

INTERNET INCLUSION: Advancing Solutions

Washington, D.C.

25 April 2017

A background image showing a view of the Earth from space, with a network of glowing blue lines and nodes overlaid on the planet, symbolizing global connectivity and the internet.

IEEE INTERNET INITIATIVE

Internet Inclusion: Advancing Solutions (IIAS)—organized by the IEEE Internet Initiative—gathered 24 and 25 April 2017 in Washington, D.C., to continue conversation and collaboration across the global technology, policy and investment communities around extending affordable, meaningful internet access to the estimated 60 percent of people around the world who today remain unconnected.

“The premier objective of IEEE here is to build technical communities, first, within our own realm, and now we want to build technical communities with your communities, bringing it all together,” said Timothy Lee, chair of the IEEE Internet Initiative inclusion program. “Nobody can have all the answers, but together we can come up with meaningful solutions.”

The multi-stakeholder workshop offered a diverse range of project profiles, panel discussions, expert remarks and reports from six working groups:

- *Community Networks*—Addressing challenges toward community involvement in design, construction, maintenance and operation of internet infrastructure
- *Public Access*—Dedicated to the proposition that public-access strategies to connect via libraries and other community centers are critical to universal internet inclusion
- *Digital Gender Divide*—Identifying approaches to build and scale programs that will help close the current gender divide in internet access
- *Innovative Business Models*—Identifying barriers to greater investment and supporting activities that boost scalability and impact of innovative models
- *Evidence-based Research*—Bridging technical and development communities in improving and measuring progress in social outcomes driven by universal access
- *Digital Literacy*—Considering the role of libraries as hubs for improving digital literacy and building resilience in communities to improve safety and security through education and learning

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Project Profile: Project Connect

Sara Jacobs, the founding chief executive officer of Project Connect, told *IIAS* attendees that she was heartened by the diversity at the event, particularly given that inequality appears to be increasing elsewhere.

She said her organization is striving to make available real-time data about the quality of connectivity to private, public and parochial schools. She discussed Project Connect's pilot initiatives and various methodologies.

One of the challenges that Project Connect faces is that most national governments do not have the capability to monitor connectivity to their schools or even map them, she said. Another complicating factor, Ms. Jacobs said, is how immigration is increasing the number of children who are not actually attending schools.

Project Connect, she said, is working with research institutions to identify what works in terms of what packages will allow schools to get the most out of their connectivity.

Project Profile: NetHope

The next project-profile session looked at the value of connectivity for transforming the lives and livelihoods of refugees, as well as the important implications for investing in access to information as an essential component of humanitarian aid.

Frank Schott, vice president of global programs with NetHope, discussed media reports on how, when refugees arrived in Greece in 2015, one of the first questions they most often asked was, "Do you have Wi-Fi?" He said refugees often place a higher priority on connecting to a mobile network than on basic needs such as water and shelter. Connectivity enables refugees to communicate with family, apply for asylum, access information resources critical to their journey and execute digital funds transfers.

NetHope has worked to provide internet connectivity in both refugee-transit centers and permanent settlements. He said one of the challenges the organization must overcome is a common view among donors that connectivity is a luxury, when, in truth, refugees view connectivity as vital to their wellbeing.

One of the questions from *IIAS* attendees addressed concerns about data security and privacy with regard to connecting refugees. Mr. Schott talked about one country where NetHope had the opportunity to work and the local government's asking for the organization's logs in the interest of national security. No agreement was reached, so the work did not take place, he said.

Panel Discussion: Community Networks

Jane Coffin, director of development strategy with the Internet Society, led a panel discussion on "Networks: Changing the Connectivity Paradigm – From Last Mile to First Mile." Steve Song, research associate and consultant with Network Startup Resource Center; Christian O'Flaherty,

internet development senior manager with the Internet Society; Erick Huerta with Rhizomática, and Roger Baig Viñas with Guifi.net discussed a range of topics, including:

- Viability of community networks
- Sharing spectrum
- Policies to facilitate community networks
- Customized solutions
- Experimental licensing
- Sustainability

Mr. Song called access a multi-dimensional issue. Spectrum is a critical piece, he said, as wireless technology is the primary mechanism for reaching the unconnected. But the current model of spectrum regulation that dominates around the world is outdated, he said. Regulations are not keeping pace with technology development and market needs, and, so, demand has dramatically outstripped availability, he said.

Mr. O’Flaherty argued for the need for a different business model for isolated areas, in which local people create and run their own networks. He identified a range of obstacles that currently inhibit communities from starting their own networks. For example, non-standardized protocols often complicate efforts. Also, he said, governments need support from organizations when allocating spectrum and/or granting permission to access poles/towers in favor of communities.

