MARCH 2015

A FORUM FOR PEACE AND SECURITY IN THE 21ST CENTURY

BUILDING PEACE

#PEACETECH

EVERYTHING YOU NEED TO KNOW, FROM SOCIAL MEDIA IN AFGHANISTAN TO HUMANITARIAN DRONES IN SYRIA

PEACEBUILDING REBOOT

THE DIGITAL REVOLUTION: WHO GETS LEFT OUT?

DRONES FOR PEACE In Syria



Alliance for Peacebuilding

BUILDING PEACE

IN THE 21ST CENTURY

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LETTER FROM The Editor-IN-Chief

If you are reading *Building Peace*, you have access to Information and Communication Technologies (ICTs): a smartphone, a tablet, a computer at your community internet café, or a friend who has printed these pages for you. To many, but not all, these technologies are ubiquitous. In the Global North, many of us are accustomed to (saturated, even by) the everyday use of technology. At the same time, in the Global South, where widespread access to technology remains a challenge, ICTs are expanding and being refined for use in rural and conflict-affected settings, as well as war zones.

This issue of *Building Peace* explores the potential of ICTs and other technologies to positively influence peace in today's world. From online platforms that connect citizens and support civic engagement, to drones that have the capacity to deliver humanitarian relief to conflict zones, technology provides substantial benefits to peacebuilding. At the same time, we are conscious of the statistics Ann Mei Chang cites in her article: "Today only 40 percent of the world's population is online. The number is growing rapidly, but those who do not have Internet access are disproportionately poor, rural, older, and female."

We developed our fifth issue of *Building Peace* conscious of the contrast between technology's powerful, positive potential and its ability to exacerbate divides, further exclude, and cause harm. We ask you, our reader, to be mindful of this tension and of the reality that for the Internet to be a powerful space for free speech, it must be an inclusive and accessible space, supported and protected by civil society and government policy.

Nineteen authors from ten different countries are linked to our Table of Contents. While this is an impressive sweep, the list does not fully reflect the thought leaders whose insights in August 2014 were instrumental in shaping this edition of the magazine. The perspective, suggestions, and questions posed by the following individuals were of tremendous value, and I am grateful: Anand Varghese, Ann Mei Chang, Helena Puig Larrauri, Nancy Payne, Peter Nordstrom, Sanjana Hattotuwa, and Sheldon Himelfarb.

In curating this issue, we considered a range of technology, from traditional tools to new innovations. We considered the fields of information technology, computer science, and engineering, as well as telecommunications, geoinformatics, and design. These fields have the potential to either connect or divide individuals and communities, to build peace or render us more vulnerable and exposed.

Technology is making certain aspects of peacebuilding that seemed idealistic thirty years ago, like mobilizing social movements from the ground up, suddenly possible and tangible. Ideas dismissed in the late 1990s as naive about what internet technology could do for the world are turning out to be feasible. But the true test of technology's success lies in how we use it. Swedish Foreign Minister Margot Wallström writes in her article: "Progress will depend on our capacity to join forces with the people who are currently working to create a better future. The times we live in suggest that technology will be at the heart of this work." We couldn't agree more.

We are excited to share examples with you of the many ways ICTs are connecting and channeling the energy of activists in Nigeria (Olanike Olugboji) and transforming citizen-led movements in



Brazil (Miguel Lago & Courtney Crumpler). Dmitriy Synkov's glossary offers a concise overview of what technology means in the context of *#Peace-Tech*—and prepares readers to understand the intricacies of the field.

#PeaceTech's point of departure is that technology, per se, is not inherently good or bad, powerful or not; it is people's decisions that have the power to design, use, or misuse technology-and influence where it leads us. For instance, will Unarmed Arial Vehicles (UAVs) be used solely for established military intervenetions or also to deliver much-needed provisions to Syria (Jessie Mooberry)? Our authors remind us of the opportunities created by flexible platforms, as we see in Jes Peterson's article on how a social network in Afghanistan grew into a tool for collaboration and good governance. Soha Frem's article about Lebanon highlights the physical and symbolic space of Martyrs' Square in

#PeaceTech's point of departure is that technology, per se, is not inherently good or bad, powerful or not; it is people's decisions that have the power to design, use, or misuse technology—and influence where it leads us. Beirut, a place that, over time, has served to unify and divide communities within the city. The article goes on to reveal how space innovation can positively influence how people communicate with each other and learn from one another.

Our *#PeaceTech* authors call out the risks, dangers, and dilemmas posed by the unique reach and openness that technology affords us. The dangers range from the imprecision of remote warfare highlighted in Caroline Donnellan's article to the reactionary suppression of online peaceful dissent by many governments (Ivan Sigal). There are unintended consequences to the development and use of new tech tools.

Whether we are peacebuilders, gadget geeks, or creative entrepreneurs, we should be led by a "do no harm" approach to technology in settings of war and peace—which is based on a minimum obligation to do no harm through the inclusion of technology. This approach demands that we be sensitive to divides or conflict that could be caused by the introduction of new technologies in a particular context, for instance, the vulnerability of community members who use their mobile devices to report on incidents of violence. Whether we are peacebuilders, gadget geeks, or creative entrepreneurs, we should be led by a "do no harm" approach to technology in settings of war and peace— which is based on a minimum obligation to do no harm through the inclusion of technology.

As a magazine dedicated to sharing the peacebuilder's perspective on global affairs and examples of innovation and impact, we are energized by the examples described in this issue. A theme of collaboration emerges in *#PeaceTech;* we hope that in the coming years we will see the tech community, public sector, and civil society working on the ground in different settings—increasingly coming together to design solutions that can make lasting, positive, change.

Warmly,

Jessica Berns Editor-in-Chief



TOOLS AND TRENDS IN PEACE AND TECHNOLOGY

TECHNOLOGY DRAWS ON MANY DISCIPLINES WITHIN THE SCIENTIFIC ARENA, FROM TRADITIONAL TOOLS TO MODERN INNOVATIONS. THIS INCLUDES INFORMATION TECHNOLOGY, COMPUTER SCIENCE AND ENGINEERING, AS WELL AS TELECOMMUNICATIONS AND GEOINFORMATICS.

		DEFINITION	APPLICATION
Dmitriy Synkov is an editorial and marketing assistant at the Alliance for Peacebuilding 's Building Peace Forum. Synkov has formerly covered inter- national development and education policy for The Borgen Project and the National Education Asso- ciation. He holds an undergraduate degree from the University of North Carolina, Charlotte.	INFORMATION & Communication Technologies (ICTS)	ICTs are defined by the United States Institute of Peace as a "diverse set of tools used to create, disseminate, and manage information." This can include any platform used to relay data—from cell phones to social networking sites to the Internet itself—within any field or discipline that relies on technology.	ICTs can be mobile phones used for surveys, crowdsourcing platforms used to gather real-time data from witnesses, or social media tools used to announce, organize, and report on protests, elections, and movements.
	NEW MEDIA	New media is an umbrella term for digital, text, photo, and video content that individuals generate through social media applications and platforms, and submit through the Internet or mobile devices.	
	BIG DATA	According to Search for Common Ground, big data "refers to the massive quantities of data that are now generated daily as part of the increasing computerization of systems and records." It captures the fluid, real-time information available online worldwide, from text messages, social media content to online survey responses.	Peacebuilders use big data to create early- warning and early-response systems, conflict and crisis mapping networks, and real-time feedback for monitoring and evaluation efforts.
	CROWDSOURCING	The Geneva Peacebuilding Platform defines crowdsourcing as the "outsourcing of specific tasks to an undefined public, a crowd."	Crowdsourcing is used to monitor elections, protests, movements, conflicts, natural disasters, and peace processes, turning everyday civilians into voluntary information gatherers and providing organizations with eyes and ears in the field.
	ONLINE MAPPING	Online mapping allows one to collect and analyze data linked to a specific geographic area and track movement across different locations over time. You have most likely created geolocated data yourself by allowing an app to access your geographic coordinates on your smartphone—whether checking in on Foursquare, tweeting a photo from a live concert, or requesting a ride from Uber.	Online maps are used by peacebuilding professionals to track the spread of conflict, monitor elections, and coordinate responses to natural disasters. The 2010 Haiti earthquake is seen by many as the fountainhead of what is now known as "crisis mapping," the tracking of a crisis over time through the submission of updates from on-the- ground witnesses.



REACHING THE WORLD FROM NIGERIA

Olanike Olugboji

Nigeria ranks fourth in the world on the 2014 Global Terrorism Index (GTI), and first in Africa. Acts of terrorism, along with militancy, crime, rights violations, extrajudicial killings, violent demonst-rations, organized atrocities, and ethno-religious hostilities, have led to loss of life, injuries, destruction of property, and displacement in the country. Life in urban and rural communities is becoming volatile and demoralizing. Rufus O., a respected senior friend and colleague, has remarked that "with the ongoing spate of insurgencies and hostilities, the ship called Nigeria is sinking, and sinking fast." For many Nigerians, the frequency of social hostilities, the counterstrategies shrouded in controversy, and the debilitating trauma that follows, are cause for concern.

"I don't even know how to start," recounts Dorothy, about her seven-day walk with her family from Adamawa State in northeastern Nigeria to safety in Cameroon. "It wasn't a good experience at all. Some women left homes half dressed in their wrappers. Many were searching for their children. I saw some women huddling up to five children around themselves, as we walked miles away from the peril that befell our communities. No water, no food. It is not an easy experience for women especially. Imagine that some pregnant women even delivered their babies along the way. There was a woman whose baby died

THIS ARTICLE WAS WRITTEN PRIOR TO PRESIDENTIAL ELECTIONS SCHEDULED FOR FEBRUARY 14, 2015 THAT HAVE BEEN POSTPONED UNTIL MARCH 28, 2015. ACCORDING TO THE CONSTITUTION OF NIGERIA, THE ELECTIONS MUST BE HELD BY APRIL 28, 2015.

along the way, yet the baby remained strapped on her back until we reached safety." Her pain-laden yet tranquil voice conveyed her gratitude that she and her family made it. By informing a global network of empowered online activists about the challenges faced by women in my community, I am able to exchange ideas and explore solutions for my community's plight.

In 2004, when I fully committed to environmental activism, the goal of promoting equity, justice, and peace was uppermost in my mind. I continue to advance this cause through the Women Initiative for Sustainable Environment (WISE), а grassroots nonprofit organization I founded in 2008. We advocate for women's active representation, participation, and leadership in natural resource governance and peacebuilding in Nigeria. At inception, the projected reach of WISE was grassroots women in rural and urban areas of Nigeria. Now, WISE's access to the internet, coupled with representation and participation in numerous international women's events has afforded the organization opportunities to advocate for women at a global level. WISE's global advocacy efforts thrive primarily on a growing online presence, which is fueled by social networking, global citizenship, and activism.

As a young girl, each time I visited the countryside with my family, barefoot women and girls carrying heavy containers of water on their heads, walking long distances under the scathing sun were a common sight. We lived in a city where all I needed to do was turn on the tap to get myself a clean glass of water. The reality of this disparity stayed with me, and I dreamed of doing something about it someday.

After graduate school, I worked within the corporate sector for about four years until ultimately, inspired by my care for nature and distinctive sense of equity and justice, I journeyed into the world of social activism when T founded the Environmental Management and Protection Network (EMPRONET) in 2004. However, the reality on the ground reignited my childhood dream, and my

work became centered on engaging grassroots women in natural resource stewardship. On-the-ground realities revealed that grassroots women were most vulnerable to the impacts of environmental problems, and were excluded from intervention efforts. In 2008, I shared my vision with the board and collaborators of EMPRONET, as well as my family, friends, and professional associates, and they endorsed the transition from EMPRONET into the founding of WISE. WISE is a response to identified gaps in grassroots women's representation and participation in the natural resource sector. WISE advances women's rights, roles and responsibilities as it concerns environmental sustainability and development.

To date, over 3,000 women have been engaged in activities promoting water food security, security, forest conservation, peace, climate justice, and digital empowerment through WISE programs. Anna Avong, the leader of another grassroots women's group, Attarkar Women's Association of Nigeria, was appointed to her village's traditional council after WISE supported her group's construction and installation of a biosand water filter in a local primary school.

My online activism has afforded me informed access to a number of opportunities, connections, and resources which shape my work on the ground. For example, through a joint online application at the grassroots. Anna and I were selected to attend the first African Women and Water Conference. It was here that we learned of the Biosand filter water filtration technology. As a result of a six-month online training course on citizen journalism and digital empowerment, I benefited from, as a World Pulse Voices of Our Future (VOF) Correspondent. Women's digital empowerment training has also been included into WISE programming. My virtual activism contributes to my real life and likewise, my online activities are fueled by my real-time experiences.

