “degrade our democratic values and weaken our alliances.”

“This is not going to change or stop,” said National Security Agency Director Admiral **Mike Rogers**.

Despite the ongoing threat, Washington—hamstrung by internal divisions—has yet to develop a comprehensive plan to bolster our democratic defenses.

Undaunted, a group of young civil servants is working directly with political operatives and state and local officials to fortify campaigns and elections against cyberattacks and information operations: Harvard Kennedy School students affiliated with the Belfer Center’s *Defending Digital Democracy Project* (D3P).

Founded and led by Belfer Center Co-Director **Eric Rosenbach**, the Pentagon’s former “cyber czar,” D3P has become a kind of digital avengers squad, featuring cyber security professionals, communications specialists, lawyers, political consultants, and national security experts. At a time when even IT operations have taken on partisan overtones, D3P is emphatically bipartisan: it is co-directed by **Robby Mook**, Hillary Clinton’s 2016 campaign manager, and **Matt Rhoades**, Mitt Romney’s 2012 campaign manager.

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Securing Elections: State and local election officials from West Virginia, North Carolina, and Pennsylvania tackle a simulated cyber attack on voting infrastructure during a D3P tabletop exercise in December. »





From the Director

There are over 7,800 think tanks in the world. Many cover international affairs. Far fewer study science and technology. Only the Belfer Center—recently named the world's No. 1 university research center for the fifth year in a row—leverages both domains to build a more secure, peaceful world. Their convergence at HKS is no accident. The Center's founder, **Paul Doty**, was a legendary biochemist who dedicated his life to averting nuclear war. He understood that science and technology are the great levers of change in our world. And his generation recognized that while the advance of knowledge is inevitable, it must be steered in the direction of public good.

The Center's **Calestous Juma**, who passed on in December, exemplified that pursuit of purpose-driven progress. To ministers and heads of state, he was a sought-after adviser, pointing the way toward reforms that boosted farm yields, education standards, and economic prosperity. To the scientific community, he was an unstinting champion of innovation and rigorous evidence. To his students, he was a passionate teacher and mentor. To all of us at the Center, he was a dear friend and colleague. We miss him. We also miss our good friend and longtime International Security Program Associate **Chuck Cogan**, who died in December a month shy of his 90th birthday. Chuck had an illustrious career in the CIA and shared his wisdom generously with our community.

* * *

I've had the privilege of attending several World Economic Forums in Davos, Switzerland. This year's gathering featured healthy debate over the role that leading technology companies play in our lives. These organizations have connected billions of us around the world and made the sum total of human knowledge instantly accessible to all. But Davos attendees also worried that some have substituted amoral algorithms for human intelligence and adult supervision, fraying the integrity of our social fabric. As a result, some high-tech sectors are facing calls for government regulation. That debate is necessary but insufficient. What we most need is a new generation of tech innovators who are inspired to assume the civic responsibilities that come with creating changes of great consequence.

As I consider this inflection point for the relationship between technology and governance, the students at HKS give me hope.

As I consider this inflection point for the relationship between technology and governance, the students at Harvard Kennedy School (HKS) give me hope. In our interactions, they invariably ask how they can be of better service to their fellow citizens. As you'll read in this issue, several of them enlisted with the Center's Defending Digital Democracy project, fanning out across dozens of states to meet with, and learn from, local officials to better safeguard our elections. At a time of bitter division in Washington, that kind of practical, bipartisan bridge-building between the ivory tower and statehouses should make all of us proud.

Ash Carter



Global Challenges: Belfer Center Director **Ash Carter** speaks during an interview on "Bloomberg Surveillance" about U.S.-China relations, North Korea, and the U.S. military during the World Economic Forum in Davos, Switzerland (January 2018).

For Fifth Straight Year, Belfer Is Top University Think Tank



Teamwork: The Belfer Center community in September 2017.

MARTHA STEWART

For the fifth year in a row, Harvard Kennedy School's Belfer Center for Science and International Affairs has been ranked the best university-affiliated research center in the world.

The rankings in the *Global Go To Think Tank Index Report* are produced by the Think Tanks and Civil Societies Program at the University of Pennsylvania's Lauder Institute. The 2017 rankings, covering 7,800 think tanks, were determined with input from more than 3,750 university faculty and administrators, journalists, policymakers, think tank scholars and executives.

"The Belfer Center is home to a remarkable community of scholars, students, and staff driven by a common mission to build a more secure, peaceful world," said Belfer Center Director **Ash Carter**. "I am proud that the impact of our efforts is recognized around the world."



Cyber Defenses for U.S. Elections

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D3P's engine room is run by students. Nearly two dozen HKS and MIT students have enlisted with the project to align research outputs with stakeholder needs. To that end, 17 of the students last fall began fanning out to states including California, Oregon, Nevada, Virginia, Colorado, New Jersey, Wisconsin, Minnesota, and Florida to conduct field research with officials, hear their concerns, observe their systems and processes, learn how they are protecting the security and integrity of their elections, and help identify areas of vulnerability. Students will visit additional states this semester.

The result of their work? Four distinct “playbooks”—practical guides to help campaign staff and state and local election officials better safeguard critical systems and deter and respond to misinformation.

“The guidelines we provide are based on the insights and concerns we heard from election officials across the country”

—Caitlin Conley

“Our team visited with over 34 different election offices, surveyed 37 states and territories, and directly observed three elections across three states, so the guidelines we provide are based on the insights and concerns we heard from election

officials across the country,” said **Caitlin Conley**, a U.S. Army Major attending Harvard Kennedy School who led D3P's efforts on the playbooks. “Our recommendations are practical, and they can make a real difference in the 2018 elections and beyond.”

“State and local election officials are now on the front lines of a battle to maintain trust and confidence in America's digital democracy. We developed these playbooks to serve as a resource for state and local election officials, their teams, and their institutions to help build stronger cyber defenses for election systems,” said **Eric Rosenbach**. “The playbooks are the result of many months of hard work and cooperation between the D3P team and our national, state, and local partners.”

The playbook recommendations are based on D3P's extensive field research, observation of three recent elections, an in-depth survey, and multiple tabletop exercises conducted with bipartisan groups of election officials. They also reflect best practices and insights from the nation's top software and network engineers, including from D3P's private sector partners Google and CrowdStrike. Rather than simply highlight the weaknesses and vulner-

abilities of the nation's election systems, the D3P team strove to work directly with election officials to develop measures to strengthen their cyber defenses and incident response capabilities.

States are taking notice. Already, West Virginia and Kentucky have shared copies of D3P's campaign playbook with all candidates seeking



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office. Other states have opted to go further in increasing the awareness and preparedness of their officials by planning to conduct their own “tabletop exercises” based upon the training and experiences provided by the D3P team. These simulations portray outside actors deliberately attacking election systems to test existing protections.

Although the factors that affect voting security vary from state to state—different election methodologies and schedules, demographic variations, voting cultures, and constitutional requirements, among others—the D3P team has distilled 10 recommendations that apply universally across all jurisdictions.

“I don't think there's just one thing that makes a state successful. I think it's almost like a recipe where there's a bunch of things that have to come together in order for it to work,” said **Jennifer Nam**, M.P.A. '18, a project team leader who before coming to Harvard spent a decade in the U.S. Army doing intelligence work.

See the playbooks and learn more about the Defending Digital Democracy Project at belfercenter.org/D3P »

For this cover story, portions of Christina Pazzanese's *Harvard Gazette* article, “Wanted: A firewall to protect U.S. elections,” were used, with permission.



Listening and Learning: **Jennifer Nam**, member of the D3P team and HKS student, listens to election officials.

Israel Track-II Dialogue Connects Experts, Policymakers



Middle East in Transition: Amb. **Nicholas Burns** makes a point during a session with MK **Tzipi Livni**, Belfer Center Director **Ash Carter**, and Brig. Gen. **Udi Dekel** on U.S. and Israeli challenges.

The Belfer Center hosted the sixth annual U.S.-Israel Strategic Dialogue in November in partnership with Tel Aviv University's Institute for National Security Studies (INSS). The dialogue was co-chaired by Professor **Nicholas Burns**, Roy and Barbara Goodman Family Professor of the Practice of Diplomacy and International Relations, **Robert Danin**, Senior Fellow with the Future of Diplomacy Project, and INSS's Executive Director, Major General (ret.) **Amos Yadlin**.

For two days, high-level U.S. and Israeli delegations comprised of journalists, politicians, academics, and policy experts met to discuss some of the most pressing issues facing the United States, Israel, and their bilateral relationship. The delegations debated the future of the Iran Nuclear Deal, the Trump administration's policy toward Iran and the Middle East, what lies ahead in Syria and Iraq, the crisis on the Korean Peninsula, the Israeli-Palestinian divide, and U.S.-Israel relations. Overviews of the U.S. and Israeli domestic political landscapes were provided by *Washington Post* columnist **Dan Balz** and Knesset Member **Yair Lapid**. The dialogue opened with a public event at which

Knesset Member **Tzipi Livni**, Belfer Center Director **Ash Carter**, and Brig. Gen. **Udi Dekel** offered their perspectives on the "U.S. and Israel Facing a Middle East in Transition."