Mr. Huerta told of his experience over 15 years in rural communication for indigenous communities. Common problems globally in rolling out access to such communities include that, after connectivity is installed, no one is available to perform maintenance and bills often go unpaid. He said the key to Rhizomática’s success in deploying community networks in Mexico in a sustainable manner is operators’ bringing new models specifically designed to address such issues. For example, Mr. Huerta said, regulators can allocate spectrum and access to allow service-oriented actors to participate.

Mr. Baig Viñas described Guifi.net as a bottom-up project that builds and operates a large, free and open telecom network. It’s a participatory framework where people contribute what they can, in exchange for using the network. He said shifting from a proprietary to such a commons model conveys a host of valuable benefits, including empowering communities to take action to think about their own technical solutions, boosting job growth and providing a competitive framework. Mr. Baig Viñas said the successes of Guifi.net can be replicated in other markets, a point which he noted would be pursued in meetings of the *IIAS* Community Networks Working Group.

Panel Discussion: ICT Investment Strategies

This panel discussion moderated by Manu Bhardwaj, vice president for research and insights with Mastercard Center for Inclusive Growth, focused on the goals, objectives and initial recommendations for a recently created U.S. Global Connect Initiative working group to develop strategic recommendations for increased and effective investments in the information and communications technologies (ICT) sector. The MDB Working Group on ICT Investment

Strategies is co-chaired and led by Alliance for Affordable Internet-Web Foundation in coordination with Mastercard.

Sonia Jorge, Alliance for Affordable Internet, Web Foundation; Laura Quintana, vice president corporate affairs, Cisco; Staci Warden, executive director, Center for Financial Markets, Milken Institute; Vishal Mathur, head of Connected Society program, Mobile for Development, GSMA, and Doyle Gallegos, global lead, Broadband Access for All, World Bank Transport and ICT Global Practice, and ICT regional coordinator, Latin America and Caribbean, discussed the need to balance investments to expand digital infrastructure with investments in analog complements.

Panel Discussion: Energy and Connectivity

This interactive panel moderated by Nilmini Rubin, vice president, Tetra Tech, convened experts working at the intersection of energy and internet access. Melissa Sassi, global program manager for Microsoft's Affordable Access Initiatives team; Anna Lerner, energy and ICT specialist, World Bank; John Garrity, senior connectivity advisor, United States Agency for International Development (USAID) Global Development Lab, and Mohammad Shahidehpour, distinguished professor, Bodine Chair Professor and director, Robert W. Galvin Center for Electricity Innovation, Illinois Institute of Technology, explored the importance of linking energy and the internet by highlighting real-world access projects.

Ms. Sassi discussed three areas of focus on Microsoft's affordable-access team: TV whitespaces, off-grid and microgrid solar-power solutions and agricultural IoT. She spoke of the importance of making sure the regulatory environment is positioned to help move social entrepreneurs from unconnected to connected to thriving.

Ms. Lerner talked about her experience in both energy and ICT. Expansion of both systems faces similar barriers in terms of access to markets and business inhibitions (high operational and capital expense and slow return on investment), she said.

Mr. Garrity noted that connectivity can be a constraint or an accelerator of service delivery. He has been involved in encouraging innovation around improving the supply of off-grid energy, and he discussed efforts, for example, in developing appliances that can operate in low-power circumstances.

Dr. Shahidehpour discussed how the West African Ebola outbreak illustrated how lack of energy can intensify devastation through impacts such as the inability to filter water, pump clean water, refrigerate medicine, etc. Off-grid electricity helps people see, live and connect to the rest of the world, he said.

Remarks of John V. "Jack" Spilsbury, Bureau of Economic and Business Affairs, U.S. Department of State

On the second day of the *IIAS* gathering, Mr. Spilsbury discussed how connecting more people to the digital economy can serve as an engine for inclusive economic growth. "Enhancing

connectivity can drive innovation, boost productivity and lift living standards,” he said. “It’s important to the United States, but it’s also important to our diplomacy.”

He affirmed that an underlying principle of the U.S. Global Connect Initiative to bring an additional 1.5 billion people online by 2020 is that “internet connectivity is as essential to economic development today as other basic infrastructure, like ports, power, roads.” He said the United States has been active via a multi-stakeholder approach spanning infrastructure-capacity projects, digital literacy, promotion of market-based internet policies and helping “ensure connections, when made, bear fruit.” Mr. Spilsbury discussed initiatives in these areas in countries including Argentina, India and Liberia and invited *IIAS* attendees to learn more in the U.S. government’s Interagency Global Connect Steering Group report.