Over time, my understanding of how to use digital tools to fulfill both my personal and community development aspirations has broadened. I use digital videos, slideshows, photographs, Internet radio, and social networking to make the world aware of the stories, needs, and solutions in the communities I serve.



I am the host of "WE—Women and Environment" on Sylvia Global Media and I have an online blog called *Women*, *Environment*, and Society Think-Tank. Both undertakings are dedicated to raising awareness and spurring action around environmental and other societal issues that touch women's lives. These initiatives move beyond raising awareness to empowering women acting for change.

In 2008, I joined World Pulse, an online community with tens of thousands of women and their allies from more than 190 countries. World Pulse, in particular, has enriched and enhanced my work, and further stirred me to continue thinking out of the box. In 2013, World Pulse highlighted me as one of ten leaders changing the world for the better.

Women with heart-rending stories like Dorothy's are tragically common in Nigeria. It has always been my ambition to make a positive difference for the women of my country and today. With WISE and the support of virtual communities like World Pulse, I will continue strategizing, developing, and implementing agendas that focus on equipping indigenous women with skills to help them share their stories and best practices in development, especially in natural-resource stewarding, conflict resolution, and peacebuilding. Access to the Internet and community platforms has given me the skills, contacts, and confidence to connect issues that matter to me and my Nigerian sisters, to the global community.

Olanike Olugboji is an award-winning conservationist and women's empowerment advocate. She is based in Nigeria but has had the opportunity to travel internationally. She holds degrees in urban and regional planning. To date, over 3,000 women have been engaged in activities promoting water security, food security, forest conservation, peace, climate justice, and digital empowerment through WISE programs.



ESCAPING CRISIS, EMBRACING DATA

A PATH TO RECOVERY IN ZIMBABWE

Lawrence Oduma

For the past 15 years, Zimbabwe has endured a crisis that has eroded the economic and social well-being of its people. In 2013, the Zimbabwe National Statistics Agency revealed that 72.3 percent of Zimbabweans lived below the country's poverty line. In rural areas, that figure climbs to 84.3 percent, with 16.2 percent of citizens in extreme poverty. The economic recovery remains fragile as a number of issues thwart sustainable growth. These barriers include political uncertainty after the 2013 elections resulting in low business confidence, low production, agricultural liquidity challenges, and very high real interest rates on short-term credit that restricts business growth.

Exacerbating these issues are a ballooning wage bill in the public sector, ailing infrastructure with no resources to rehabilitate it, and an unreliable power supply. The country has also experienced compression of exports since the slowdown of the global economy. The Zimbabwean government's indigenization policies, which require foreignowned companies to sell 51 percent of their shares to Zimbabweans or the government, have resulted in decreased foreign direct investment into the country.

This bleak environment disproportionately affects the country's youth. The International Labor Organization estimates the general unemployment rate

at between 80 and 90 percent. According to Southern Peace Review Journal, youth between the ages of fifteen and thirty-five constitute about 65 percent of Zimbabwe's population and comprise 80 percent of the unemployed. As a result, a measurable number of both rural and urban youth have been involved in crime, politically-motivated violence, and gender-related violence. Zimbabwe's youth are also susceptible to manipulation by political parties as they lack meaningful alternatives for livelihood and survival. Many migrate to South Africa where, lacking passports and legal visas to work, they are subject to prejudice and xenophobic violence.

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The level of violence against women and girls has generally increased in the country. Women's representation in parliament has improved—35 percent of members of parliament are women—but only 12 percent of the new (as of 2013) cabinet is female, far from representative of the 52 percent of women in Zimbabwe's population.

With the aim of meeting the urgent needs of Zimbabweans, American Friends Service Committee (AFSC) launched the Livelihoods Restoration Program (LRP) in 2008. The project seeks to support the most disadvantaged population groups in the outskirts of Harare and Bulawayo, helping them to improve their socioeconomic status, and avoiding the abject poverty that result in many people engaging in delinquent practices such as alcohol and drug abuse, prostitution, and theft.

AFSC interventions focus on:

1. Promoting secure and sustainable livelihoods. This includes promoting income-generating activities (IGAs) through business groups, provision of business start-up kits, and establishment of savings and lending schemes and savings and credit cooperatives (SACCOs).

2. Building social and community cohesion (BSCC). This includes strengthening a community's ability to selforganize and carry out advocacy, increasing the capacity of communities to aid small and medium-sized enterprises (SMEs) and hold government officials accountable to their constituents. In addition, conflict management groups are established to mitigate and reduce the risk of conflict in the SME groups. Members learn causes and drivers of conflict, conflict analysis, and conflict management strategies. Group and social cohesion and the fragmentation of families due to child-headed and singleparent homes are addressed as well.

3. Influencing pro-SME policy and practice. The project promotes entrepreneurship by forming associations to highlight issues related to provision of workspace and lobby for waiving municipality fees for small businesses. Additionally, the project has ensured that up to 400 families receive important, income-generating skills, while a larger number of project

participants obtain skills in conflict transformation and peacebuilding.

The LRP has seen tangible success in the past few years: over 246 trained persons are actively involved in incomegenerating activities, while others have sought employment in neighboring countries after training in carpentry, welding, sewing, leatherworks, building technology, interior decorating, hairdressing, grinding mill fabrication, poultry keeping, gardening, and conservation farming.

Project participants recorded an increase in income due to technical skills training and income savings and lending schemes (ISALS). According to a recent evaluation, 52.7 percent of project participants are earning incomes between US\$200 and US\$450 per month from the project activities per household as net income; the project provides all the equipment. This income supplements other household incomes from participants' spouses and other part-time activities, such as seasonal crop



farming. This range of income is consistent with the national average earnings.

Overall, 92 percent of project participants indicated their ability to use skills gained from the project to generate incomes. As a result, households are able to cover their food, education, housing, and sanitation expenses with their earned income: 56 percent of incomes are spent on food, 20 percent on education, 12 percent on housing and sanitation, and 12 percent on other needs.

Despite these successes however, the LRP has experienced challenges in measuring the long-term impact and effectiveness of its initiatives. Funding partners require quantitative data collection and analysis to critically measure the effect of AFSC's work, but current data collection methods fall short of capturing the real impact on the ground: we can measure progress in terms of changing people's lives through stories of change-qualitative and anecdotal-but in the absence of scientific, quantitative data gathering methods, we may not be able to convince our funding partners that their funds have had a measurable effect on the lives of the communities we work with.

With this in mind, AFSC plans to roll out modern software to collect and analyze data in real time. This integrated program will assess livelihoods and conflict transformation, a unique innovation with the added advantage of being user friendlymembers of rural communities will be able to use it easily and the data can be entered into mobile devices and manipulated to generate reports. The data will include the group name, locations, incomes earned over a period of time, interest earned, number of defaulters and amounts, numbers of members participating in meetings and their weekly contributions. The data will also include changes in lifestyle over a certain period of time, including the ability to afford medical care, payment of school fees for children, and household food demands. Decrease or increase in conflict incidents over time will also be recorded. The data collected will also improve the effectiveness of AFSC's program, helping us identify key gaps or weaknesses in our planning and implementation and use lessons learned to ensure we continually improve the quality of our programs.

The long-term benefits of this innovation are significant. From the ability to measure the impact of our LRP on individual incomes, to measuring the reduction of conflict at a domestic and community level, the software will enable AFSC to generate convincing data and information for our funders and partners while providing a continuous stream of feedback to inform our programs. Our project participants will be able to improve their own data management and track other information related to the activities AFSC project implements. When our participants are able to understand how their lives are changing through the data at their fingertips, they will increasingly feel ownership of the project. This will ensure the long-term sustainability of the project and help the community safeguard its future.

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Lawrence Oduma is the former country representative of the American Friends Service Committee (AFSC) in Zimbabwe. Lawrence has been engaged in the humanitarian and development sector for the past 19 years in Kenya, Afghanistan, Sri Lanka, Liberia, and Zimbabwe. Due to the success of the Tsunami Rehabilitation Project in Sri Lanka, Lawrence was awarded the Order of Malta Medal of Honour for his performance.



PEACEBUILDING REBOOT

Sheldon Himelfarb

In December, I met three inspiring girls in Mumbai, India. They were all about 13 years old and they had come from Dharavi, Asia's largest slum, to demonstrate the mobile app they had developed to counter gender violence. The app sounded an alarm, sent a help message to friends, and shared their location—it was simple but effective.

Theirs is a case study in the democratization of information and capital flows around the world. Working on a shared laptop, they accessed the do-it-yourself app-maker program from the Massachusetts Institute of Technology (MIT) to build their prototype. Connecting via Skype with the PeaceTech team in Washington, they receive weekly development assistance to prepare their app for release on the Google Play Store. With help from friends and fans around the world, they are crowdsourcing funds to share the app more widely and perhaps even a small profit.

A few months earlier, I met a 28-year-old activist from Syria named Dlshad Othman. Dlshad had made headlines with Aymta, a mobile app he created and launched with modest personal startup funds, that tracks the trajectory of missiles fired in Syria and sends a warning to Aymta's subscribers. But Dlshad didn't stop there. Determined to save lives through technology, he also created two other applications: Uvirtus, a system that allows Syrians to securely post videos of conflict to YouTube; and Collabase, a suite of collaboration tools bringing together human rights activists in the Middle East.

These young entrepreneurs for social good represent a sea of change taking place in the conflict resolution field. The past three decades saw an increasing professionalization of our field: exponential growth in university degree programs, NGOs, and international organizations with dedicated programs in conflict resolution, as well as the development of taxonomies and metrics to gauge effectiveness.

The next three decades may be characterized by exponential growth around the world in projects for, and by, people like the Dharavi girls or Dlshad. Some might see this shift as the antithesis of professionalization; I see it as a reboot. Conflict prevention and peacebuilding are getting a new cast of characters and an exciting new script.

This script includes the birth of the peace tech industry, where democratized access to information and capital produce innovations that save lives and create jobs. It includes the story of a hacker space (community-operated workspace where technology enthusiasts meet and innovate) launched in Baghdad with a \$30,000 Kickstarter crowdfunding campaign, giving young entrepreneurs a place to build a business while sharing ideas for solving Iraq's problems. Such information and capital access is slow in coming to war-torn countries, but it is coming nonetheless. Conflict zones that were once information and technology wastelands vield vast new information on human sentiment-the DNA of conflict-thanks to the penetration of social media, cellphones, and other data sources. Extraordinary progress in machine learning and predictive analytics is revolutionizing conflict early warning, while local communities are pioneering creative response strategies to tackle ageold drivers of conflict from religion to resources. corruption to gender. PeaceTXT, IPaidABribe.com, Hollaback, LRA Tracker, Groundviews, YaLa, Exchange 2.0, UProxy-the list of peace tech projects is exploding.

Fueling the peace tech explosion is a new type of funder. The overwhelming majority of conflict resolution work in the 1990s and 2000s was funded by governments. Today's peace tech projects are launched by digital humanitarians bootstrapping their own startups, often with financial or in-kind support from technology companies and foundations created by technology titans and their families: Gates, Omidyar, Skoll, Bezos, and Case, to name just a few. We are also seeing a rethink of traditional nonprofit models, as organizations like Ushahidi, Frontline SMS, and Development Seed have created for-profit entities designed to produce revenue even as they remain true to their ideals of using tech for social good.

The burst of innovation in violence prevention by individuals and local communities is unprecedented. It represents the mainstreaming of conflict management and a new potential for broad participation in peacebuilding throughout society, with the ever-greater effect on lives saved that comes with scale. Realizing the full potential of these trends, however, requires one more shift in the way we, as peacebuilders, work.

The bread and butter of conflict prevention and peacebuilding continue to be promoting rule of law, sustainable economies, good governance, and social wellbeing. Peacebuilders help displaced people in conflict zones return to their homes which might be occupied by members of an opposing ethnic group without violence. We facilitate peaceful elections in communities that may never have held elections before. We help negotiate compromises over scarce resources, like water, between angry communities.

Peacebuilders have evolved from a nexus of professionals from abroad to

ization of conflict management and peacebuilding. We have seen dramatic increases in demand from policymakers, generals, and activists for the skills and experience of conflict resolution practitioners, and this dynamic seems poised to continue. The reboot we are seeing foretells a new world, where information and capital flows are democratized along with the skills and knowhow for preventing and defusing deadly violence.