"Both our countries face extraordinary challenges in an unstable and violent Middle East."

—**Nicholas Burns**

At this year's conference, the Center was fortunate to have two special sessions: former UN Secretary General **Ban Ki-moon** spoke about the North Korean threat and the refugee crisis, and HRH **Prince Turki al Faisal** spoke about the dramatic changes in Saudi Arabia amid the sweeping campaign of arrests of princes and current and former high-level government officials.

"This was an important meeting between Americans and Israelis," said Burns. "Both our countries face extraordinary challenges in an unstable and violent Middle East."

—**Allison Hillegiest**

Track-II Conference: Northeast Asia in Strategic Transition



Regional Perspectives: **Victor Cha** speaks about the North Korean threat during a panel discussion with (left to right) **Ha Young-sun**, **Yao Yunzhu**, and **Gary Samore**.

On November 9-11, Executive Director for Research **Gary Samore** hosted a Track II conference on "Northeast Asia in Strategic Transition" with participants from the U.S., Republic of Korea, and China.

The Korean delegation was headed by **Pak In-kook**, President of the Korea Foundation for Advanced Studies (KFAS), which provided financial support for the event. The Chinese delegation was led by Professor **Jia Qingguo**, Associate Dean of the School of International Studies of Peking University.

"These meetings allow for candid conversations on how our three governments can improve cooperation against a common threat."

—**Gary Samore**

The opening session of the conference featured a panel discussion on responding to the North Korea threat, with presentations by Professor **Victor Cha** of Georgetown University, Professor **Ha Young-sun** of the East Asia Institute in Seoul, and Major General (retired) **Yao Yunzhu**. Following the public session, the conference continued behind closed

doors, with topics ranging from U.S.-China relations after the 19th Party Congress to economic and trade issues in Asia to the risk of military conflict on the Korean Peninsula.

American participants included Professor **Richard Cooper** of Harvard University; **Evan Feigenbaum**, Vice Chairman of the Paulson Institute at the University of Chicago; **John Park**, Director of the Belfer Center Korea Working Group; and Belfer Center Senior Fellow **William Tobey**. Participants from South Korea included **Choi Byung-il**, President of the Korea Association of Trade and Industry Studies; Professor **Kang Myung-koo** of Baruch College; **Lee Geun-wook** of Sogang University; **Lee Sook-jong**, President of the East Asia Institute; and **Oh Seung-youn** of Bryn Mawr College. In addition to Professor Jia and General Yao, the Chinese delegation included Professor **Zhu Feng** of Nanjing University.

"This is the second round of meetings we've held with Chinese and Koreans to discuss the vexing issue of North Korea," said **Gary Samore**. "None of us have an easy answer, but these meetings allow for candid conversations on how our three governments can improve cooperation against a common threat."



Evaluating the Nuclear Posture Review

In February, the Pentagon released a new Nuclear Posture Review (NPR), a comprehensive overview of the nation's nuclear forces, their disposition, and plans for the future. Here, Belfer Center experts share their assessments of this NPR and the future of America's nuclear capabilities.

Graham Allison

Douglas Dillon Professor of Government

"The NPR tries to make the case for investments in new, smaller 'non-strategic' nuclear weapons. As presented, I find the case unpersuasive. I agree that Russia's increasing reliance on threats to use non-strategic nuclear weapons presents a significant new challenge. But I believe our current arsenal of nuclear and non-nuclear weapons provides a sufficient deterrent. If not, advocates of new weapons should explain why and demonstrate that new weapons could raise the nuclear threshold."



nuclear Triad, because it is the bedrock of deterrence. During the past 25 years, the United States has made no major new investments in its nuclear forces, yet other countries have conducted vigorous buildups. This history does not support the contention that U.S. investments fuel the nuclear programs of others. My views are reflected in the latest Nuclear Posture Review."

James Miller

Senior Fellow

"Secretary of Defense Jim Mattis's 2018 Nuclear Posture Review offers continuity with past U.S. policy and plans, including those in the 2010 NPR. It deserves broad bipartisan support. Its proposal for a low-yield SLBM weapon and a new nuclear-tipped sea-launched cruise missile are sensible responses to changed security conditions, especially Russia and North Korea. Given the President's sole authority to direct nuclear weapons employment, the central question is whether this reasonable Mattis NPR represents the views of President Trump."



Gary Samore

Executive Director for Research

"The 'new' Nuclear Posture Review of the Trump administration basically re-affirms President Obama's policies, especially replacement of the existing U.S. nuclear triad with a new generation of missiles and bombers. The Trump NPR also calls for two new types of low-yield tactical nuclear weapons, which would supplement the two existing types of tactical nuclear weapons in the current arsenal."



The need for these new weapons is debatable, but unlikely to be very significant in terms of increasing or decreasing the risk of nuclear war."

Elizabeth Sherwood-Randall

Senior Fellow

"I agree with the 2018 NPR's emphasis on recapitalizing the American nuclear enterprise and modernizing Triad delivery systems to ensure unrivalled deterrence and allied assurance. Our arsenal is aging while China, Russia, and others aggressively pursue new nuclear capabilities and adopt postures that could challenge the effectiveness of our deterrent. Simultaneously, the U.S. must continue to spearhead worldwide proliferation prevention initiatives, including enforcing the Iran nuclear agreement and leading efforts to take fissile materials off the global playing field."



William Tobey

Senior Fellow

"The new NPR returns to bipartisan verities held before the Obama administration—a threat-based approach to great power competition. Since the previous NPR was completed, we've come to understand better the threats posed by Russia, and potentially China. Where the new NPR advances policy, it sensibly responds to changed strategic circumstances; e.g. deploying a sea-launched nuclear cruise missile would address Russian violation of the INF Treaty and reassure our allies in the face of a growing DPRK threat."



Matthew Bunn

Professor of Practice

"There is little doubt that the United States needs to replace some of its aging nuclear systems if it is going to maintain a nuclear deterrent. But the notion that the world's most powerful country needs to spend more than \$1 trillion on thousands of nuclear weapons, including new types, for a vast array of missions, to assure its security and that of its allies is both dangerous and wrong. We need a broader public debate about how many nuclear weapons, of what kinds, in what postures, for what purposes, are needed for deterrence, and about how best to reduce the very real dangers of nuclear war."



Ash Carter

Belfer Center Director

"I stated when I was Secretary of Defense and continue to maintain that it is essential to recapitalize the



Science & Climate Impacts



Calling out Climate Contrarians: **John Holdren** delivers the keynote address at the 10th World Conference of Science Journalists.

"We have three options—mitigation, adaptation, and suffering. The amount of suffering in that mix can only be reduced by doing both a lot of mitigation and a lot of adaptation, and doing it starting now."

—John P. Holdren

Bridging Science and Societies

Climate contrarians continue to undermine the urgency of immediate climate action, particularly in the United States, despite increasing evidence of the devastating impacts of global climate change. **John P. Holdren**, co-director of the Belfer Center's Science, Technology, and Public Policy Program and former science advisor to President Obama, said in a keynote address to the 10th World Conference of Science Journalists 2017. The late fall conference attracted nearly 1,400 science journalists from 74 countries, the largest such gathering of its kind.

Holdren identified three classes of contrarians—deniers, wafflers, and advocates of surrender. The wafflers are the most dangerous, he said, because they seem the least unreasonable. They admit climate change is occurring but say it's unclear how much of it is due to human influences; that the damage is modest; that it may even be good for us; and that there is plenty of time of adapt.

These arguments are wrong on all counts, Holdren said. But such rhetoric can raise doubt and impede actions essential to mitigating climate change and adapting to its extreme impacts, which range from increasingly severe storms, floods, droughts, and diseases to rapid ice melt

and seawater rise, loss of species, and reduced productivity of farms, fisheries, and forests.

"We have three options—mitigation, adaptation, and suffering," Holdren said. "The amount of suffering in that mix can only be reduced by doing both a lot of mitigation and a lot of adaptation, and doing it starting now." Virtually all reputable studies, he added, "suggest that the economic damages from not adequately addressing climate change would far exceed the costs of adequately addressing it."

"Science journalists help societies understand... and that's why it's essential they do their jobs well."

—Cristine Russell

Holdren's comments underscored the important role the media can play in providing accurate and clear reporting on climate change and other critical science-related issues that can impact citizens regardless of where on earth they live. Holdren was invited to the global science journal-

ists' gathering by **Cristine Russell**, co-chair of the international organizing committee for the conference and a Senior Fellow with the Belfer Center's Environment and Natural Resources Program.

"Science journalists help societies understand and respond to natural and human-caused disasters, environmental changes and challenges, epidemics and pandemics, and technological disruptions—and that's why it's essential they do their jobs well," said Russell.

Under the theme "Bridging Science and Societies," the conference exposed participants to some of the world's top science journalists and practicing scientists, building take-home skills and knowledge to help ensure that news about science is intelligently conveyed to a global public no matter what barriers of culture, language, education, and politics stand in the way.

A long-time science journalist whose work with the Belfer Center focuses on improving media coverage of controversial scientific issues, Russell began working with the organizing committee three years ago to plan the six-day global conference, hosted by the United States for the first time. It was sponsored by the U.S. National Association of Science Writers and Council for the Advancement of Science Writing, working with the World Federation of Science Journalists and host campuses, the University of California, San Francisco, and UC Berkeley.

One of the most popular events was a luncheon for 600 attendees featuring three global women leaders in science and technology who offered personal and professional perspectives on the crucial role of women in science, technology, engineering, and mathematics (STEM). Moderated by Russell, the session, "Who Will Do Science? International Perspectives from Women in STEM Leadership," included presentations by The Honorable **Naledi Pandor**, South Africa's Minister of Science and Technology, Her Royal Highness Princess **Sumaya bint El Hassan** of Jordan, President of the Royal Scientific Society and a UNESCO Special Envoy for Science for Peace, and **Miyoko O. Watanabe**, Deputy Executive Director, Japan Science and Technology Agency.

For more information on the conference, see: <http://wcsj2017.org>



Power of Press: **Cristine Russell** introduces a Belfer Center seminar on media coverage of energy and environmental issues titled *Seismic Shift: Climate, Energy & the Media in the Age of Trump* (2017).

As Climate Change Upends the Arctic, Innovators Seek Solutions

by Jacob Carozza

Across the Arctic, rapid climate change is taking its toll. Melting ice and sea level rise are threatening entire communities. Areas rich in oil and gas are opening up to exploration, but the economic benefits often do not reach Arctic populations. For many, life in the Arctic is becoming more difficult each day.

The Arctic Initiative's **Arctic Innovators** program gives a select group of 14 Harvard Kennedy School students the opportunity to tackle these challenges. The students spent the fall semester developing ideas through sessions with Arctic leaders and experts at the Kennedy School. In October, they traveled to Iceland, where they met with the country's president and presented their work at the Arctic Circle Assembly.

The program is intended to bring more people into the dialogue about Arctic issues while also promoting innovation and entrepreneurship, said **Halla Hrund Logadóttir**, a Co-founder of the

Arctic Initiative and a fellow at the Belfer Center's Environment and Natural Resources Program.

"All the students have so much passion to really solve problems," she said. "We really want to do useful work that can help the Arctic make useful decisions."

Some of the students' proposals seek to utilize emerging technologies to meet the region's unique demands—drones that would monitor glacier ice melt and deliver essential goods like food and medical supplies to remote populations; a digital library that uses virtual reality to share and preserve food production skills.

Other ideas are focused on using the power of national and subnational governments, acting alone or together, to enact change in the Arctic. One idea would set up a fund for climate migrants by imposing a \$1 levy on plane tickets in and out of the Arctic.

At an event in November, the Innovators were challenged to condense a semester's worth of work into a two and a half minute pitch, with the audience and a panel of judges voting on the

best idea. The winner was **Gabrielle Scrimshaw**, who proposed an investment fund for ventures owned by indigenous people, primarily in the booming tourism industry in northern Canada.

Logadóttir is working on adapting the program into a course that will be available next fall. Students will again travel to Iceland and work on their own projects to solve the region's policy challenges.

Meanwhile, students from the initial program have continued their work individually this semester. *Arctic Today*, an online news source focused on Arctic issues, is publishing op-eds written by each student.

Mehak Sethi has been meeting with people involved in Arctic institutions about her proposal for an Arctic Free Trade Agreement. The Arctic Circle Assembly was crucial to developing her idea, she said.

"It was incredible to see my proposal actually pick up steam among key stakeholders. I am excited to see where this unique opportunity leads me!" she said.



Winning Proposal: **Gabrielle Scrimshaw** speaks at the first Arctic Innovators student competition titled, "14 Ideas for a Sustainable, Secure Arctic," an event sponsored by the Arctic Initiative.

President of Iceland: Small Country, Large Impact



Northern Exposure: Icelandic President **Guðni Th. Jóhannesson** walks through Harvard Kennedy School with Belfer Center Co-Director **Eric Rosenbach**.

How can themes from Iceland's Cod Wars with the United Kingdom help us increase collaboration in the Arctic? How can small countries, like Iceland, make a global impact?

These were key questions H.E. **Guðni Th. Jóhannesson**, President of Iceland, discussed during his visit to Harvard Kennedy School in January that attracted more than 1,000 students and faculty.

The President's visit was co-hosted by the Belfer Center's new Arctic Initiative, which aims to shape Arctic-related policymaking through promoting research, dialogues and education. Before the public address, the President engaged in a discussion with Dean **Douglas Elmendorf**, Belfer Center Co-Director **Eric Rosenbach**, and the founders of the Arctic Initiative **John Holdren**, **Henry Lee**, and **Halla Hrund Logadóttir**.

The President's message was simple. Iceland has punched above its weight in many

ways: creative resistance during the Cod Wars; strengthening Arctic dialogue internationally; and even making it to the World Cup in football. He demonstrated that small states that aim to have international influence must be humble, extremely knowledgeable, self-critical, and willing to innovate.

Regarding the Arctic, the President insisted that "environmental concerns should come first." He also elaborated on Iceland's comparative advantage when it comes to familiarity with the ocean. As a country that relied on it for centuries, he explained the need to safeguard the ocean ecosystem from increasing pollution.

Next year, Iceland will take on the chairmanship of the Arctic Council and continue to punch above its weight by facilitating sustainable policies in the constantly changing Arctic region.

CELEBRATING CALESTOUS JUMA

Calestous Juma died on December 15 following a long battle with cancer. He was Professor of the Practice of International Development at Harvard Kennedy School and Director of the Belfer Center's Science, Technology, and Globalization Project. He also directed the Center's Agricultural Innovation Policy in Africa and Health Innovation Policy in Africa projects, and he taught highly popular executive education courses on innovation, technology, and entrepreneurship.

When **Calestous Juma** passed away in December, heartfelt tributes poured in from heads of state and global NGOs, from government officials and scientific organizations, from fellow professors, students, and colleagues, and from readers of his Twitter posts who had never met him. (See page 9.)

Juma was a global renaissance man of science and technology: an elected member of the Royal Society of London, the U.S. National Academy of Sciences, the World Academy of Sciences, the UK Royal Academy of Engineering, and the African Academy of Sciences.

Growing up on the shores of Kenya's Lake Victoria in a remote village that often flooded, Juma learned early about challenges, resilience, and innovation.

"The family kept getting pushed out of their home and then trying to go back," his widow, **Alison Field-Juma**, told *The New York Times*. "So there

was this sort of constant change in his environment....They were forced to innovate. Both his parents were real innovators. I think that's where that spirit comes from."

Throughout his life, Juma worked to innovate, fix, and improve life in Africa and around the world.

As a young teacher in Mombasa, Juma sent so many letters to the *Daily Nation* that they hired him as their first science correspondent. Later, he earned a masters and then a doctorate from Sussex University, moved back to Kenya and founded the African Centre for Technology Studies—bringing researchers and policymakers together. Known for his groundbreaking research on biological diversity, Juma became Executive Secretary of the United Nations Convention on Biological Diversity and helped pave the way for a UN treaty signed by more than 150 governments in 1992 to protect the survival of diverse species and ecosystems.

"Calestous was just a wonderful colleague—warm, ever upbeat and enthusiastic, always ready to consider seriously the views of others, always looking for ways to contribute to the Center, the School, and the world."

—William Clark, John Holdren, Venky Narayanamurti, and Dan Schrag



Observing tissue propagation of bananas at a genetic technology lab in Nairobi (2008).

Juma worked tirelessly to better leverage scientific and technological knowledge for communities around the world, from STEM education and agricultural innovation to 3D printing and mobile cook stoves. With his help, Kenya became one of the first countries to use smartphones for money transfer, and herders in Somalia exchanged and tracked their goats by painting them with their mobile numbers. He was also a principal drafter of the Kenyan intellectual property law. In his book *The New Harvest*, he wrote that Africa—a reservoir of biodiversity well-adapted to arid conditions—could help feed the world despite climate change.

Always in tune with current challenges and opportunities, Juma's 2016 book *Innovation and Its Enemies* reminds us that fights over technology are hardly new, chronicling a recurring pattern of public skepticism and social adjustment. Using new technology himself, he amassed more than 100,000 Twitter followers. His former project coordinator, **Katherine Gordon**, said Juma loved using both Twitter and humor to connect with and share his research with the world.

William Clark, John Holdren, Venky Narayanamurti, and Dan

"Once in a while, humankind gets blessed with prodigious talents to light the world and dispel darkness. Such was Professor Calestous Juma."

—Sindiso Ngwenya
Secretary General, COMESA

Schrag, Juma's science and technology colleagues at the Kennedy School, wrote that he brought to their work together "a first-class mind, a deeply informed focus on some of the most important issues at the intersection of science and technology with development and sustainability, an admirable commitment to teaching and advising, a mind-boggling work ethic, and his exceptional standing as a global public intellectual."

"He was also just a wonderful colleague," they said, "warm, ever upbeat and enthusiastic, always ready to consider seriously the views of others, always looking for ways to contribute to the Center, the School, and the world."