Although it may not seem like it from the daily news of insurgencies, terrorist

Some might see this shift as the antithesis of professionalization; I see it as a reboot. Conflict prevention and peacebuilding are getting a new cast of characters and an exciting new script.

increasingly local facilitators, citizen peacebuilders, technologists, and NGOs, but work remains rooted in complex human dynamics. In preventing violence, realizing the bounty of democratized information and capital flows will require cross-discipline expertise, combining the knowledge of social scientists with data scientists, the knowledge of conflict experts with technologists and engineers. We will need institutions and processes radical collaboration, prize that innovation, and entrepreneurship to empower this modern facet of growth.

At the U.S. Institute of Peace, we have recently launched the PeaceTech Lab, a place where technologists and peacebuilders from conflict zones can work shoulder to shoulder every day, creating new tools to reduce violent conflict around the world. It is reminiscent of the storied Bell Labs, founded almost a century ago, where unrelenting commitment to cross-discipline collaboration was key to its success in developing technologies that changed the world.

For 25 years, I have watched and benefited greatly from the professional-

attacks, and beheadings, we have already reaped some of the benefits according to the macro trends captured by experts like Steven Pinker and others, who count casualties across the generations, military and civilian. Of course, the positive trends could be reversed, given the power of technology for mass murder and destruction. But I am optimistic. As Bill Ury, co-founder of the Harvard Negotiation Project, remarked recently, "wars are predictable and preventable." Perhaps now, we can train ourselves to predict and prevent.

Sheldon Himelfarb is the president and chief executive officer of the PeaceTech Lab and the founding director of the Centers of Innovation for Media and Technology at the U.S. Institute of Peace. He has developed and managed peacebuilding programs in the Balkans, the Middle East, and Africa, and received the Capitol Area Peace Maker Award from American University (Washington, DC). Sheldon tweets at @shimelfarb.



PEACE TECHNOLOGY: SCOPE, SCALE, AND CAUTIONS

Margarita Quihuis, Mark Nelson and Karen Guttieri

Peace technology, as we have defined it at the Stanford Peace Innovation Lab, is fundamentally mediating technology—it acts as an intervening agent, augmenting our ability to engage positively with others. Peace technology, as we experience it today, contains four subcomponents working together:

1. Sensors that can measure human engagement behavior with ever-greater precision (such as cameras, microphones, and GPS) between any two social entities across difference boundaries such as gender, income, ethnicity, age, nationality, and so on. 2. Communications technology including: cellular radio, Bluetooth, Wi-Fi capabilities in phones and laptops, as well as landline, fiber optic, and satellite networks. 3.

Computation, particularly distributed and cloud-based computing. The above three components enable detection and early-warning systems. **4.** The addition of *actuators*, which can include humans or devices, allows us to trigger and coordinate action in response. These four component technologies are now so inexpensive and ubiquitous that your smartphone contains many of each.

Unlike previous technological revolutions, individuals can now design and deploy peace technology at scale almost anywhere in the world. As Sheldon Himelfarb writes about teenagers in developing world neighborhoods, "these young entrepreneurs for social good represent a sea of change taking place in the conflict resolution field." Increasingly, technologies developed for other needs are being appropriated to increase peace. For example, militaryfunded technologies we now use every day, such as the Internet and GPS, have been redirected for humanitarian relief. The peacebuilding field can also redeploy innovations from the for-profit tech industry, which invests billions in research to increase positive engagement- as in the Airbnb "citizen diplomacy" example discussed below. Unlike the previous century in which technology was aimed at calculation, accounting, and manufacturing processes, today's technology is focused on facilitating collaboration among groups of diverse people. This ideal is core to the mission of peacebuilding.

What possibilities await us as people continue to share images and stories across today's early mediating technologies, such as Instagram, Twitter, Facebook and WhatsApp? These technologies enhance the ability to trust, permitting increased mutual action, and increasing our positive engagement with people farther away from us. This enlarged identity drives Singer's "expanding circle of altruism," increasing our ability and motivation to help others, as often now happens in the wake of natural disasters.

This new "share economy" is fueled by this ability to trust at scale. For example, Airbnb, a virtual, global bed-and-breakfast company, uses sensors, communication tech, and computation to match hosts and guests worldwide. Hosts and guests do peer ratings to incentivize positive behaviors across geographic and cultural boundaries. This is fine-grained citizen diplomacy, and Airbnb explicitly sees itself in the peace business: "A lot of times, we tend to villainize the other, but when people are traveling, getting to know others, and turning strangers into friends, we create a world where there are a lot fewer people who seem alien to us," says Chip Conley, Head of Global Hospitality for the company.

In 2009. Stanford Peace Innovation Lab partnered with Facebook to demonstrate how mediating technology could quantify peace, as measured in episodes of positive engagement. At peace.face-book.com, we focused on the smallest detectible positive behaviors that make a measureable difference-in this case, "friending" across various conflict boundaries. No one knows how strong a Facebook friendship is - only that when a Palestinian asked an Israeli to publicly acknowledge him as a friend, and that the Israeli publicly accepted, we could measure it-and that weak quantitative signal happened almost 20,000 times a day. What's more, during the 2012

Israeli Operation Pillar of Defense war, friending between Palestinians and Israelis on Facebook did not drop precipitously; rather, it tapered down slowly, to 16,303 on November 20, 2009. It then immediately rebounded to higher than ever at 22,893 friendships on November 23, two days past the ceasefire, before stabilizing at previous levels. By contrast, during the entire war, the worst estimates placed on total citizens killed *and* injured at only 1,478.

As this example illustrates, war *and* peace are rooted in individual behavior. The trends and events we read about in are much better understood at the level of individual human acts that comprise them. This dynamic means it can now be more effective to design technology that enables and triggers new behavior, rather than the traditional approaches of designing policy or institutions to address broader groups.

Concerns & Conclusion

While mediating technology augments our ability to engage positively, it simultaneously increases the potential for harm in three ways: *1. Omission*, such as distracting us from face-to-face, positive engagement with loved-ones at meals. *2. Commission*, as seen in online bullying. *3. Unintended consequence*, e.g. when increasing ease of trust erodes social bonds.

The reach and integration of technology in modern life has also created a participation deficit due to varying levels of access. As Ann Mei Chang writes, many voices are still not heard because "only 40 percent of the world's population is online. [But those who do not have Internet access are disproportionately poor, rural, older, and female." At the same time, this technology is also increasing engagement disenfranchised minorities of at unprecedented levels-Forrester forecasts that more than 50 percent of the world's population will be using smartphones by 2017, with most of that growth in developing countries.

By design, mediating technology changes human interaction. As a result,



concerns around identity, trust, reciprocity, cyberbullying and accountability must all be rethought in this environment. While we have many concerns, our best estimate is that the upside of mediating technologies does outweigh the risks. failure, ensuring the same harm is never repeated. In the same way aviation has become the safest form of travel, peace technology can become ever safer for those with deep differences who wish to positively engage.

"A lot of times, we tend to villainize the other, but when people are traveling, getting to know others, and turning strangers into friends, we create a world where there are a lot fewer people who seem alien to us," says Chip Conley, Head of Global Hospitality for Airbnb.

Better technological and institutional designs to manage trust, decrease toxic discourse, and protect privacy are on the horizon. Consider previous technologies like aviation that conferred great adventages, but at a cost of tragic accidents and the potential for intentional harms. Yet we-individually and everv dav collectively-decide that aviation is worth those risks. Why? Because we have a global organization of engineers who systematically study every accident, then change the designs and regulations to ensure that those kinds of accidents never happen again. In the same way, we need a rigorous, systematic, global approach to these newer, faster, smarter technologies. To balance the potential of peace tech, we must remain mindful of serious known risks, ethical dilemmas, and the possibilities of vast unintended consequences that arise from its design and deployment.

As with aviation, doing no harm is impossible as we deploy new peace tech for the first time. But a "do no **known** harm" approach is at least possible. A global organization of peace tech engineers and practitioners should work with regulators to transparently analyze and document every peace technology Margarita Quihuis and Mark Nelson codirect Stanford Peace Innovation Lab, where Karen Guttieri leads the security and development initiatives. The lab creates design frameworks and innovation processes for technologies that measurably improve positive peace. The Stanford Peace Innovation Field Lab Network is a global research community consisting of thought leaders from the fields of innovation, technology, business, game design, finance, and peace studies.



MAKING SPACE FOR PEACE In Lebanon

Soha Frem

In downtown Beirut, since the beginning of the 20th century, Martyrs' Square has been the site of countless political events -a public space that marked the country's history and symbolized freedom and unity. During Lebanon's civil war (1975-1990), Martyrs' Square was the point of departure for a trenchant, physical line separating East from West. The demarcation line became a theater of sectarian war and bloodshed that eradicated all signs of life except for that of the green foliage invading the streets and buildings, and became known as the "Green Line."

During the long civil war, Beirut's center was torn apart—its civilians expelled, businesses and ministries sacked and buildings transformed into strategic military positions. With each military operation, the demarcation line widened, reaching the city's suburbs and leading to further sectarian homogenization of previously mixed territories. Lebanon's civil war both created and accentuated political, psychological, and physical divisions which today's Lebanese society still struggles to overcome.

As the war progressed, populations moved into territories according to sectarian affiliations, making East Beirut largely home to Christians and West Beirut to Shia and Sunni Muslims. Some people remained in their neighborhood regardless of the sectarian militia that controlled it, but East and West Beirut became the centers of military, economic, and political power of each of the opposing militias. The population influx to the East and West led to an expansion of militia power—which, in turn, required further spatial control. This expansion led to the development of new infrastructure, increased control over key economic sectors, name changes for public places and streets, transformation of buildings into militia points, and the creation of a new taxation system. Public spaces became the product of political hegemony, and in turn, became catalysts for greater social segregation.

In 1990, the "Document of National Accord" known as the "Taif Agreement" was signed by the parliament; it was the foundation of the civil war's end and sparked a transition to political normalcy. The agreement defined a power-sharing formula that assigned the offices of President, Prime Minister, and Speaker of

the House to the Maronite, Sunni, and Shia sects respectively. The peace agreement reinforced the status quo. It continued to serve the interests of the political leadership in their efforts to safeguard their continuity in office, shattering rule of law, and leaving the interests of all communities to a dysfunctional governance system and ongoing turmoil.

The urban reconstruction of Beirut reflected wider political and interest-based economic and political agendas. While the city's spaces were cleaned of barricades and obvious reminders of the war, the "Green Line" is still salient in Beirut's economic, spatial, and psychological fabric. The war's socio-political and physical networks (depending on the region) continue to function, and spatialpolitical hegemony continues.

Additionally, Law 117 passed by the

commingling of diverse identities captured a national spirit—where walking was an intimate mode of negotiating with the space and with those who participated in it. Distancing oneself from the space meant distancing oneself from the "other." In contrast, post-war downtown reinforced the communal segmentations and territorialization of the city and was one factor in stalling the process of reconciliation and reintegration.

Post-war political dialogue and mediation efforts continue to this day in Lebanon, but the spaces where those dialogues take place (public institutions, private or public spaces) are often used by the various political factions to reinforce sectarian power and maintain the status quo. Various civil society efforts were initiated to counterbalance this reality and create spaces for public debates across sectors and around issues of national

Public spaces became the product of political hegemony, and in turn, became catalysts for greater social segregation.

government at the end of the war privatized, demined, and gentrified Beirut's city center. What was historically a melting pot space where people of all socioeconomic, cultural, and religious backgrounds interacted, became accessible only to a minority of society. The area of the city center that encompassed the main transport hub, major government institutions, hotels, cafes, souks, opera house and other locations, became a highend commercial and business center accessible only to the wealthy. The center became sanitized of ethnic affiliation, cleansed of war memorials, and void of public spaces for national remembrance.

The gentrification of downtown Beirut was not only the end of access, but the destruction of the city's core communal social value — a dimension that the prewar generation praised and the post-war generation longed for. The urban center used to be a shared space where the concern.

Within this context, the Common Space Initiative (CSI) for shared knowledge and consensus building was created in 2010 in response to the need for a space for informal, yet structured, dialogue between Lebanon's primary stakeholders (both civil and political). CSI involves an inclusive and disparate group encompassing political parties, policymakers, intellectuals, experts, and civil society actors. It created a physical space for its work, a stone's throw away from Martyrs' Square, in the city's historical melting pot, where the concerned stakeholders can meet to reflect, debate ideas, and formulate proposals away from political calculations and external pressures.

CSI is in the heart of the city center, on "Place de l'Etoile," facing parliament, and close to the Grand Serail (headquarters if the Prime Minister of Lebanon). CSI's space is comprised of four main areas: 1. dialogue rooms where dialogues take place on a permanent basis, 2. a library that offers stakeholders a working space and access to all necessary knowledge resources, 3. office spaces for the CSI support team to undertake research, facilitate communication. build relationships, and provide human resource, operational, and finance support for various dialogues, and 4. a reception area where stakeholders meet for informal discussions.