For more tributes and information, see belfercenter.org/Calestous



With **John Holdren**, former science advisor to President Obama, at a Belfer Center seminar to discuss Juma's newest book, *Innovation and its Enemies* (October 2017).

"Once in a while, humankind gets blessed with prodigious talents to light the world and dispel darkness. Civilizations and breakthroughs in human history have arisen from such gifted people. Such was Professor Calestous Juma."

—**Sindiso Ngwenya**
Secretary General, COMESA

"His clear-eyed devotion to innovation is now more important than it was when he began his career—and this is something we can all learn from him."

—**Uhuru Kenyatta**
President of Kenya

"Saddened about the loss of a great man and scholar, Calestous Juma."

—**Al Gore**
former U.S. Vice President

"We have lost a brilliant mind who was dedicated to innovation, education and Africa's prosperity."

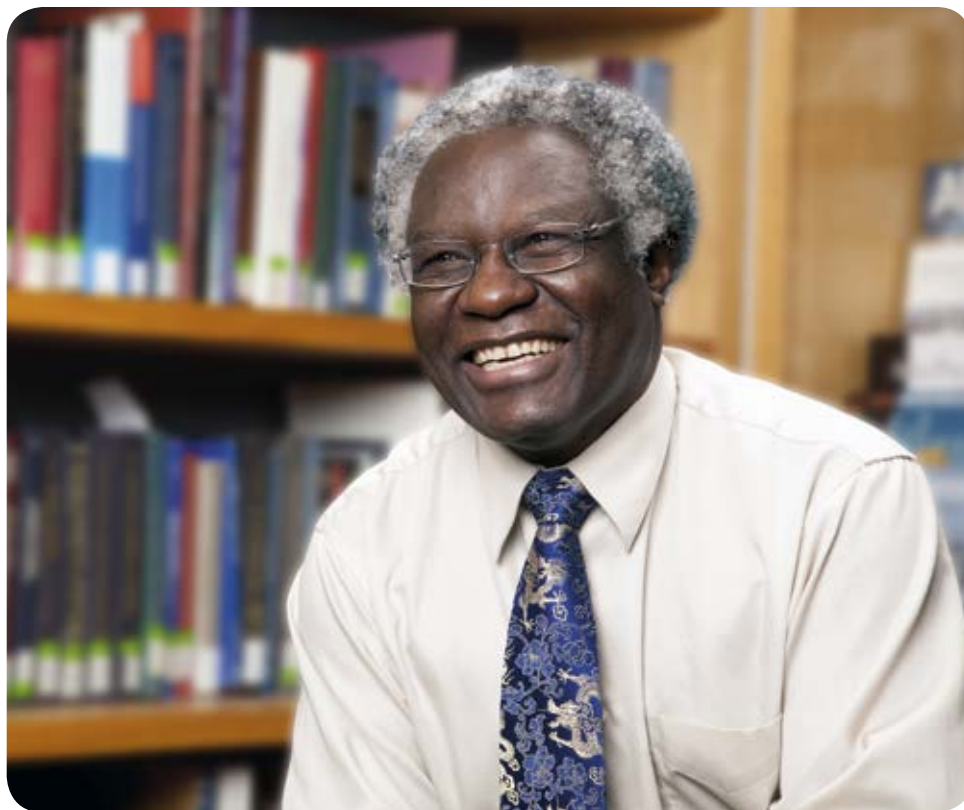
—**Paul Kagame**
President of Rwanda

"Always a voice to be listened to on science, technology, & sustainable development."

—**Helen Clark**
former Prime Minister, New Zealand

"I never knew what to expect when I answered the phone: sometimes he would be calling to tell me a funny story; other times to tell me to come meet the former Prime Minister of Kenya. He was much more than a boss—he was like family to me."

—**Katherine Gordon**
former Project Coordinator



MARTHA STEWART

"[Prof. Juma] was an inspiration to young graduate students ... We loved his humor, curiosity & optimism."

—**Subhash Ghimire**
former Harvard Kennedy School student

"A world class mind, a fountain of knowledge, an inspiration, a rare gentleman. Africa has lost one of its best intellectual minds on the global stage. RIP"

—**Akinwumi A. Adesina**
President, African Development Bank



"From the time I met him in 2010, he gave so much to me and to Nigerians. He was a true African Patriot....He advised me when we confronted the Ebola virus. The establishment of the Lagos Innovation Advisory Council was informed by his idea. His thoughts on agriculture and farming were most helpful in shaping our state agro policy."

—**Babatunde Raji Fashola**
Nigerian Minister of Works, Power and Housing

"Thank you for all you did to make the world a better place; thank you for caring and doing so much for the less fortunate. I was deeply honored to know you."

—**Mark Tercek**
CEO, The Nature Conservancy

"A brilliant analyst and advocate of innovation to improve human life all over the world."

—**Steven Pinker**
Johnstone Family Professor of Psychology at Harvard University

"A passionate advocate of innovation, Prof. Juma believed that biotechnology particularly had the potential to spur a green revolution in Africa similar to the one that helped contain acute famines in Asia in the 1960s."

—**C.S. Prakash**
Dean, College of Arts and Sciences;
Professor of Plant and Soil Science, Tuskegee University



With Queen Elizabeth II at Buckingham Palace to judge the first Queen Elizabeth Prize for Engineering competition (2013).

H.M. THE QUEEN AND BRITISH CEREMONIAL ARTS, LTD.



Receiving an honorary degree from Jomo Kenyatta University of Agriculture and Technology, prior to addressing the graduating class (2012).

JOMO KENYATTA UNIVERSITY



SGT. AMBER L. SMITH / DOD

Official Image: Former Secretary of Defense and current Belfer Center Director **Ash Carter** (right) was joined by Secretary of Defense **James N. Mattis** for a ceremony in the Pentagon to unveil Carter's official portrait. America's 25th Secretary of Defense, Carter was recognized for 35 years of extraordinary service to the nation.



Democracy Dilemmas: **Donna Brazile**, former Interim Chair of the Democratic National Committee and a Harvard Kennedy School Shorenstein Fellow, speaks at a Belfer Center director's lunch on the question "Can American Democracy Survive Hyper Partisan Polarization, Rising Extremism and Voter Suppression?" **John Deutch** (left), a member of the Center's Board of Directors, took part in the discussion.



GAIL OSKIN

Rapid Response: **Juliette Kayyem**, Director of the Center's Homeland Security Project, talks with former Department of Homeland Security Director **Jeh Johnson** (right) in February before the JFK Jr. Forum "Lessons Learned from 2017 Crisis Response." The panel included ThinkThrough Group's **José Andrés** (left), Walmart's **Jason Jackson**, and Red Cross's **Brad Kieserman**.



MARTHA STEWART

Palestinian Perspective: **Salam Fayyad**, Palestinian Authority Prime Minister (2007-2013) and Middle East Initiative Senior Fellow, speaks with students following his JFK Jr. Forum address in February. He discussed the proposition of a two-state solution in the region and the need for Palestinian unity and for Palestinians to understand and conform to international norms.



MARTHA STEWART

AI Issues: **Jason Matheny** (right), Director of the Intelligence Advanced Research Projects Activity (IARPA), speaks at a JFK Jr. Forum on "The Public Policy Challenges of Artificial Intelligence." He and Belfer Center Co-Director **Eric Rosenbach** discussed enhanced intelligence capabilities presented by the AI in the intelligence field and possibilities and dangers created by AI-controlled weapons systems.



Advising the President: **Susan Rice**, former National Security Advisor to President Obama and current Belfer Center non-resident Senior Fellow, speaks with students and fellows about her responsibilities in the White House and about security challenges facing the United States during that time and now. Her duties included providing daily national security briefings to the president.

er in Action



Cartoons and Climate: Pulitzer Prize-winning political cartoonist **Tom Toles** (right) and Award-winning climate scientist **Michael E. Mann** discuss their collaborative book, *The Madhouse Effect*, during an Environment and Natural Resources Program event co-sponsored by the Shorenstein Center. The book uses satire to explore climate change denial in the face of overwhelming scientific consensus.



MARTHA STEWART

Financial Future: Former Secretary of Commerce **Penny Pritzker**, who currently heads PSP Capital, speaks with Professor **Nicholas Burns**, Faculty Director of the Belfer Center's Future of Diplomacy Project, during a JFK Jr. Forum. The discussion focused on global economic challenges and issues facing the U.S., such as trade agreements and employment.



Regional Relationships: India Air Force Air Vice-Marshal (ret) **Arjun Subramaniam**, Visiting Fellow at the Harvard Asia Center, and Non-Resident Senior Fellow at the Mitchell Institute of Aerospace Power Studies, speaks on the evolving India-China relationship during a Future of Diplomacy Project seminar moderated by **Nicholas Burns**.



Defense Dialogue: Chairman of the Joint Chiefs of Staff General **Joseph Dunford** speaks about defense-related issues during a discussion with students and fellows at a seminar hosted by the Belfer Center's Defense Project. Major General (ret) **William Rapp** (right), Director of the Defense Project, introduced Gen. Dunford and moderated the discussion.