The main conference table is designed so that no one position at the table privileges another. The walls are filled with photographs detailing the history of Lebanon's many efforts to build communal understanding, secure stability, and effect peace. The library offers resources on Lebanon's political reforms, efforts, and needs and to the public. All of these elements create a sense of historical integrity and connection to the best efforts of Lebanon's diverse factions at crafting a unified nation.

CSI's neighbors are mosques and churches of nearly every Lebanese faith, and the call to prayer and church bells are regular reminders of Lebanon's pluralism and religious traditions. Unlike typical offices, two-thirds of the CSI is common space. Shared spaces and facilities allow for all stakeholders to meet formally or informally, conduct research in the library, use confidential online spaces, and use networks and tools to facilitate exchanges of knowledge between stakeholders, experts, and others.

CSI supports the development of knowledge-based dialogue forums that: 1. include individuals from various levels of society, 2. tackle political, social, economic, and judicial aspects of society, and 3. respect core principles of inclusivity, ownership, dignity, sustainability and knowledge sharing.

CSI's support team maximizes the interplay between analysis and action and is comprised of political analysts, social scientists, knowledge-sharing experts, process designers, facilitators, legal experts, psychologists, architects, and others. Together, they explore the multiplicity of frames through which one can analyze conflict and capitalize on resources and expertise to best respond to needs and challenges as they arise.

While CSI continues to support dialogues and peacebuilding processes in Lebanon, it has also extended its support to other countries including Cyprus, Burma, Nepal, Yemen, Tunisia, Egypt, Morocco, and Jordan-where each process takes a unique social, political, and physical shape, based on the need of each context and stakeholders. All the outcomes of the processes supported by CSI are confidential and solely owned by the stakeholders in the dialogues, but the results of some of those dialogues have been publicly released and include: The Common Vision for Lebanese Palestinian Relations, Lebanon's Decentralization Draft Law, and The Vision for the Reactivation of the Economic and Social Council in Lebanon.

Developing and proceeding through stages of mediation, and designing appropriate prevention initiatives and interventions based on the causes and stages of a conflict, is not a linear process. Creativity must be present at every level of every element of dialogue in order to address the various aspects of conflict. Society has to foster its collective creativity in order to expand its understanding of how spaces of trust can be created, partnerships across divided communities formed, and reconciliation achieved. Soha Frem is the senior project officer of the Common Space Initiative—providing capacity to various dialogue and peacebuilding processes in Lebanon at a regional and international level. She has built her experience working with governmental and non-governmental organizations in the Middle East–North Africa region and Europe. The views expressed in this article do not necessarily reflect the views of the Common Space Initiative.





MEU RIO, OUR WORLD CIVIC ACTION STIRS GLOBAL CHANGE

Miguel Lago and Courtney Crumpler

Issues that are considered global problems-climate change, the energy crisis, and poverty-are, in many regards, urban phenomena. Cities are responsible for 75 percent of global energy consumption; 80 percent of gas emissions that cause global warming arise from cities; and one-third of city residents in developing countries live in slums. Accordingly, if city residents become more engaged in improving urban policy and quality of life, we, as global citizens will have a better chance of solving the broader, and increasingly urgent problems around climate change, energy, and poverty.

The urban environment streamlines citizen action and allows individuals to multiply their impact by engaging with others, making cities ideal locations for effective political participation. However, city governments around the world are facing a representation crisis. For example, despite mandatory voting, Rio de Janeiro's previous mayoral elections saw almost 30 percent of citizens invalidate their votes or refuse to participate in the election because of their lack of trust in the candidates and the process. However, shifting beyond an idea of democratic participation that is limited to elections will give citizens opportunities to re-engage with their representatives via direct, effective, and collective decision-making. This decision-making would confront inequality and social exclusion with its inclusive nature and change our citiesand the world-for the better.

Today, most municipal governments are unable to allow for effective participation in decisions that influence what matters most: the allocation of budgets, the occupation of land, and the management of resources. Decisions by municipal government could lead to solving the global problems that manifest themselves in cities, but waiting for governments to create mechanisms for this kind of meaningful civic participation may not be an option. This is why we created Meu Rio ("my Rio" in Portuguese), a locallyfocused platform and network for civic engagement and people-powered political action.

Meu Rio works to ensure that all of Rio de Janeiro's citizens benefit from, and participate in, the decision-making processes that are changing the city's urban landscape. We have built technological platforms that pool citizens' ideas to help improve city life and urge Rio's institutions to be more responsive and accountable. Using our platforms, citizens put peaceful pressure on decision makers, collaborate to find solutions to urban problems, and share opportunities to volunteer and participate in collective actions. With the local focus of our work, citizens can see the outcomes of their efforts.

Rio is a place of gang violence and drug trafficking, and a widening gap in economic disparity, but the work of community activists committed to peace and security has remained steadfast. Over the past three years, more than 160,000 of Rio's citizens have become members of Meu Rio and our mobilizations have changed over 50 public policies in the city: from helping pass constitutional amendments to solving neighborhood problems. We help channel energy into these mobilizations by giving them an online home and by helping to organize offline actions related to the cause. Advances in technological tools for mobilization have increased the possibilities for online actions and allowed for the rapid aggregation of massive support.

People's close proximity in a city facilitates gathering to define common objectives and carry out impactful actions. New technologies provide excellent tools to build and maintain communication with a massive mobilized community, but this connection alone does not produce change. Tools for online organizing have enhanced activist efforts by presenting opportunities for massive scalability, but in order to produce a more connected and powerful citizenry to spark social change, they must help people go beyond clicking to meeting in living rooms, libraries, coffee shops, and public parks around the world. Online activism does not work on its own and if we cannot find a way for it to strengthen offline advocacy and activeism, we risk wasting the huge uniting advantage that technology provides.

Organizations like Avvaz, Change.org, and Meu Rio use online campaigning to effectively change public policies. Meu Rio's campaigns have led to the creation of public policies and legislation, and to the protection of citizen rights. Take the example of Jovita, a mother whose daughter went missing over 10 years ago. Jovita created a campaign on one of our platforms demanding the creation of a police unit specialized in solving missing persons cases. After six months of direct pressure on government, the police unit was created and launched, tackling a structural problem in Rio that had been intensifying for years. In 2013 alone, almost 6.000 people were reported missing. As of September 2014, Rio now has a centralized intelligence system for solving these cases thanks to the mobilization of more than 16,000 people. A mobilization of this same community also helped bring about the adoption of an amendment to Rio's constitution, forbidding people prosecuted for corruption from being nominated to positions in public administration.

In the summer of 2013, Meu Rio joined in the fight for 100 percent availability of basic sanitation in Rio. We gathered nearly 11,500 signatures on a petition calling for the governor to limit the powers of the state water company president and another 2,200 asking for investments in Rocinha, Rio's largest slum, to be made in basic sanitation rather than in a cable car system in the community. These campaigns, along with a few smaller ones, were the online hub for the larger "Summer of Sanitation" project, a group of campaigns that began online and ultimately achieved success with coordinated offline action.

Members convened throughout Rio in a spirit of inclusive dialogue that culminated in a series of creative public events, from a small concert on a dock above polluted waters to an artistic representation of bacteria on the sands of Ipanema Beach. Meu Rio leveraged the collaborative power of technology to facilitate coordinated action. Coming from some of the richest and poorest areas of the city, and working across divides, the group of activists catalyzed around an issue that affected all of them and effectively implemented a strategy for creating real change. By the end of the summer, the events had been featured 75 times in national and international media, pushing the governor to announce that the state water company would be regulated by mid-2015.



From the "Summer of Sanitation," we learned that one great advantage of using technology is that energy can be channeled to create communities of interest for specific causes. These communities grow over time and can be activated to bring about concrete change. In this way, technology helps activism become more organized and inclusive, allowing for a range of diverse voices to mobilize for causes. In cities where citizens lack human security and feel alienated from the political process, working together for change can be uplifting and empowering.

Technology can work in the same way to facilitate participation in government decisions. Governments have both temporal and physical limitations to massive participation. There is no physical space for the majority of a population to participate in assemblies and conflicting schedules often inhibit this kind of widespread involvement. Virtual space removes these logistical barriers, facilitating collaboration among large numbers of people. Activism, both online and offline, can be the first step to an inclusive institutional participatory democracy, something missing in Brazil and many other nations around the world. Urban environments face layers of structural challenges and physical insecurity, but cities are the ideal place to implement collaborative, civic engagement and political innovations which could lead to positive global change.

Miguel Lago is the co-founder and president-director of Meu Rio, established in 2011. Miguel holds a B.A. in Political Science and a Master's Degree in Public Affairs from the Institut d'Etudes Politiques de Paris (Sciences Po).

Courtney Crumpler moved to Brazil after graduating from Princeton Univ-ersity in 2013. She has been a campaign coordinator at Meu Rio since the beginning of 2014, working closely with volunteers to design and implement campaigns in neighborhoods across the city.

In cities where citizens often lack of human security and feel alienated from the political process, working together for change can be uplifting and empowering.



COMMUNICATION AND CONNECTION IN AFGHANISTAN

Jes Kaliebe Petersen

The mobile technology boom in the developing world is hardly news anymore. There is no shortage of coverage on the ways mobile phones have influenced the lives of people in countries previously cut off from modern telecom-munications and the Internet. Indisputably, mobile phones have positively affected the ability of ordinary citizens in the developing world to communicate, share information, trade, learn, and work.

In Dari, one of the official languages of Afghanistan, *paywast* means "to connect"—a fitting name, we thought, when we started our company in Kabul in 2010. Paywast was to become a mobile-based social network, a Facebook-Twitter hybrid, distilled to the text-messaging format that mobile phone subscribers continue to use ubiquitously all over the world. The Internet was, and remains, only a privilege for the few in Afghanistan. Although the launch of 3G data service has increased access to affordable Internet exponentially, only a small fraction of Afghan mobile phone users actually have frequent access—and much fewer did when we started Paywast.

The platform for Paywast is a textmessaging application, using a three-digit SMS number (729). The application is connected to Afghan mobile operators through a messaging hub located on Paywast servers. Users create, join, communicate, and share in groups by using numerical or text keywords in their own languages. Use of the network was initially free, subsidized by donors, and later changed to a paid model. This enabled us to better customize services for users with regards to market needs. As with many other popular mobile services in the country, we have seen a willingness on the part of consumers to pay for quality services. In a country of much uncertainty, all of Afghanistan seems to be standing behind mobile technologies as boosters for the economy.

Three months after launching, in early 2011, more than a quarter million Afghans were using Paywast, most of them daily. That was far more than we initially anticipated and we cancelled some of our planned marketing campaigns to better support Paywast's organic growth. With the application, users now had an outlet to communicate autonomously and anonymously, and to

Although the launch of 3G data service has increased access to affordable Internet exponentially, only a small fraction of Afghan mobile phone users actually have frequent access.

engage with people they may otherwise not be exposed to. Some users created groups for specific topics of popular culture: cricket, Bollywood movies, even poems of Rumi, the ancient Persian poet and mystic. Others saw Paywast more as a utility, using it to coordinate work by setting up groups for coworkers and employees. Finally, and perhaps most interestingly, some saw it as a social exploration platform, a way to get acquainted with people and topics they would otherwise not have access to.

The social media juggernauts-Facebook, Twitter, and at one time, My-Space-had started to vigorously dominate the Internet landscape in the late 2000s. Social media was becoming a part of mainstream culture, and not only for consumers. Organizations, brands, governments, and big media had started, albeit slowly, to see the potential of this way of communicating and engaging with audiences, beneficiaries, and consumers. From the beginning, Paywast was intended to be an entirely commercial venture, leveraging our expertise and technology to provide value to consumers, organizations, and businesses. With the vast outreach of our platform, we wanted to help our customers better connect with their audiences.

Radio and TV are Afghanistan's traditional mass media platforms. With mobile, we could provide interaction in ways one-way broadcast media cannot. And though there was not much of an SMS culture in Afghanistan compared to other countries in the region—Pakistan, India, Tajikistan—we saw droves of young Afghans take to social networking with Paywast. Quickly, we started working with a wide range of institutional customers—NGOs, TV and radio stations, banks, ministries, and media agencies. Instantly, people in rural Afghanistan were able to hold Kabul politicians accountable by texting in questions to their favorite talk show on TV. NGOs could conduct quick perception surveys among large groups of beneficiaries through SMS. Regular Afghans could become citizen journalists by sharing breaking news stories with their local radio stations, swiftly and anonymously.