Technology for Good: **Helen Grenier**, iRobot and CyPhy founder, speaks during a Belfer Center Technology and Public Policy Project event with area technology leaders. **Ash Carter** (right) and Mossavar-Rahmani Center for Business and Government Director **Lawrence Summers** (not pictured) co-hosted the event with area technology experts, including Harvard Professor **Lawrence Katz** (left).



Innovation Models: **Eric Lander**, Founding Director of the MIT/Harvard Broad Institute and a leader of the international Human Genome Project, speaks at a Center board of directors lunch about current opportunities and challenges in science, technology, and innovation. Attendees included Science, Technology, and Public Policy Co-Director **Dan Schrag** (left).



Finding Commonality: Ambassador **Douglas Lute** (2nd from right) and BG **Kevin Ryan** (right) confer with Russian General **Anatoly Kulikov** during a break in their conference at the Russian General Staff Academy. Also pictured (left to right): Russian Elbe Group Executive Director Mr. **Victor Kulikov** and interpreter Ms. **Elena Mareeva** (interpreter).

U.S.-Russia Relations: Differences and a Point of Agreement

Lieutenant General (ret) **Douglas Lute**, former U.S. NATO Ambassador and a Belfer Center Senior Fellow, and Brigadier General (ret) **Kevin Ryan**, Belfer Center Associate and founder of the U.S.-Russia **Elbe Group**, traveled to Moscow in late fall to participate in a conference on U.S.-Russia Relations hosted by the Club of Military Leaders at the Russian General Staff Academy. The conference participants discussed the state of relations between the two countries and explored ways forward.

General **Sergei Chvarkov**; former MoD Director of International Relations General **Leonid Ivashov**; and Director of Social-Political Research Institute at the Academy of Sciences **Gennady Osipov**, in addition to Kulikov, Lute, and Ryan.

“One cannot overstate the depth to which the different understandings about the events of the past 27 years have created different interpretations of how the U.S. and Russia got to their current relationship,” Ryan said in his report on the conference. “While

Former Foreign Minister Ivanov called them “economic warfare.”

In their presentations, Ryan and Lute rebutted what they saw as the Russians’ misinterpretation of facts and discussed events of the past 27 years, which differed from Russian themes of subjugation and betrayal by the West. Lute emphasized examples in which the U.S. and Russia cooperated on security threats like Bosnia, terrorism, nuclear security, and even Kosovo after an initial testy period.



Open Exchange: General of the Army and senior Russian member of the Elbe Group **Anatoly Kulikov** (left) in Moscow with Ambassador **Douglas Lute**.

One point on which both U.S. and Russian speakers agreed is the necessity for mechanisms of military to military contact to reduce the risk of an accidental war.

the American speakers recalled a relationship which began with part-

nership and after Crimea eroded into a break in relations, the Russian speakers largely presented a history in which the U.S. had continuously meddled in Russian affairs and sought to prevent any return of Russia as a world power.

The Russian speakers’ views were largely in synch with those expressed by President Putin: The West—U.S. and NATO in particular—has taken advantage of Russia in its weakened state since the Cold War and sought to keep Russia from returning to the status of a “world power.” The U.S. has sought to destabilize Russia like it sought to destabilize other countries through color revolutions and promotion of “so-called” democracies. The latest example of this effort are the economic sanctions levied against Russia.

The Moscow conference, “Russia-USA: Prospects for Mutual Relations: Enemies, Partners, or Allies,” included about 100 retired three- and four-star generals and about 50 active duty colonels and officer-professors from the academy who are studying for a year before becoming the Russian military’s future flag officers. Lute and Ryan, whose presentations were part of the 2017 Elbe Group exchanges, were the only U.S. participants and the only foreign attendees. The host, General **Anatoly Kulikov**, former Minister of Internal Affairs and the senior Russian member of the Elbe Group, gave introductory and closing remarks.

Speakers at the conference included former Minister of Foreign Affairs **Igor Ivanov**; Deputy Commander of the Russian General Staff Academy

One point on which both U.S. and Russian speakers agreed is the necessity for mechanisms of military to military contact to reduce the risk of an accidental war. This, they agreed, would allow political leaders to more quickly and more reliably determine the facts of any surge in military activity or circumstances of any accidental clash between forces operating in close proximity.

Ryan and Lute met with new U.S. Ambassador to Russia **Jon Huntsman Jr.** before the conference and with new Ambassador to NATO **Kay Bailey Hutchison**, afterward. During discussions with Hutchison and NATO Secretary General **Jens Stoltenberg**, they also emphasized the need for direct military-to-military contact between the U.S. and Russia to avoid an accident escalating into unwanted war.

Based on a report by Kevin Ryan.



Where Climate, Security, and Development Meet

by Josh Burek

For Halla Hrund Logadóttir, the challenges posed by rapid climate change in the Arctic truly hit home. Growing up on her grandparents' sheep farm in Iceland, Logadóttir could see the crags of a massive glacier on the horizon. While sheep grazed on sloping volcanic fields of emerald green grass, she learned to drive tractors and fix engines. Today, she's using that hands-on experience to protect the world's most fragile ecosystem.

The Arctic, according to Logadóttir, has a reverse Las Vegas problem: what happens there does *not* stay there. While the harmful impacts of climate change are felt first and most acutely in the Arctic region, the consequences—from melting ice caps to spoiled ecosystems—quickly spill over into the rest of the globe. Making wise policy decisions now, however, could not only mitigate the risk of environmental harm but also set the stage for sustainable economic development that helps indigenous populations.

Convening industrial leaders, diplomats, scientists, and environmentalists to craft such policies is the mission of the Belfer Center's Arctic Initiative, which John Holdren and Henry Lee co-founded and lead along with Logadóttir.

"I want to make sure that we're making the right decisions now so we won't have regrets in the future."

"I've always had this strong feeling of wanting to do something good for my country and its region," she says. "I want to make sure that we're making the right decisions now so we won't have regrets in the future....My heart is in this!"

Earlier, Logadóttir was a Director of Iceland School of Energy at Reykjavík University in Iceland and an advisor on energy and Arctic issues to some of the country's top leaders.

Many people think of the Arctic as a remote, pristine area disconnected from the rest of the world. But Logadóttir points out the importance of the Arctic with a map that puts the North Pole in the middle. "It's funny how our world view is set based on a traditional map. But this area is such a big part of our planet."

Melting ice caps from climate change could generate a host of new problems—and unexpected opportunities. From rising seas and new international

MATS WIBE LUND



Back Home: A view of Logadóttir's family farm in Iceland.

trade routes to energy extraction and food production, a changing Arctic won't just redraw the map; it will change the trajectory of human development in the 21st century.

"You might just think of a polar bear way up there and it doesn't seem so relevant, but an ice-free Arctic would have massive consequences for international security, global weather patterns, and the livelihood of millions."

One of the Arctic Initiative's top priorities is developing environmentally sensitive policies that address challenges in the fast-changing region and advance the well-being of indigenous populations. Logadóttir is proud of the creative plans that HKS students affiliated with the Initiative have developed this year to strike that balance.

"You can see these 14 students working on different ideas for the Arctic," she says. "If you look at what they have managed to achieve over a short period, it gives me hope that we can solve some of these issues. We've managed to set a very collaborative tone. We aren't just doing research; we're also contributing solutions on policy issues through social innovation."

Just as Iceland is a unique convergence of fire and ice, volcanoes and glaciers, climate risk and opportunity, Logadóttir says the Arctic Initiative is a microcosm of the Belfer Center: different scholarly domains converging for the sake of a more secure, peaceful world.

"We aren't just doing research; we're also contributing solutions on policy issues."

"No one 100 years from now wants to be known for making terrible decisions," she says. "Deep down inside, everyone wants to build a sustainable future. We have a unique opportunity at HKS to help make that happen."





Innovation Experimentation: Then-Secretary of Defense **Ash Carter** speaks with Defense Innovation Unit Experimental employees as he arrives at Moffett Field, Calif., May 11, 2016.

Technological Change and Opportunity— with Civic Responsibility

by **Ash Carter**

When I began my career in elementary particle physics, the great figures who taught and inspired me had been part of the Manhattan Project generation that developed the atomic bomb. They were proud to have created a “disruptive” technology that ended World War II and deterred a third world war. But their understanding of the technology also gave them a deep regard for the awesome risks that came with those technologies.

As a consequence, they dedicated themselves to inventing, in parallel, the technologies behind arms control and nuclear reactor safety. By working on both the bright opportunities and the complex dilemmas of nuclear technology, these scientists tried to round out its effect on humanity.

Technologists in my generation understood that we had an obligation to use our knowledge to steer technology in the direction of public good. It’s obvious that technologists today have the same obligation, and also that society is in need of practical, analytically-driven solutions to the problems that arise from fast-paced technological change.

When I was Secretary of Defense, a priority of mine was to address this issue in defense by building bridges between the Pentagon and the tech community. But defense is far from the only area where the public interest sorely needs the input of technical people. The Internet and social media have also created new opportunities for hostility, lies, and isolation. Automation will eliminate the jobs of millions of people, while new jobs

will require retraining. The biotech revolution of coming decades will be even more consequential than the digital revolution.

The biotech revolution of coming decades will be even more consequential than the digital revolution.

Solutions to problems like these will emerge only if the new generation of young tech innovators is encouraged and inspired to assume the civic responsibilities that come with creating changes of great consequence.

This is a brief excerpt from Carter’s *MIT Technology Review* article, “What I Learned from the People Who Built the Atom Bomb,” technologyreview.com/s/609557.

One Year into Trump Term: Bets Won and Lost

What happened in the world during the first year of the Trump presidency? Yogi Berra warned against making bets—especially about the future. Nevertheless, because the real world offers no opportunity to opt out, the Belfer Center—in collaboration with *POLITICO Magazine*—invited readers in January 2017 to summon their courage and register their bets for 2017. The deadline for placing “bets” was February 7, 2017.

More than 1,100 people took part in the contest, suggested by the Center’s **Graham Allison**. The tallies are charted on the Center website at belfercenter.org/bets2017.

Along with each question, you can view the correct answers with a breakdown of how the respondents answered, and you can read some of the most noteworthy reasoning we received.

We are pleased to announce our two winners: **Ralph Melcher** of Santa Fe, New Mexico, and **Paul Schrager** of Sudbury, Massachusetts. Each answered 15 out of 20 questions correctly. Both winners will receive \$500 and a signed copy of Graham Allison’s book *Destined for War: Can America and China Escape Thucydides’s Trap?*

Congratulations, Paul and Ralph, and thanks to all who placed bets!

Sample Questions from the Poll:

6. Russia: Assessed from the perspective of American national interests, relations with Russia will be:

- [a] Substantially better than they were in the last 2 years of the Obama administration (32% of responses)
- [b] Substantially worse (26%)
- [c] About the same (43%)

13. Deportations: In year one, the Trump administration will deport ___ undocumented immigrants:

- [a] Fewer than 100,000 (37%)
- [b] 100,000-500,000 (42%)
- [c] ½ to 1 million (16%)
- [d] More than 1 million (5%)

15. Iran: Obama’s signature nuclear agreement with Iran will be:

- [a] Overturned by Trump (34%)
- [b] Canceled by Iran (18%)
- [c] Maintained despite additional U.S. sanctions (48%)



AI Pros and Cons: **Tom Corn** of VMware, gestures during a discussion on the impact of machine learning on cybersecurity. Panelists also included (from left) moderator **Sameer Bhalotra** of StackRox, **Jennifer Lin** of Google, and **Dan Chenok** of IBM Center for the Business of Government.

Cyber Security Project Launches Initiative on Artificial Intelligence and Machine Learning

by **Mari Dugas**

In keeping with the Belfer Center's mandate on science and international affairs, the Cyber Security Project has launched a new research initiative on Artificial Intelligence (AI) and Machine Learning (ML) and their implications for cybersecurity. Led by **Michael Sulmeyer**, Director of the Cyber Security Project, the initiative explores themes of conflict in cyberspace. Both AI and ML will play a growing role in national defense and security. Cyber Security Project fellow **Ben Buchanan** began the focus on AI and ML with his June 2017 Belfer Center Report, "Machine Learning for Policy Makers."

To kick off the next wave of the AI and ML initiative, the Cyber Security Project in February hosted an expert panel on the implications of machine learning for cybersecurity. Headed by **Sameer Bhalotra**, CEO of StackRox and former Senior Director for Cyber Security at the White House, the panel brought together experts from Silicon Valley to offer the tech perspective on machine learning. **Jennifer Lin** (Director, Product Management at Google), **Dan Chenok** (Executive Director of the IBM Center for The Business of Government), and **Tom Corn** (Senior Vice President and General Manager of Security Products at VMware) offered

their thoughts on the threats from machine learning, current cybersecurity challenges as a result, and some of the policy questions stemming from this technology.

Center Director **Ash Carter** opened the panel in front of a robust audience of faculty, fellows, and students from Harvard Kennedy School and other Boston universities. The panelists encouraged transparency of ML research and software and grappled with the question of how humans and machines can work together in the field of national security and defense.

Both AI and ML will play a growing role in national defense and security.

Also in February, the Belfer Center co-sponsored a JFK Jr. Forum with **Jason Matheny**, Director of Intelligence Advanced Research Projects Activity (IARPA), on the public policy challenges of AI.

In the coming months, the Cyber Security Project will also publish a new research agenda on the role of AI in national defense.



Strategic Listening: Deputy National Security Advisor **Dina Powell** (right), in a meeting with Saudi Arabia's Deputy Crown Prince **Mohammed bin Salman** (not pictured), in Riyadh, Saudi Arabia, along with U.S. Defense Secretary **James Mattis** (center) and U.S. Embassy Charge d'Affaires **Christopher Henzel** in April 2017.

Dina Powell Joins as Senior Fellow

Center Also Welcomes New International Council Members and Staff

Dina Habib Powell, President Trump's former Deputy National Security Advisor for Strategy, has been named a Senior Fellow with the Center's Future of Diplomacy Project.

Powell will share her expertise on American foreign policy, the Middle East, and international politics with Kennedy School students, faculty, and fellows in seminars, study groups, and meetings on campus during the coming year. She will also contribute to the Future of Diplomacy Project's objective of advancing the critical importance of diplomacy, addressing national security threats, and focusing on negotiations in international politics today. In addition, she will work with the Kennedy School's Center for Public Leadership.

"Dina Powell is one of our country's finest public servants," said **Nicholas Burns**, Faculty Director of the Future of Diplomacy Project. "She was a key figure in the Trump administration's Middle East policy and other leading issues and brings extensive experience from her service in the George W. Bush administration."

Prior to joining the Trump Administration, Powell spent over a decade at Goldman Sachs where she was a partner and served as global head of the firm's impact investment business.

The Belfer Center is also pleased to welcome several new members of its International Council:

- **Dave DeWalt** has been a CEO in the technology industry for 17 years, most recently with FireEye, McAfee, and EMC.
- **Steve Loughlin**, a partner in Accel Partners, previously headed the internal Artificial Intelligence initiative at Salesforce.
- **Steven R. Perles** is founder of the Perles Law Firm, PC.
- **Chuck Robbins** is Chairman and CEO of Cisco.
- **Paul Tramantano** is a Senior Managing Director and Wealth Manager at First Republic Investment Management.

We also are pleased to be joined by new Center staff members:

Bogdan Belei and **Joy Li**, Research Assistants for Center Director **Ash Carter**; **Julie Gardella**, Staff Assistant for the Environment and Natural Resources Program; **Erika Manouselis**, Project Assistant for the Future of Diplomacy Project; and **Rose Garcia**, Staff Assistant for Executive Director for Research **Gary Samore**.

Featured Fellows



Middle East Initiative

Jonas Bergan Draege

Protests and Party Politics on the Ground in Turkey

by Jacob Carozza

Though he was raised in a small town in the west of Norway, **Jonas Bergan Draege** has always had the Middle East on his mind.

The postdoctoral fellow at the Belfer Center's Middle East Initiative traveled to the region as a young boy with his father, a librarian who worked on restoration projects in Egypt and Gaza. Draege spent further time in the Middle East during the Arab Spring, interning at the Norwegian embassy in Jordan and working as a translator in Syria for a news organization based in Lebanon.

When his PhD program began at the European University Institute about two years later, millions of Turks were taking to the streets to protest the increasingly authoritarian government of President Recep Tayyip Erdoğan, in what would be dubbed the Gezi Park protests.

"Suddenly you had a more visible—at least to outsiders—reaction to frightening tendencies in the Turkish government," Draege said.

Draege's research focuses on the reactions of Turkish political parties to the protests. He examined countless hours of speeches in parliament, looked at budget data, and spoke with contacts in Turkish institutions. He found that the main opposition parties have largely co-opted the rhetoric of the protests, but missed their window of opportunity to force real policy change. Erdoğan's repression of political freedoms has since accelerated.

"This is a prime example of a reaction to democratic backsliding."

"I think this is a prime example of a reaction to democratic backsliding," Draege said. "And I think this has lessons for not only a country of 81 million people, but also for a large number of countries in the world that are now experiencing the same kind of democratic backsliding."

At the Middle East Initiative, Draege is expanding his work into a book, and plans to return to Turkey in late March for more on-the-ground research.

He also plans to teach this summer at the University of Oslo, his alma mater, and record new episodes of his Norwegian-language social science podcast "Politikk og Røvere" ("Politics and Robbers").

Draege's fellowship at the Middle East Initiative ends in June. He praised the initiative's approach to political science, which he said emphasizes systematic collection and thorough examination of data.

"I'm so happy to be at the Middle East Initiative," Draege said. "You have some of the best researchers in political science in the Middle East based there, in the immediate vicinity but also at the initiative itself."



Project on Managing the Atom/International Security Program

Mahsa Rouhi

Understanding Iran, from the Inside and Out

by Celia Carbone

Mahsa Rouhi's research bridges the academic and policy worlds on nuclear and international security issues in the Middle East. Having grown up in Iran, she brings a unique perspective to her work.