Increasingly, we have provided research services to NGOs and government, often in the form of SMS-based surveys. Conducting surveys in Afghanistan can be an expensive and lengthy affair, particularly outside the larger cities. The security risks still prevalent in many areas make it difficult to collect reliable data from a larger body of participants,

and when surveys touch upon more sensitive political or societal topics, citizens are reluctant to talk to data collectors. In contrast, Paywast's anonymous SMS surveys have proven highly efficient in collecting structured opinion, perception, and statistical data from citizens.

Several times, we have implemented survey campaigns, sometimes involving more than 50,000 participants, as part of human rights programs, counternarcotics projects, presidential elections, and a wide spectrum of media activities. On average, recipients open 99 percent of all text messages. Generally, if someone decides to respond, he/she will do so within two or three hours. Because of this, text messaging has proven powerful for targeted perception surveys that encourage quick feedback in the form of a binary response, multiple choice, or a brief line of feedback-particularly when the target group includes citizens living outside Afghanistan's three or four largest cities.

In 2012, the Afghan Ministry of Communications and Information Technology (MCIT) initiated a program to take more than 30 public services digital. It was a bold move; most nations still do not have a coherent digital public

service delivery strategy. Yet MCIT, as one of the most



forward-thinking branches of the Afghan government, knew that staying close to its citizens is key to good governance, and efficient digital service delivery, done right, can significantly improve citizens' percep-tions of government. Paywast is the implementer of the Afghan mobile government platform (branded to the Afghan public as HOSA).

Today, more than 1.7 million Afghans are part of the Paywast platform, and we work with more than 50 institutional customers, but the Afghan government continues to amplify the reach of SMS programs. By 2016, more than 30 Afghan ministries and sub-agencies will provide public services on mobile, through SMS, interactive voice calls, and apps, creating a new set of technological needs among Afghanis. They will furthermore be able to collect fees directly from citizens, through mobile phone credit and mobile money payments.

The HOSA program is a shortcut for citizens to access government and public services that may otherwise be out of reach, and a strategy for providing better customer service and responsiveness. Many of the Afghan ministries and government agencies provide mobile services through the mGov program, a government initiative to offer online services and resources to citizens. The aforementioned receive extensive technical support from MCIT as well as Paywast-to comply with the mGov framework's policy guidelines and technical requirements. Although most ministries in Afghanistan employ technology to some extent, the investments made in ICT for the public sector have yet to reach all corners of government.

Several projects are underway, most notably an electronic national ID (E-Tazkira), a technological overhaul of the central bank and the country's financial system, and a centralized human resources and enterprise resource planning system across ministries and government agencies. Strong automated processes like this one can greatly increase efficiency and reduce small-time corruption; the implementation of centralized ICT systems is expected to help achieve those goals. In the short term, the mGov project offers direct technical support to ministries via mobile applications to develop content, manage application operations, and promote their services. As a benefit, this support helps build capacity within those agencies to better take advantage of new technology. The state of technology in Afghanistan, as

Where other development indicators have been stagnant or growing slowly, the number of mobile phone subscribers and Internet users has increased more than 4,000 percent since 2004.

ever.

in many other developing countries, has improved dramatically over the past decade. Where other development indicators have been stagnant or growing slowly, the number of mobile phone subscribers and Internet users has increased more than 4,000 percent since 2004. There is now a burgeoning tech ecosystem of software developers, startups, community organizations, and government support in the country. In mid-2014, the Silicon Valley-based startup incubator Founder Institute launched a chapter in Kabul (where I am a mentor), and Afghanistan is starting to see interest from private equity and venture capital investors in technology companies.

This trajectory shows no sign of slowing. Amid the political turmoil of the 2014 presidential elections and the increase in insurgency and terrorist attacks in Kabul, there is still optimism in Kabul's technology community. Afghan Wireless, one of the mobile operators which has significant coverage in the traditionally conservative south, just launched 3G wireless Internet service for their subscribers. Additionally, the Afghan government introduced Ibtikaar, a start-up incubator space for tech anistan's largest social media property an SMS-based social network with +1.5 million users. Paywast also helps organizations, governments, and enterprises create outreach and digital solutions that connect and empower Afghan citizens. Jes tweets at @kaliebe.

entrepreneurs, providing office space and

Mobile phones and technology may not

directly affect the Afghan peace process,

but they have proven to be important

drivers in providing increased opport-

unity to many, Afghans, and the

opportunity is growing faster now than

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and the co-founder of Paywast, Afgh-

support to young tech companies.



THE DIGITAL REVOLUTION: WHO GETS LEFT BEHIND?

Ann Mei Chang

The rapid proliferation of mobile and Internet technologies has given rise to an unprecedented flow of communication between and among citizens and their gov-ernments and the ability to obtain and share data more widely than ever. These modern capabilities create the potential to transform crisis monitoring and response as well as conflict analysis and prevention. Emergency information can be quickly conveyed via voice, SMS, and the Internet to direct people to food, shelter, and medical care, and away from violence.

Powerful new technology platforms have made it much easier to rapidly deploy crowdsourcing systems that collect data from local populations. One of the betterknown platforms is Ushahidi, which provides open-source software for collecting reports from local observers through email or SMS and expressing them visually on interactive maps. Originally created to collect evewitness reports of violence following Kenya's disputed 2007 election, Ushahidi has since been expanded for diverse purposes, from monitoring elections in India and Mexico to collecting eyewitness reports of violence in Gaza and eastern Congo; to assisting post-disaster rescue in following the operations Haitian earthquake and Thai floods. In each of these cases, ordinary citizens were empowered to raise their voices and contribute to our understanding of dynamic situations. These applications have saved countless lives, but what about those on the other side of the digital

divide—those without access to a mobile phone or the Internet?

Missing Voices

We have all heard about how social media fueled the 2011 revolution in Egypt. Both the "We Are All Khaled Said" Facebook page and the #Jan25th Twitter hashtag were key organizing vehicles for launching a series of protests in Tahrir Square and changed the course of Egyptian history. In contrast to more traditional top-down movements, the use of social media engaged a broad youth-who populace-particularly shared thoughts, direct agendas, and became emboldened through their virtual connection. Yet, of the approximately 80 million people in Egypt at the time, less

than a third had access to the Internet and over 60 percent of those were male. Despite the sense of a sweeping change, 55 million voices were not being heard.

Today, only 40 percent of the world's population is online. The number is growing rapidly, but those who do not have Internet access are disproportionately poor, rural, older, and female. Almost 78 percent of households in developed countries are online versus 32 percent in developing countries and less than 10 percent in the world's least developed countries. While less than half the world's population now live in rural areas, 64 percent of those unconnected from the Internet are based in rural areas. Youth are almost twice as likely to be online, women are 23 percent less likely to be online in developing countries, with the gap soaring to 34 percent in the Middle East and 43 percent in sub-Saharan Africa.

Accordingly, as we marvel at the ways digital technology has expanded inclusion, unified people, and become a powerful tool for peacebuilding, we must also recognize the current limitations of its reach. When critical information is disseminated through new technology channels, those individuals already most disadvantaged may be left uninformed. Crowdsourced data on priorities and needs may reflect the views of urban youth, men, and the educated elite more than those of rural adults, women, and the common man. As digital technology becomes essential for full participation and engagement, we risk further widening the chasm between the two sides of the digital divide.

Barriers to Accessing Technologies

Some of the drivers of the digital divide are deeply entrenched and further echo existing inequities: for example, those who are illiterate will certainly be challenged to make productive use of web pages, apps, and text messages. Additionally, connectivity to sparselypopulated and remote rural areas will remain expensive and a lower priority for telecom providers. Yet according to the GSM Association of mobile operators, 85 percent of the global population has 2G coverage and 55 percent has 3G. Thus, while only around 20 percent of Africans are online today, innumerable others are literate, have coverage, and could be online tomorrow but are not.

One of the most significant barriers to Internet access is affordability. The International Telecommunications Union reports that, in 2012, while a fixed broadband connection costs, on average, 1.7 percent of the average income in developed countries, it costs 31 percent of the average income in developing countries and is least affordable in Africa at an astronomical average of 64 percent of the average income. In developing countries today, many people are coming online for the first time on mobile phones, but mobile broadband prices still range from 11 to 25 percent of the average income in developing countries versus one to two percent in developed countries. While lower incomes in developing countries certainly contribute to this differential, the absolute cost of

broadband is also appreciably higher there—often a result of poor policies and regulations that have led to weak market competition in service delivery and inefficiencies in the telecom industry.

With more limited financial resources, women are disproportionately affected by high prices and face further barriers to access. In many countries, cultural norms associate the use of mobile phones and the Internet with promiscuity and thus discourage or even ban women from using them. Online harassment can also be a deterrent. Even where such disincentives do not exist, women tend to have fewer opportunities to try out new technologies as they juggle the responsibilities of earning a living and caring for home and children. Additionally, men develop most online content and services, and designs inevitably reflect their own experience rather than that of women, resulting in less compelling offerings that might otherwise entice women to take the leap.

Opportunities to Build Bridges

Given the limitations of digital access, it is important that mobile phones and the



Internet are regarded as complementary tools, and not a panacea for the peacebuilding field. A quick SMS poll may be the fastest and cheapest way to gather data, but it should be undertaken with the awareness of which voices may be left out. Peacebuilders and their counterparts in the tech world can then design systems with multiple modalities to ensure no one is unheard.

Today, only 40 percent of the world's population is online. The number is growing rapidly, but those who do not have Internet access are disproportionately poor, rural, older, and female.

If global citizens are conscious of the inequalities surrounding access and work to overcome them, digital technologies can equalize rather than discriminate, building bridges rather than creating divides. For women who live in communities that constrain their movement, the Internet can help their voices reach infinite distances, as it is already doing. People on opposite sides of religious, ethnic, or political divides can meet in neutral territory to buy and sell goods and even begin a dialogue.

The Internet is a global, shared space where all are welcome, where the quality of your ideas can leave a greater impression than the color of your skin, and where clashing views can be shared peaceably. Is it a model for the peaceful world we strive to build? Perhaps, but to realize such a possibility we must ensure all voices are included.

When this article was written, Ann Mei Chang served as the chief innovation officer at Mercy Corps. In December 2014, she was named the first executive director of the U.S. Global Development Lab at the U.S. Agency for International Development (USAID). Ann Mei tweets at @annmei.



DRONES FOR PEACE IN SYRIA

Jessie Mooberry

It is hard for the general public in the United States to connect to a crisis as catastrophic and brutal as the one devastating Syria. Four years have passed since the first Syrian "day of rage" protests. Now, there are nearly 3.45 million Syrian refugees—half of whom are children—and 6.8 million internally displaced Syrians, from a population of 23 million, a total of almost 50 percent of Syria's population. The people are desperate, trapped in crossfire while being denied medicine, food, and other basic rights.

The Syria Airlift Project—a group of volunteers comprised of Syrians, active U.S. military, pacifists, humanitarian lawyers, PhD engineers, and many more-seeks to aid Syria's most desperate communities while empowering and bringing hope to the Syrian people. The project accomplishes these aims with the use of a tool traditionally used as a weapon. Also known as unmanned aerial vehicles (UAVs), drones are designed by

the project deliver medicine, food, water purification technology, and other aid into besieged or hard-to-access areas.

UAVs, or drones, have traditionally been used for military intelligence or as weapons. However, many entrepreneurs are now using UAVs for peaceful and humanitarian purposes, including aerial filming, search and rescue, infrastructure inspection, forest fire detection, crisis mapping, and wildlife conservation. Most of these initiatives use UAVs as imagery platforms, but we see another possible application: delivering cargo where manned aircrafts cannot safely, easily, or affordably, go.

The Syria Airlift Project's small, fixedwing UAVs can fly up to 50 km, drop small payloads by parachute, and return home safely. No single UAV will carry more than 2 lbs, but like an army of ants, together they will move large volumes of aid in significant numbers. We aim to keep vehicle costs low, between \$500 and \$1000, making it feasible to operate large numbers of them and absorb the inevitable losses that will occur.

The project is currently in the research, development, and testing phase, and we hope to begin trials in the summer of 2015 on the Turkish-Syrian border. We believe that such airlift capability could make the world a better place: our first project will be in Syria, but we see further applications for long-distance transportation of crucial supplies, including rural medical deliveries and disaster relief.

Our focus on Syria is not without risk. The project must contend with important legal questions about violating state sovereignty, preventing theft or hoarding of our aid by malevolent groups, and securing our technology against hacking, theft, and misuse. To research and address these concerns, we have turned to the United Nations, NGOs already working in Syria, and Syrians themselves for assistance, insight, and partnership. Given the crimes perpetrated against innocent Syrians, we believe-along with the United Nations, as expressed in UNSCR 2139 and 2165-that such creative measures to deliver aid in Syria are warranted. To guarantee responsible use of our technology, we are designing safety features that will render the aircraft inoperable if they go down in Syria, so that Syrian fighting groups cannot reuse them for ill intent. Also, our existing and future partnerships will help guide our airdrops to distribution channels which will provide the most benefit to local hospitals, emergency responders, and trained humanitarian workers, ensuring the dropped goods reach those best equipped to handle them and utilize the skills and knowledge of existing humanitarian processes. Ultimately, we believe the potential value of this new paradigm for delivering aid far outweighs the risks.

We believe this project can empower Syrians and send a message of hope and reconciliation. We are coordinating with Syrian NGOs, such as the Syrian American Medical Society, and plan to employ Syrian refugees in Turkey to the maximum extent possible. Helping to Teenagers will be able to send candy to their brothers and sisters still under siege, delivering moments of joy and assurances that the world has not forgotten them.

organize humanitarian deliveries will provide these refugees with dignity, meaningful employment, and the opportunity to be a part of the rebuilding process.

With help from our partner organization Project Amal ou Salaam, we will ask Syrian refugee children to decorate our UAVs. Syrian engineers can help us design airdrop bundles, which will carry water filters to places with no potable water. Syrian women will be able to send letters of hope and love along with feminine hygiene kits. Teenagers will be able to send candy to their brothers and sisters still under siege, delivering moments of joy and assurances that the world has not forgotten them. Together, we will erode the legitimacy of groups use starvation and medical that deprivation as war tactics and empower those who seek to build a better future.

Airlifts have been used before to peacefully challenge aggression and empower goodwill. In June 1948, the Soviet Union cut off all land and water access to the 2 million citizens of West Berlin, hoping to secure communist rule. The Berlin Airlift kept the city alive, rallying Berliners who wished to retain their freedom. The airlift made siege tactics impossible in Berlin, and more important, changed the tone of the Cold War. Later, when a German newspaper asked Berliners what they remembered about the airlift, submissions said: "The world respected us," "The world was watching us," and "The world cared about us."

We believe the world can once again use airlifts to diminish the power of those terrorizing innocent populations. We can demonstrate that we have not forgotten Syria's most desperate populations by bringing Syrian refugees together and working with them on a project that provides dignity, hope for the future, and crucial aid for their brothers and sisters still within Syria. UAVs can be used for more than military applications. We wish to give the global community a chance to send hope to Syrians and build a technology with potential for use in many peaceful applications. While doing so, our paradigm for delivering aid can actively combat the abhorrent use of mass starvation and medical deprivation as weapons of war.

Jessie Mooberry serves as the vice director for the Syria Airlift Project. She is a Quaker and a recent graduate from the University of Pittsburgh where she studied Finance and Chinese.







THE COSTS AND ETHICS OF MODERN WARFARE

Caroline Donnellan

The last decade has seen signifi-cant developments in military technology and a global re-thinking of military approaches to future threats. The focus of modern initiatives is to counter threats at a distance without the need to de-ploy military force, a task that can be described as warfare by "remote control."

This style of combat includes a heavy reliance on armed and reconnaissance drones as well as a marked increase in the use of special operations forces (SOF) and private military and security companies (PMSCs). These developments are driven by technological advances and decreasing popularity among governments and the public of large scale military deployments. As these technologies continue to gain traction, it becomes necessary to consider how they fare in terms of transparency, accountability, and their contribution to world peace.

The new methodologies have largely attracted a favourable public response among the countries using them to combat terrorism. They are presented by political leaders as the modern, high-tech alternative to 'boots on the ground' which frequently results in heavy casualties. However, the full extent of casualties that can be attributed to remote warfare either directly as a result of drone attacks or, over the longer-term, due to blowback from terrorist activities, extremism and radicalization—is not always factored into the equation, nor can it be quantified easily.

A persistent concern is that governments using drones know little about the identities and numbers of people killed by drone attacks, a troubling dynamic which has remained true since the US Central Intelligence Agency (CIA) carried out its first targeted drone killing in Afghanistan in 2002, shortly after the events of September 11, 2001. Following this strike, reports suggested that the CIA thought one of the three men killed might have been Osama bin Laden due partly to his height. Despite ultimately not knowing the figure's true identity, the CIA felt it was an appropriate target. Reports have since suggested that the

three people killed were innocent locals collecting scrap metal.

Fast-forward to today and, although stateled recording of drone strike casualties is undertaken to various extents in different contexts, it is still not possible to find comprehensive systematic, public, casualty records by any of the states involved in launching or hosting drone strikes. Non-governmental organizations currently provide the predominant source of information about drone-strike casualties and, while their data and methodologies have sometimes been criticized, they supply vital information that would otherwise not exist. Academic, United Nations, and civil society analysis has drawn attention to the obligation on states to investigate possible civilian casualties resulting from drone strikes and has proposed that all casualties be recorded and reported upon.

Of course, the full story of modern warfare is not just about armed and reconnaissance drones or other high-tech weapons. Technological advances have increased information-gathering capacities and, as the appetites of governments and the public for large-scale military interventions continue to diminish, many nations, particularly the United States and the United Kingdom, have begun to prioritize the use of small, low-profile, and highly-trained combat units over traditional military interventions. The start of the millennium has seen a sharp increase in the use of SOF, with the US more than doubling the size of its Special Operations Command since 2001. The inherent reliance of SOF on classified intelligence to carry out missions, coupled with their clandestine nature, presents a new and less accountable form of warfare.

The use of PMSCs has also grown. Private, U.S. corporations are integrated into some of the most sensitive areas of modern warfare including flying drones, managing surveillance technology, and running psychological operations. The outsourcing of military functions previously considered the domain of states-including combat and the use of direct force-represents a fundamental shift regarding state monopoly on the legitimate use of force and has implications for accountability. This rapid proliferation has not been matched by an adequate increase in oversight mechanisms to monitor the activities of PMSCs. Non-binding codes of conduct have been developed at the international level and signed by several hundred private security operators, but there remains a lack of binding regulation for PMSC activities as well as a lack of transparency surrounding the actions of PMSCs and their sub-contractors.

Each of the remote control tactics gaining traction in modern warfare poses challenges of transparency and accountability, but do they at least contribute to peace and security? The reality on the ground in drone-bombed areas is they previously had no connection. The use of drones has spread the threat of violence to other parts of Pakistan and detrimentally affected society.

The proliferation of remote warfare has reached a critical point where policymakers must evaluate its long-term impact and address lingering ethical questions around lack of transparency, accountability, and regulation. Avoiding 'boots on the ground' may appear a less deadly and less expensive means of counter-terrorism for the countries employing remote warfare but the unforeseen consequences which could render this approach counter-productive need to be considered and addressed. There is also a need to more closely examine the conditions that have allowed terrorist groups to develop into the threat they now represent. Accordingly, there is a need to address the issues in current

Academic, UN, and civil society analysis has drawn attention to the obligation on states to investigate possible civilian casualties resulting from drone strikes.

frequently unrecognized: drones are strongly disliked and feared and can have profound psychological impact on citizens. In addition, there are indications that drone strikes lead to an increase in terrorist attacks, extremism, and radicalization. An example is Pakistan, where drones are deeply unpopular due to the civilian casualties, infringement of sovereignty, and societal impact on the daily lives of ordinary civilians they entail.

Drone strikes are becoming synonymous with U.S. military activity and growing anti-American sentiment has provided an effective recruitment tool for extremists, fueling rather than minimizing radicalization. Furthering the problem, relocation as a result of drone strikes has widened that recruitment pool, as militants have spread to regions with which methods of countering terrorism that may have repercussions for the future. Technology, however advanced it may be, does not have the power to resolve conflicts, many of which are deep-rooted and protracted.

Caroline Donnellan manages the Remote Control Project, an organization in London, U.K., that examines new ways of modern warfare and engages with policymakers on the issues they raise. Caroline has also worked in multilateral diplomacy for the Irish Permanent Representation to the Organization for Security and Cooperation in Europe and the Irish Permanent Representation to the Council of Europe. Caroline tweets at @CD_Donnellan.



PROVING (DIGITAL) PEACE

Charles Martin-Shields

Ushahidi was born from the efforts of a team of Kenyan programmers, journalists, and lawyers who want-ed to find a way to quickly share information about the violence around them during Kenya's 2007-08 election. Although they were both niche practices in peacebuilding, Ushah-idi sparked a global interest in crowd-sourcing and mapping violence, changing how communities tell their stories to the world.

Ushahidi had predecessors, such as the U.S. Holocaust Memorial Museum's Crisis in Darfur mapping initiative. Using high-definition satellite imagery donated by the U.S. National Geospatial Intelligence Agency, the project plotted data contributed from reporters in Darfur, illustrating the local effects of violence. But Crisis in Darfur depended on a central collection process using U.S. government assets; it had an effect in that it changed U.S. policy toward the conflict, but had very little relevance in localized

peacebuilding since the change agent was the U.S. government.

In contrast, Ushahidi was an international game-changer because its map was accessible to the general public and democratized data collection by drawing on crowdsourced text messages and social media to populate the map in near-real time. Citizens could report on their personal experiences of violence and see the experiences of their neighbors displayed publicly online. News reporters could view reports from local actors in real time, a volume of valuable information they otherwise could not have gathered on foot or by phone. Donor agencies took notice of how citizens could use common commercial communication technologies to share data that was then visualized on a map, easily read and viewed publicly. It is certainly not a foolproof system; conflict entrepreneurs could take advantage of such a platform by providing false information, hacking, or directing violence against people who

are sharing information. Indeed, risk awareness and management is important in any digital peacebuilding process.

A similar platform, Sisi Ni Amani uses text messaging as part of its ongoing peacebuilding work in Kenya. The significance of the platform is not its use of mobile phones, but rather that it started with established peacebuilding practices and then used mobile phones to enhance this work. The Sentinel Project is also doing work in Kenya with mobile phones, using text messaging to intervene in rumor propagation that has ignited conflict in the Tana Delta region. The Sentinel Project focuses on the notion that violence is an outcome of perceived risk in a rumor-filled environment. Using text messaging to inform trusted local leaders of the veracity of a rumor can help prevent false information from spreading and sparking violence.

The use of ICTs in peacebuilding is growing and increasingly rich with

potential, but in verifying their effectiveness, it is important not to seek direct connections between technology and peace. Instead, we should look for good peacebuilding practices and assess how technology is being used to amplify the effectiveness of those programs. We can start from understanding how and why people use different technologies and information; this information will tell us a lot about how local actors can integrate ICTs into community peacebuilding processes. Fundamentally, we have to focus on technology as a tool for improving the reach or scope of a peacebuilding project, instead of trying to shape peacebuilding around a technology.

Kenya has been at the forefront of using technology for peacebuilding. Ushahidi was developed in Kenya, and media coverage of it spurred interest from donors to further initiatives around peace and technology. Another aspect that has contributed to the growth of peace technology in Kenya is its relatively large ICT sector, which includes telecommunications and start-up technology firms, all supported by government technology investment and regulatory policy. Kenya's ICT sector is owed, in part, to its unique strategic positioning in East Africa. Not every country has the investment and regulatory environment that Kenya has, and these differences can affect the way that peacebuilders use technology locally.

Ultimately, ICTs are commercial products, and the ways people use them are as much a function of regulatory rules as of personal preferences. For peacebuilders, this means that legal as well as social context affects how ICTs operate to help build peace.

If we make the problematic assumption that technology creates peace, then technology will always fall short. Instead, we need to understand how technology enables the social and political processes of peacebuilding, increasing the opportunities to bring people together in dialogue and cooperation. Charles Martin-Shields recently joined the Institute for Economics and Peace as a research fellow, and also consults at the World Bank on mobile money policy in southern Africa. He is a PhD candidate at George Mason University's School of Conflict Analysis and Resolution. Charles tweets at @cmartin-shields.





PLUGGING GOVERNMENTS INTO PEACE

Margot Wallström

Information and communication technologies (ICTs) are trans-forming relationships. Networks are rapidly replacing hierarchies; the power of actors to effect change increasingly depends on the number of connections they have rather than the name of their institution; and what we call "mass communication" can nowadays be sparked by a single individual. But modern forms of interaction made possible by ICTs, particularly social media, can also enable governments to engage directly with citizens in new ways.

An important part of this dynamic is ensuring that relevant actors play a key role in conflict resolution and that women, in particular, are able to take part in emerging networks. To take full advantage of the technological revolution, governments need to find new ways to interact with the public.