Rouhi was raised in Tehran, the country's capital. Her parents converted their home into a private elementary school and she envisioned herself returning to help pioneer innovative education systems. Her years spent in the United Kingdom and United States at university sparked her interest in international relations.

Rouhi joined the Project on Managing the Atom as an intern in 2008 followed by an internship at Harvard Law School. She returned in the 2010-2011 academic year as a predoctoral Stanton Nuclear Security Fellow. Rouhi is currently a postdoctoral Research Fellow at the International Security Program and Project on Managing the Atom.

"I want to be able to point my readers to something they have been missing."

"The most difficult part was to separate my feelings towards Iran as my country and my home from an objective academic analysis of the situation," Rouhi said.

Rouhi believes the insights she gained from living in Iran and studying at a leading university add depth to her work and a deeper understanding of the region and issues of concern internationally.

"What I always hope to have is an impact," she said. "I want to be able to point my readers to something they have been missing or misinterpreting, for example, when they read about Iran's nuclear program."

Political and social issues regarding Iran are often misinterpreted by the media and reinforce negativity about the country, Rouhi said. Growing up and studying in post-revolutionary Iran informs her on-the-ground research and allows her to present a different perspective. At the Belfer Center, she has been working to make her academic work and writing more accessible to policymakers and to a general readership in the United States and Iran.

Rouhi shares her research and ideas with policymakers, including the Iranian ambassador to the United Nations and Iranian Foreign Minister Mohammad Javad Zarif. She hopes she can draw upon these relationships to facilitate an ongoing dialogue between Iranian experts and U.S. experts at the Belfer Center.

Remembering Chuck Cogan

MARTHA STEWART



Chuck Cogan with former CNN foreign affairs commentator Jill Dougherty and the Belfer Center's Kevin Ryan following a JFK Jr. Forum on Russian politics in 2014.



Project on Managing the Atom/International Security Program

Elmar Hellendoorn

U.S. Nuclear Strategy and the Protection of Europe

by Jonathan Edel

While his grammar school classmates gleefully followed sports cars and soccer stars, **Elmar Hellendoorn** would get excited about the newest airplanes and tanks. No surprise, growing up next to a U.S. airbase in Soesterberg, Netherlands. “F-15s were always flying over and as a young kid you would stand on a hill so you could see the planes taking off,” he recalled.

“I was very consciously living the last days of the Cold War—I felt it,” says Hellendoorn. He remembers the excitement of running into the kitchen as a five-year old in 1989, yelling “Mom, mom, people on TV are saying the Wall has fallen!”

With the Cold War over and the former Soviet Union cooperating with the West to secure its nuclear arms, it was easy to see nuclear strategy as a declining priority. “For many years there was a lot of optimism about nuclear disarmament,” Hellendoorn said.

The euphoria over the supposed “end of history,” however, did not take into account the post-Cold War reality of a more diverse global nuclear landscape.

With a more crowded nuclear playing field, there are new threats and dynamics. In Hellendoorn’s words, “many of the basic premises of deterrence are still very actual, but the context has changed massively.”

As a post-doc Research Fellow at the Project on Managing the Atom/International Security Program, Hellendoorn explores this new landscape with a focus on European policy. “Europeans are pondering whether they can always trust the U.S. to use nuclear weapons for the defense of Western Europe, even if that’s going to cost the destruction of U.S. cities,” Hellendoorn said.

With his research on the early days of NATO, Hellendoorn examines how Europe and the U.S. approached this question in the 1950s and 60s. He explains that at the time, the thinking in the U.S. was that “If Europe were lost to the Soviets, then the entire Cold War might be lost.”

With the end of the Cold War, the U.S. pivot to Asia, and the Trump presidency, some observers believe that the U.S. may no longer consider protecting Europe a vital interest. Hellendoorn is also examining the history of European-U.S. nuclear cooperation because “You see parallels with the contemporary situation.”

“Many of the basic premises of deterrence are still very actual, but the context has changed massively.”

by Susan Lynch

Dr. Charles G. “Chuck” Cogan, an International Security Program (ISP) Associate since 2006, died peacefully in his sleep on December 14, 2017 at his home in Cambridge, Massachusetts. His ninetieth birthday would have been in January 2018.

Cogan was a frequent participant over the years in ISP seminars and other Center events, contributing his insights and anecdotes from his long career as a Central Intelligence Agency (CIA) officer and his subsequent career as a historian.

Professor **Stephen Walt**, ISP Faculty Chair, offers this remembrance: “Chuck Cogan was a wonderful colleague and a great asset for the International Security Program. He was a true patriot and distinguished public servant, as well as a genuine intellectual with a deep appreciation of other cultures. Most of all he was a man of great integrity, who did not trim his views to fit today’s fashions and always told you exactly what he thought. I will miss his sharp insights and warm good humor.”

After graduating from Harvard College in 1949 with B.A. in History, *Magna Cum Laude*, Cogan worked as a journalist before serving as a Second Lieutenant in the U.S. Army

Signal Corps during the Korean War. In 1954, he joined the CIA where he had overseas tours in Asia, Africa, and Europe; his last overseas posting was in Paris from 1984–1989, where he was station chief.

“Chuck Cogan was a wonderful colleague and a great asset for the International Security Program.... He was a man of great integrity, who did not trim his views to fit today’s fashions.”

—Stephen Walt

Cogan came to the Kennedy School initially as a Senior Research Fellow with the Intelligence and Policy Program.

After retiring from the CIA in 1991, Cogan earned a Doctor of Public Administration degree from the Kennedy School. His doctoral dissertation was published as his first book, *Oldest Allies, Guarded Friends: the United States and France Since 1940*, (Praeger, 1994).

Cogan would publish seven more books, in English and French, in the subsequent years.

Hot off the Presses



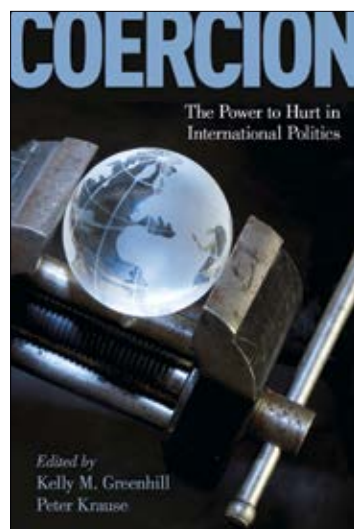
Israeli National Security: A New Strategy for an Era of Change

By **Charles D. Freilich**, Senior Fellow,
International Security Program
Oxford University Press (March 2018)

In *Israeli National Security*, Chuck Freilich presents an authoritative analysis of the military, diplomatic, demographic, and societal challenges Israel faces today, to propose a comprehensive and long-term Israeli national security strategy. The heart of the new strategy places greater emphasis on restraint, defense, and diplomacy as means of addressing the challenges Israel faces, along with the military capacity to deter and, if necessary, defeat Israel's adversaries, while also maintaining the resolve of its society. By bringing Israel's most critical debates about the Palestinians, demography, Iran, Hezbollah, Hamas, U.S. relations, and nuclear strategy into sharp focus, the strategy Freilich proposes addresses the primary challenges Israel must address in order to chart its national course.

"A must read, an exhaustive and ground-breaking study of Israel's national security. Building on an extensive analysis of the threats Israel faces today, and its capabilities for dealing with them, Freilich proposes a comprehensive new national security strategy. It will inform public and expert debate for many years to come."

—**Dan Meridor**
Former Cabinet Minister, Israel



Coercion: The Power to Hurt in International Politics

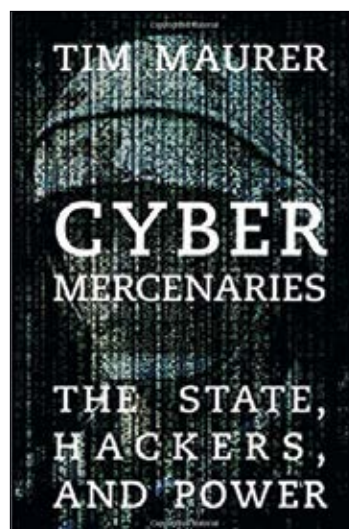
Edited by **Kelly M. Greenhill**, Research Fellow, International Security Program
and **Peter Krause**, Former Research Fellow, International Security Program
Oxford University Press (January 2018)

Scholars have analyzed the causes, dynamics, and effects of coercion for decades, but previous works have principally focused on a single state employing conventional military means to pressure another state to alter its behavior. In contrast, this volume captures fresh developments, both theoretical and policy-relevant. The chapters in this volume focus on tools (terrorism, sanctions, drones, cyber warfare, intelligence, and forced migration), actors (insurgents, social movements, and NGOs) and mechanisms (trilateral coercion, diplomatic and economic isolation, foreign-imposed regime change, coercion of nuclear proliferators, and two-level games) that have become more prominent in recent years, but which have yet to be extensively or systematically addressed in either academic or policy literatures.

"This volume takes a fresh but focused look at coercion in our time. Together the chapters constitute a creative and economical (re-)introduction to an enduring tool of international, and sometimes domestic, politics."