When Sweden recognized Palestine as a state, the news spread quickly around the world-in part due to the strong opinions surrounding the topic. But an additional important explanation is the new social media system the Swedish Ministry for Foreign Affairs (MFA) has been developing to enhance its digital public diplomacy and the reach of news like this. Since 2013, most Swedish embassies have had a presence on Facebook and Twitter. Recently, the Swedish MFA launched a dedicated news portal, designed to increase discussion around Swedish foreign policy in social media by drawing on the expertise in the organization. The process of enhancing the Ministry's use of social media is part of a wider push that acknowledges a shift in citizen mobility and behavior. Hierarchies are giving way to networks of people who self-organize organically to collaborate and make their voices heard. New forms for engagement and innovation are emerging that draw on the opportunities that lie in new information technologies and leverage the power of networks to approach problem solving in innovative ways.

In conjunction with technological developments, security policy is expanding to encompass issues such as gender equality, climate change, migration, freedom of speech, and public health. The security of individuals and their right to freedom of association and expression are key issues for advocates of smart power.

People's everyday concerns are intrinsically linked in a fine web of relations and interactions, whose exponential growth is often driven by technological development. One case in point, where Sweden is using ICTs to empower women and girls in new ways, is the work of the Swedish International Development Cooperation Agency (Sida) to increase socio-economic equality between women and men by ensuring equal access to technology.

At its best, technology helps create social development and real, people-to-people communication across borders and conflict lines. It can generate a global sense of community in which people can find common ground.

At its worst, virtual communications can be misused to spread propaganda and hatred, and fuel conflict. Conflict thrives where there is a lack of understanding and where access to information varies. As a result, technology's potential, for good and bad is expansive and needs to be

explored thoroughly. Although technology in itself is neutral and can be used for both good and evil, its positive potential must be duly recognized. This is why the Swedish MFA takes learning and engagement in this new environment seriously: in order to understand and inform the new landscape, we need to be part of it.

To respond to this new reality, the Swedish MFA is increasingly engaging directly with global audiences, an initiative which has raised new questions regarding the way the organization interacts with the public. There is a growing need for an agile capacity for collaboration with emerging actors, and we need to do things differently if we want to make an impact. In the past, it often sufficed for foreign ministries to deliver official messages of their governments' policies, but today their role is much more dynamic-as partners and nodes in the exchange processes, both listening and expressing their views with a genuine curiosity about important issues and the countries they engage with.

In keeping with the modern transformation of this role, the Swedish MFA is actively exploring novel forms of

engagement that tap into the field of digital innovation.



These initiatives include the Stockholm Initiative for Digital Diplomacy (SIDD), a co-creative event bringing together various actors from the field of digital diplomacy for a workshop on the future of diplomacy in a connected world.

The first SIDD event took place in 2014 in Stockholm and gathered digital diplomats from all over the world. The second edition is a multifaceted campaign combining digital content with convenings at multiple locations across the globe. The campaign, Midwives4all focuses on women's rights to safe motherhood and the importance of midwifery to health and development. According to a recent United Nations (UN) study, well-trained midwives can prevent two-thirds of deaths among women and newborns, illustrating that midwives should be recognized as heroes. This is an urgent matter and I will personally take part in the campaign to highlight the importance of investing in midwifery services globally.

In collaboration with the Dutch Embassy in London, Sweden has also developed the Diplohack concept, an experimental platform for combining the specific skill sets of diplomats, social entrepreneurs, tech developers and designers, journalists, academics, NGOs, and businesses to 'hack' traditional diplomatic problems in start-up style groups.

Although these small innovation hubs function as laboratories, they also represent a genuine intention to stay informed about technological developments. This intention reinforces a foreign policy based on Sweden's priorities for a safer world. To build our security in solidarity with others, our top priorities are a feminist foreign policy empowering active UN women, an policy, disarmament, and sustainable development. Our experience is that constant change is the new norm; those who are innovative and take initiative, however modest, will be able to promote positive development. We therefore need to be explorers and adapt to new circum-
stances as we aim for our policy objectives.

Importantly, technology is now making information flow from places that previously were blank spots on the mental map of policymakers. We can no longer say "we did not know," when images and videos of conflict and human rights violations recorded on smartphones and distributed over the Internet, are reaching us from the most remote places in the world.

Big data has opened new pathways to development and conflict resolution. The information technology revolution sweeping across the globe is also opening the way for many socially beneficial applications of technology. By analyzing mobile money transactions (while keeping them anonymous), the United It is safe to say that policymakers and diplomats-just like most of us-have not yet fully grasped the consequences of the mobile revolution as it comes to unfold, a key vehicle for interconnectedness and the foundation of the global village. With all the data in the world accessible via smartphones in our pockets, government still needs to figure out how to close the gap between analysis and action. The distance between organizations working in the field and decision-making at the political level is too great. While previously, we were unable to take action because we did not know enough, today we are hampered by the huge volume of available information. As policymakers, we need better ways to distinguish signals from noise.

Technology in itself cannot resolve conflicts. But in a world where nearly everyone has-or will soon have-access to

The distance between organizations working in the field and decision-making at the political level is too great.

Nations Global Pulse, a flagship initiative on the use of big data, has been able to demonstrate the feasibility of creating early-warning systems for food security. Flowminder, a Swedish foundation, combines anonymized mobile phone data with traditional surveys to solve public health problems, such as mapping the spread of Ebola. A further example is that through careful and real-time analysis of social media, it is now possible to quickly pinpoint ceasefire violations.

The positive effects of technology, the Internet and big data for development must not be overlooked in discussions of issues of surveillance and privacy now taking place at the UN and elsewhere. The use of big data will be crucial to ensuring that we know what is happening, not least in relation to the new sustainable development goals currently under negotiation at the UN. communication technologies, the question is whether we will be able to resolve conflicts without technology. It is sometimes argued that small-scale initiatives, such as those developed by the Swedish MFA or other stakeholders, are futile when it comes to peace-building and conflict resolution. This view overlooks the importance of initiating positive processes in collaboration with other stakeholders. Progress will depend on our capacity to join forces with the people who are currently working to create a better future and the times we live in suggest that technology will be at the heart of this work.

Margot Wallström is the Minister for Foreign Affairs of Sweden. Ms. Wallström previously served as European Commissioner for the Environment from 1999 to 2004 and as European Commissioner for Institutional Relations and Communication Strategy from 2004 to 2009. She was also Special Representative of the UN Secretary-General (SRSG) on Sexual Violence in Conflict. Ms. Wallström tweets at @margotwallstrom.



WHO WILL GOVERN THE INTERNET?

Paul Mitchell and M-H. Carolyn Nguyen

John Arquilla recently asked, "what if we, too, could imagine the Internet serving as a vehicle for cooperation, the sharing of hopeful stories; the communications link between moderate citizens creating positive social change; and as a voice for democratic action?"

Cooperation and the exchange of ideas have been at the heart of human advancement, and the Internet has become the most effective mechanism for enabling a global, unconstrained, and timely exchange of ideas in history. But the borderless world of the Internet conflicts directly with today's global geopolitical system, the foundation of which relies on the sovereignty of national governments. Governments have varying views on the balance between freedom of expression and national security and identity. Those that are interested in tighter control have increasingly mobilized international organizations, such as the United Nations, to implement intergovernmental models for Internet governance. Many of these governments have cited the Snowden revelations regarding the overreach of the National Security Agency as a rationale. Arquilla's However, vision of communication and collaboration can only be realized if all stakeholders are committed to ensuring that the Internet remains open and interoperable globally. Discomfort with some topics such as differing attitudes towards race, politics, science, or religion, should not result in fracturing the Internet's vibrant and continually-expanding ecosystem

What Is Internet Governance?

Internet governance encompasses a broad spectrum of issues. A working definition, developed as part of the United Nationssponsored World Summit on the Information Society (WSIS), is "the development and application by governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programs that shape the evolution and use of the Internet." The issues can be grouped into two categories:

1. Technical governance of the Internet for sustained stability, security, and resiliency, through continued protocol development, managed in voluntary standards organizations driven by technical experts. This includes evolution of the domain name system (DNS) and protocol parameters (the unique codes that enable character encoding and traffic management for the Internet) needed to run the Internet globally, managed by the Internet Corporation for Assigned Names and Numbers (ICANN), a California nonprofit corporation, under a contract from the U.S. Department of Commerce.

2. Sociopolitical governance of Internet use, driven by increasing concerns about the Internet's effects on society. It covers issues such as the integrity, privacy, and security of information transmitted on the Internet, including child pornography, fraud, spam, intellectual property, surveillance, freedom of speech, human rights, and unequal revenue distribution.

No single venue or authority makes global decisions on any of these aspects. A federated, multi-stakeholder approach in which governments, business, civil societies, technical experts, and other interested parties all participate, has been in use since the beginnings of the Internet. However, this process is not Cooperation and the exchange of ideas have been at the heart of human advancement, and the Internet has become the most effective mechanism for enabling a global, unconstrained, and timely exchange of ideas in history.

satisfactory to governments that prefer a centralized, intergovernmental—or government-to-government—decision-making process backed up by regulation.

Challenges in 2015

In the past two years, Iran, Saudi Arabia, the Russian Federation, China, and India have proposed global intergovernmental regulation of both technical and sociopolitical aspects of the Internet to replace or augment the current system. The proposals are motivated by various domestic concerns, but a central one is a view that the Internet is too free and open, and that content available on it is damaging or disrespectful in some way. The proposals have included elements that, if adopted as regulation, would curb freedom of expression, restrict or block citizens' access to content, impose additional barriers to Internet access, or increase the ease with which some voices could be silenced by ensuring that dissenting views could not be published or accessed. In other words, these proposals could result in governments blocking content they find objectionable or prosecuting journalists or bloggers who advocate for greater freedoms— already a reality that professionals and dissenters face in several countries around the world.

ICANN has a critical role in managing the Internet's address book, the DNS, ICANN has evolved sophisticated and inclusive processes to enable anyone to participate in virtually any aspect of its work, and to resolve conflicts among stakeholders through its policy development processes. These include a clear separation of policy functions from technical functions; a joint affirmation of commitments (with the U.S. Department of Commerce) that decisions will be made in the public interest and be accountable and transparent; and participation of all sectors, including technical, academic, civil society, government, and business, decision-making. Governments in participate in ICANN processes as stakeholders, however many governments would prefer more direct oversight.

Last year, the U.S. Department of Commerce announced its intention to transition oversight of DNS and other functions to the global, multi-stakeholder



community and stated specific requirements that any transition proposal must address. While there is no fixed date for when the transition must occur, there is interest in concluding the process by September 2015, when the current contract with ICANN expires. ICANN has launched a multi-stakeholder process to determine the best approach to both improve ICANN's accountability to the global Internet community, and transition the DNS operational functions to a new structure that will not be controlled by any government or intergovernmental organization. The goal is to ensure no government would have the ability to unilaterally control the Internet's addressing scheme.

social change. For the Internet to fulfill the role John Arquilla envisions, all stakeholders must resolve to ensure it remains open, seamless, and global.

Paul Mitchell directs Microsoft's Internet governance and spectrum policy agenda. He is on the United Nations Broadband Commission and focuses on issues related to access and development.

M-H. Carolyn Nguyen works on policy issues related to Internet governance at Microsoft.

While messy and chaotic—like democracy itself—the Internet's multi-stakeholder governance model has resulted in astonishing achievements globally.

The DNS transition is only about technical management of the DNS system. In parallel, the UN General Assembly will conclude a ten-year review of WSIS, which will attempt to address many sociopolitical aspects. Both developments create a highly-charged political environment for Internet governance in 2015 that will be marked by intensifying efforts to assert government control and limit freedom of expression.

There is no question that some Internet content is culturally and socially disrespectful, hateful, and dangerous. But there is far more content that motivates, uplifts, educates, connects, elevates, and inspires humans to advance. It is critical for moving toward a peaceful world that the ICANN and WSIS processes strengthen today's dynamic and evolving Internet, rather than raise barriers based on fear or misguided paternalism. While messy and chaotic-like democracy itself-the Internet's multi-stakeholder governance model has resulted in astonishing achievements globally. When freedom of expression prevails, it creates positive



THE SHRINKING SPACE FOR ONLINE CIVIC ENGAGEMENT

Ivan Sigal

In 2013, a group of Ethiopian bloggers and journalists created a blog to express their interest in a more open, inclusive, and democ-ratic country. They called the blog Zone9, an ironic reference to the eight zones of Ethiopia's Kaliti prison; their collective writing intended to demonstrate the possibility of a more open civic life. They chose to publish their writing on the Internet both out of necessity—it was the only public venue easily available to them—and aspiration, as it connected them to a global community of writers, thinkers, and translators with similar ideas.

Given Ethiopia's history of imprisoning journalists and intellectuals, they knew their work was risky. When eight of the bloggers and journalists were arrested in April 2014 and charged with a range of offenses under Ethiopia's 2009 Anti-Terrorism Proclamation, they were not completely surprised. It was, however, a troubling turn that the evidence against them—and the reason they were legally charged with criminal intent—was that they had received training in the use of digital security and encryption tools from the Tactical Technology Collective. The journalists remain imprisoned, awaiting trial as of March 2015.

Also concerning is that the Zone 9ers' experience is duplicated around the world. Writers, bloggers, and activists seeking to exercise their fundamental rights to expression online are arrested and charged not only for the content of their speech, but for the use of digital technology and social media platforms. Too frequently, governments invoke antiterror laws as justification.

In Bahrain recently, the government revoked the citizenship of 72 individuals they labeled terrorists; this included writers and digital activists peacefully expressing their aspirations such as Ali Abdulemam, founder of the online forum Bahrain Online along with insurgents seeking to achieve their aims through violence. In the last year in Bahrain, the satirical blogger Hussain Madhi, the former opposition MP Jameel Kadhem, the human rights defender Nabeel Rajab, and activist Nader Abdulemam were all either imprisoned or detained for their public speech on Twitter. Nine other individuals were arrested for "misusing social media," a charge that carries up to a two-year sentence in Bahrain.

Similar scenarios are playing out in Egypt, Saudi Arabia, Russia, Belarus, Turkey, and elsewhere. Egypt has arrested Facebook users for "inciting violence" online, while Saudi Arabia now considers retweets subject to the same penalties as original speech on Twitter. Russia is blocking and removing websites, requiring media registration for popular bloggers, and giving law enforcement officials increased access to the user data of social media companies. Belarus has banned anonymization tools such as Tor that help users conceal their identity online and are key to enabling free expression in countries that practice surveillance of speech.

In most of these cases, individuals or groups seeking to use peaceful methods to

online dialogue, or make their opinions known without self-censorship may be taking greater risks than they know.

The root of the issue is that while technology has the potential to be a connector, the existence of open information technologies is a necessary but insufficient condition for engagement, bridging, and preventing conflict. For technologies to be useful in preventing conflict, it is important that the values of a tolerant and open society also be supported by those in control of the networks.

The values we have in the physical world are instantiated in the structure of digital networks; regulations and restrictions can exist both in code and in the laws used to regulate human behavior on networks. The successful use of information

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express their civic interests online are restricted, harassed, or arrested. In governments, extreme situations. organizations affiliated with them, and others ensure that these activists become the targets of violence. The organization I work for, Global Voices, an inter-national community of writers, translators, and digital activists, is presently tracking 103 cases of individuals around the world imprisoned because of their online speech-a small proportion of the total number of people facing these threats worldwide.

Anyone using information technologies that help people connect with one another accepts the risk that those technologies may not provide safe forums for expression due to the reach of governments with sophisticated surveillance capacities. However, those who express their goals, participate in technologies for peacebuilding, or more simply for peaceful expressing of civic goals in contested, violent, or authoritarian contexts, requires careful consideration and risk analysis of adversarial capacities to surveil, react, or target online speakers.

A growing number of countries today espouse peaceful, stable, but authoritarian rule as a means to deter non-state violence. They quash the rights of democratic activists, using anti-terror laws to restrict rights and preserve nondemocratic rule, and punish those seeking to use digital communication tools for the expression of their universal rights. Over time, those same restrictions and punishments contribute to the grievances of their citizens, resulting in a renewed cycle of protest, upheaval, and crackdown.

Developing and embracing digital networks as open platforms for engagement and communications in society requires political will to allow that expression. The ultimate goal is not peace for the sake of peace, but more equitable societies that allow diverse representation—be it of religion, sexual orientation, expression, or political and economic association.

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DIGITAL GAMES FOR PEACE

Jen Welch

As peacebuilders continue to explore new ways to manage and reduce conflict, digital games and apps present promising avenues for innovation. Digital games and apps are websites or web applications available on desktop computers or mobile devices that utilize game mechanics to engage users. Beyond entertainment, games can offer safe and engaging environments in which to showcase alternative narratives and develop and practice new responses to complex and dangerous situations.

Games and apps for peace are part of a broader movement aiming to develop games that have social effects. While mainstream game publishers have been slower to adopt the idea, the movement is gaining momentum, as illustrated by the work of Games for Change or independent publishers such as Polishbased 11 bit studios and their criticallyacclaimed release "This War of Mine," which puts players in the role of a civilian trying to survive a siege by scavenging, hiding, and making life-or-death decisions.

To promote the use of digital games and apps in the field of peacebuilding and conflict management, the United Nations Alliance of Civilizations (UNAOC) and the United Nations Development Programme (UNDP), in collaboration with Build Up, launched the PEACEapp competition in August 2014. The aim of the competition was threefold: 1. to encourage peacebuilders and game developers whose games or apps promote dialogue and peace to share their work, 2. to reward and publicize this work, and 3. to promote the movement by opening entries to concepts for games or apps as venues for cultural dialogue and peace.

PEACEapp received over 100 entries from 42 different countries. Entries varied widely in format, nature, and target audience—some were intended to have global reach, while others were designed for a specific region or group. There is vast potential for peacebuilding games, and we are still in the early stages of their development and use, so there is no blueprint for the types of issues or mechanics best suited for the peace genre.

Developers have been experimenting with a variety of approaches. PEACE-app's international jury was tasked with selecting five winners: three have completed games or apps and two were projects still in development. The three winners with completed games or apps received a \$5,000 cash prize each, and the winners with projects in development will receive expert mentorship from Games for Change and Build Up, among other partners, to support the transformation of their ideas into fully-fledged games or apps.

A look through this year's PEACEapp winners illustrates the various ways games can be leveraged to help build peace. Three themes stand out: developing an understanding of conflict drivers and dynamics; raising awareness of alternative, nonviolent types of engagement with conflict situations; and building empathy toward a situation or group of people.

1. The Conflict Simulation Platform is a browser-based simulation platform in which players become stakeholders and decision-makers in negotiations over conflict stemming from issues such as terrorism, migration, ethnic tensions, or climate change, to find a solution to which all delegations can agree. It is intended to be played by groups of young people globally, such as high school or university students. In the game, negotiations take place in either formal sessions or informal talks and are moderated by a chairing delegation. The sessions can last from 90 minutes in a synchronous (multi-player, real-time) game setting to up to four weeks in the asynchronous version. Facilitators can track all game events and evaluate the process. The platform's developers at planpolitik assert that playing the game provides insights into the social dynamics of conflict management and hope to challenge players' own beliefs about conflict management and resolution. A demo version of the game is available here.

Beyond entertainment, games can offer safe and engaging environments in which to showcase alternative narratives and develop and practice new responses to complex and dangerous situations.

2. Haki 2: Chaguo Ni Lako (meaning "the choice is yours" in Swahili) was developed in Kenya as a response to election violence with the aim of educating voters and inspiring a commitment to peaceful and inclusive civic engagement. The game is a mobile phone app that consists of puzzles and quizzes that players solve in order to defeat Mboss, the Evil Entity, who attempts to cause civil unrest in Kenya. The quizzes include questions about political ethics, leadership, rights, and resources, contributing to the overall message of helping players make positive choices within their communities as well as nationwide. The app has а chat

feature that encourages discussions about the game or individual quiz questions. Haki 2 is available as an Android app, downloadable from Google Play here.

3. Everyday Racism is an Australian mobile phone app in which players can either experience acts of racism from their own racial and cultural perspective or from that of three characters: a Muslim woman, an Aboriginal man, or an Indian student. Players are confronted with four

> scenarios over the course of seven days. Players receive SMSs, tweets, images and videos that provide them the opportunity to witness and react to racism-by choosing from two scripted answers or electing not to respond. Scenarios are based on reallife interactions such as buying a cup of coffee or using social media. All Together Now, which developed the app, hopes that its use will help build empathy and provide people

> with the skills and confidence to speak up when they witness racism. It was developed with the Australian context in mind, but the underlying principles could apply to other societies. The app is available for download from Apple's App Store and Google Play.



4. Kokoro, a virtual global community for children, aims to develop intercultural and interfaith learning to develop collaborative action. Kokoro is still in development, but its concept is based on a model of a village with different learning spaces and two modules: understanding

self and others, and transforming the world together. Players are taken on an interactive learning journey through the village's four core values of respect, empathy, reconciliation, and responsibility. The idea is to expand this concept of an interactive village into a digital game where players get together to shape the future of a society while learning about ethical issues and dealing with challenging situations. Kokoro, as a community, will also serve as a platform to introduce the "learn to live together" curriculum, including the opportunity for children to share their own ideas about learning to live together.

5. Peace Superheroes, also in the development stage, aims to teach peacebuilding and conflict resolution to teenagers and young people by taking real-life peace heroes and fictionalizing them. In the game, players will be confronted with conflict situations, such as bullying or seeing violence in the news, and will be challenged to find nonviolent ways to engage with these issues. Users will be able to access characters with "superpowers" like tolerance and empathic listening in order to learn skills that are key to positively transforming conflict. Players will also have access to gadgets such as a needs assessment barometer, truth-reflecting mirrors, or a judgment zapper. In some situations, players will necessarily need to collaborate. The game creators hope to provide players with a safe space in which to try out nonviolent responses to conflict. Individuals can then become agents for positive change for themselves, their families, and their communities, in the real world.

While the five winning games share the overall objective of helping to build

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peace, they demonstrate a wide variety of approaches to doing so, which underscores the vast potential of using digital games and gamified apps in the field of peacebuilding. To further explore this potential, a representative of each of the five winners will be invited to present their work at the Build Peace 2015 conference in Cyprus, to discuss progress to date and future directions.

The highly-innovative approaches highlighted by the PEACEapp competition notwithstanding, it is still early for the field of games for peacebuilding, and much work remains. But with awareness of their potentials growing fast-United Nations Educational, Scientific and Cultural Organization (UNESCO) and Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP) launched their own gaming challenge earlier this year-the hope of the PEACEapp competition organizers is to gather the talent, experience, and innovation behind existing projects and initiatives into a more coherent and purposeful community of technologists, peacebuilders, and game developers engaged in building the next generation of games for peace.

Jen Welch is a doctoral researcher, focusing on the role of technology in postconflict and peacebuilding contexts. She is a co-organizer of Build Peace and cofounder of Build Up. Jen tweets at @jenwelch15.

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#PeaceTech

G We use Facebook to schedule the protests, Twitter to coordinate and YouTube to tell the world.

- STATEMENT BY ACTIVISTS IN CAIRO DURING THE EGYPTIAN REVOLUTION



- » Newsweek called it Eqypt's "Facebook Revolt"
- » Fast Company argued "Massive Egyptian Protests Powered by YouTube, Twitter, Facebook, Twitpic"

A HOW-TO GUIDE Leveraging New Technology in Conflict-Prevention Efforts



EXAMINE ALL TOOLS

Even if you crowdsource your hammer, not every problem is a nail.



3

CONSIDER THE CONTEXT

By making needs assessments and feasibility studies a standard practice.

DO NO HARM

A conflict-sensitive approach remains vital initiative involving new technologies.



6

INTEGRATE LOCAL INPUT

Throughout, and don't reinvent the wheel.



USE TECHNOLOGY To help information flow

horizontally more than vertically.

- ESTABLISH CONSENSUS
- Regarding ownership, use, and sharing



"Technology is only 10% of the equation

while the rest is about humans using that technology."

-CHRIS NEU, TECHCHANGE COO

Sometimes a WOMAN with a laptop can be MORE POWERFUL than a man with a gun.

- WORLD PULSE ACTIVIST ON THE CRISIS IN CRIMEA

WE DON'T MAKE A DIFFERENCE BY SITTING BEHIND OUR COMPUTERS.

We're meeting up in the streets. And it's not just happening in Rio and São Paulo. Small towns in the interior are protesting. We have a whole country protesting.

- MARCELO TAS, BRAZILIAN JOURNALIST

^{ff} It's become relatively commonplace to find corners of Africa that have good cell coverage but no electrical power."

ETHAN ZUCKERMAN, DIRECTOR, CENTER FOR CIVIC MEDIA, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Building Peace is a free, online magazine published every March and September by the Alliance for Peacebuilding. The *Building Peace* website is home to the regularly-updated blog *Latest Insights*. Subscribe to the magazine at: www.buildingpeaceforum.com.

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Building Peace is made possible with support from the United States Institute of Peace, the El-Hibri Foundation, and the John M. Kohler Foundation.

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