—**Barry Posen**

Ford International Professor of
Political Science, MIT



Cyber Mercenaries: The State, Hackers, and Power

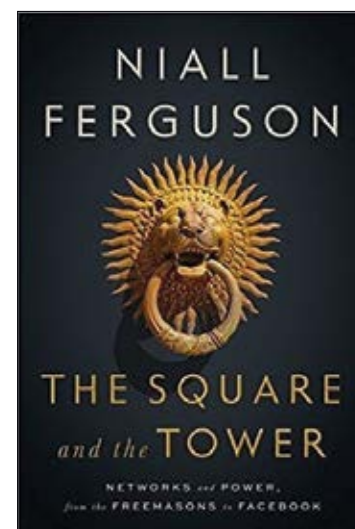
By **Tim Maurer**, Master in Public Policy,
2011
Cambridge University Press (Jan. 2018)

Cyber Mercenaries explores the secretive relationships between states and hackers. As cyberspace has emerged as the new frontier for geopolitics, states have become entrepreneurial in their sponsorship, deployment, and exploitation of hackers as proxies to project power. Such modern-day mercenaries and privateers can impose significant harm undermining global security, stability, and human rights. These state-hacker relationships therefore raise important questions about the control, authority, and use of offensive cyber capabilities. While different countries pursue different models for their proxy relationships, they face the common challenge of balancing the benefits of these relationships with their costs and the potential risks of escalation.

"Cyber Mercenaries offers the first systematic scholarly treatment of how and why governments use proxies to do their bidding in cyberspace."

—**Ron Deibert**

Director, Citizen Lab,
Munk School of Global Affairs,
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The Square and the Tower: Networks and Power, from the Freemasons to Facebook

By **Niall Ferguson**, Board Member,
Belfer Center
Penguin Press (January 2018)

From the cults of ancient Rome to the dynasties of the Renaissance, from the founding fathers to Facebook, *The Square and the Tower* tells the story of the rise, fall and rise of networks, and shows how network theory—concepts such as clustering, degrees of separation, weak ties, contagions and phase transitions—can transform our understanding of both the past and the present.

"Captivating and compelling... Ferguson manages both to tell a good story and provide important insight into the specific qualities that power successful networks."

—**Ludwig Siegle**
Technology Editor, *The Economist*

FORTHCOMING

Kissinger the Negotiator: Lessons from Dealmaking at the Highest Level

By **James K. Sebenius**, **R. Nicholas Burns**, and **Robert H. Mnookin**
Harper Collins, May 2018

For more Belfer Center books, see:
belfercenter.org/books

CIA



William Tobey Receives CIA Award for Libya Article

Senior Fellow **William Tobey** received the Central Intelligence Agency's Studies in Intelligence Award for his "outstanding contribution to the literature of intelligence" through his article "Cooperation in the Libya WMD Disarmament Case" published in *Studies in Intelligence* (December 2017). Tobey was presented the award by DDNI Susan M. Gordon at the CIA in January.

MAGNOLIA PICTURES



Samantha Power Featured in New Documentary, *The Final Year*

Professor **Samantha Power** is featured in *The Final Year*, a documentary that provides a unique insiders' account of President Obama's foreign policy team during their last year in office. The film offers a view of the inner workings of the Obama administration as Obama, John Kerry, Power, and Ben Rhodes prepare to leave office after eight years. See finalyearfilm.com for more information.

2017: "Best Books"

Professor **Graham Allison**'s book, *Destined for War: Can America and China Escape Thucydides's Trap?* has been listed as one of *The New York Times*'s 100 Notable Books of 2017, *Financial Times*'s "Best Politics Books of 2017," and *The Times* (of London) Books of the Year, and has made the short-list for the Lionel Gelber Prize.

Professor **Dara Kay Cohen** is the co-winner of the International Studies Association's ISSS 2018 Best Book Award for her book, *Rape During Civil War*, "a timely and important study that sheds new light on the phenomenon of rape during non-international armed conflict."

The American Energy Society named Professor **Meghan O'Sullivan** the 2017 "Energy Writer of the Year" for her book *Windfall: How the New Energy Abundance Upends Global Politics and Strengthens America's Power* and for her *New York Times* commentary "How Trump Can Harness the U.S. Energy Boom."

Professor **Arne Westad**'s *The Cold War: A World History* was named one of *Financial Times*'s Best History Books of 2017 for its "detailed coverage of events in Africa, Asia and Latin America as well as the familiar territory of US-Soviet relations, the German question and eastern Europe."

Sheila Jasanoff Wins Raimar-Lüst Research Award

Professor **Sheila Jasanoff**, Belfer Center faculty affiliate, won the Alexander von Humboldt Foundation Raimar-Lüst Award for groundbreaking research on science and technology studies. As part of the award, she will spend time in Germany on several projects including on climate change and global governance and the management of geoengineering.

Wendy Sherman named "Diplomat of the Year"

Ambassador **Wendy Sherman**, Belfer Center Senior Fellow, has been named *Foreign Policy*'s National Security Diplomat of the Year. Sherman, the lead U.S. negotiator for the Iran nuclear agreement, was Under Secretary of State for Political Affairs from 2011–2015.

Ambuj Sagar Named Head of School at Indian Institute of Technology

Visiting Scholar **Ambuj Sagar** has been named Head of the School of Public Policy at the Indian Institute of Technology, Delhi. Sagar is also a member of the Indian Government's Expert Committee on Low-Carbon Strategies for Inclusive Growth.

Jeffrey Karam Wins Handel Prize for Best Article

Research Fellow **Jeffrey G. Karam** won the Christopher Andrew-Michael Handel Prize for the best article of 2017, titled "Missing Revolution: The American Intelligence Failure in Iraq, 1958," published in the journal *Intelligence and National Security*.

International Security

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Compiled by *International Security* staff

Can China Back Down? Crisis De-escalation in the Shadow of Popular Opposition

Kai Quek and Alastair Iain Johnston

Would popular opinion prevent China's leaders from backing down in an international crisis? Responses to a recent survey experiment suggest that Chinese leaders could use several strategies to defuse the public's bellicosity. Leaders will resist corruption once in power.

Archives and Inference: Documentary Evidence in Case Study Research and the Debate over U.S. Entry into World War II

Christopher Darnton

International relations scholars increasingly rely on primary documents, including those found during archival research. How can they do so most effectively?

Shifts in Warfare and Party Unity: Explaining China's Changes in Military Strategy

M. Taylor Fravel

Two factors determine whether China makes major changes in military strategy: shifts in the international conduct of warfare and unity of the Chinese Communist Party leadership.

How Civil Wars End: The International System, Norms, and the Role of External Actors

Lise Morjé Howard and Alexandra Stark

Historically, most civil wars have ended with the military defeat of the losing side. In the 1990s, by contrast, civil wars usually ended with a negotiated settlement. What accounts for this anomaly?

*The Robert and Renée Belfer Center for
Science and International Affairs*

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The Belfer Center has a dual mission: (1) to provide leadership in advancing policy-relevant knowledge about the most important challenges of international security and other critical issues where science, technology, environmental policy, and international affairs intersect, and (2) to prepare future generations of leaders for these arenas. Subscribe to Belfer Center publications at belfercenter.org/subscribe

Belfer in Brief

Harvard's Kennedy and Divinity Schools Launch Religion, Conflict, and Peace Initiative



A new collaboration between Harvard Kennedy School and Harvard Divinity School will enable scholars to study the role that religious communities play in violent conflict—and in promoting sustainable peace.

Part of the One Harvard Sustainable Peace Initiative, the new **Religion, Conflict, and Peace Initiative** (RCP) will bring together the Belfer Center's Middle East Initiative with the Divinity School's Religious Literacy Project and initiative on Religions and the Practice of Peace. The initiative is funded by **Ramez** and **Tiziana Sousou**.

Tarek Masoud, Sultan of Oman Professor of International Relations, and **Hilary Rantisi**, Director of the Middle East Initiative, will lead the initiative at the Kennedy School.

"The RCP initiative will enable us to leverage the expertise and enthusiasm of faculty and staff from both Schools to prepare future leaders, advance scholarship, and build bridges between academia and practice around these critical yet insufficiently studied issues," said Rantisi. "At a crucial and precarious time in contemporary global affairs, this initiative could not be more timely or urgent."

Linking Science to Action, Harvard Will Be Fossil Fuel-Free by 2050, Fuel-Neutral by 2026

Harvard University announced in February an ambitious new climate goal striving to end its use of fossil fuels by 2050. The new Harvard climate action plan also includes an interim goal to become fossil fuel-neutral by 2026 (green.harvard.edu/climate).

Linking scientific research to action, the new climate action plan is based on the recommendations of a multi-disciplinary Climate Change Task Force convened in 2016 and composed of faculty experts, students, and senior administrators.

"We are facing a time when the notion of shifting the world's foundations for energy choices in a more sustainable, life-friendly direction is feasible technologically, economically, and politically," said **William Clark**, Harvey Brooks Professor of International Science, Public Policy and Human Development at Harvard Kennedy School and faculty co-chair of the Task Force.

"We need to reduce radically the use of fossil fuels not only because of their catastrophic impacts on climate," Clark said, "but also because of their massive direct damages to human health and the natural environment."



JASON LAWRENCE