In addition to collaboration across “a diverse range of stakeholders,” he said, the effort to connect the unconnected “requires the buy-in of leaders who understand and wish for their economies to actually reap the benefits of internet-driven growth” and “resist the urge to try to control or centrally plan the development of digital economy.”

Remarks of Atul Mehta, global head of telecom media technology, venture capital and funds, International Finance Corporation

Mr. Mehta, speaking on behalf of World Bank Group, opened his remarks by agreeing that “digital economy should be right up there with power, with roads, with transport as priorities for development. But it isn’t. There’s a lot of work that needs to be done to bring it up there.”

He said one of the issues is that, because mobile-voice deployment has been so successful and that it is perceived to have been almost wholly market-driven, there is a notion that exists “in many quarters of ... ‘shouldn’t the same happen here, too?’ But it *isn’t* happening in the same way. We’re seeing increasing digital divide both among and within countries.”

He went on to highlight four key points:

- The crucial role of connectivity in modern development (“we are updating our research in this space ... we have seen that a 10 percent increase in broadband penetration correlates with over 1 percent in GDP growth, but I think we’re only seeing the tip of the iceberg. Internet has barely moved on the fundamental building blocks for development.”)
- Why growing digital connectivity is harder than was growing voice connectivity (more rights-of-way issues, slower return on investments in connectivity, untapped population is disproportionately rural, elderly, poor, illiterate and female, etc.)
- What the World Bank Group is doing in the space (performing “rapid country diagnostics” to determine what is needed in particular nations, identifying “regulatory reforms that are needed to get investment moving,” etc.)
- The importance of partnerships (“we would love to join you in making a dent in this 4-billion-person gap.”)

Lightning Talks

In a session moderated by Manu Bhardwaj, a panel of experts directly engaged in driving internet-inclusion projects provided three-to-five-minute “lightning talks” on their experience and insights:

- Shane Tews, visiting fellow, American Enterprise Institute, talked about the importance, “as we move forward on decisions of what we’re going to spend money on, of looking at real barriers to entry.” For example, she recalled, when she moved to Washington in 1987, cable TV still was not available to the city’s residents. In some of the world’s unconnected regions, “we still struggle with locals who are making it a challenge for people be connected.” Conversely, Ms. Tews cited the Internet Education Foundation’s House of Code project, in which U.S. congresspersons encourage junior-high and high-school students to learn to code.
- Steve Johanns, founder and chief executive officer of Veriown Global Holdings, explored implications of the convergence of internet and energy networks and “the advent of what I call the internet energy service provider.” Because of the ability to move electricity into connected devices, internet usage “may take off like cell phones,” he said, noting that cell penetration went from less than 5 percent to 85 percent of Africa’s population in 17 years. “The secret to scale in developing markets is don’t think big—think small, and think velocity.”
- Peter Micek, general counsel, Access Now, spoke as a digital-rights advocate and brought up questions around “the quality of this access” as connectivity is rolled out to unconnected regions—is it open, non-discriminative and secure? He said there were 56 “internet shutdowns” in 2016, up from around 20 in the previous year. “Just because you connect someone doesn’t mean that connection is going to stay up,” he said. Mr. Micek spoke on the need for human-rights principles around connectivity and development.
- “Connecting the unconnected is mission critical to us,” said Jochai Ben-Avie, senior global policy manager with Mozilla. “That’s no easy feat—no matter how long you lock up engineers, even with air conditioning, there is going to be no silver bullet for bringing internet to all people.” He discussed Mozilla’s launch of two competitions intended to generate prototypes and designs for providing connectivity during disasters and leveraging existing infrastructure to provide high-quality wireless connectivity to communities in need. The National Science Foundation-sponsored Wireless Innovation for a Networked Society (WINS) Challenges each will award \$1 million to winning open-source ideas for making the internet more accessible, decentralized and resilient.
- Sylvia Cadena, head of programs, APNIC Foundation, discussed her organization’s efforts to train workforce who maintain the infrastructure enabling connectivity in developing regions. “Our focus is on people,” she said. “The networks that we support in the region are only as safe as secure as engineers who manage them.” She said APNIC supports 81 projects ranging from community wireless networks to digital-rights

campaigns. “We listen to people and support ideas that people want to implement.”

Remarks of Nilmini Rubin, Vice President, Tetra Tech

Ms. Rubin said that, while perhaps 4 billion people around the world remain without internet access, the number of people without access to reliable electricity is only about 1 billion. However, “energy is like kale salad,” she said. “If it’s just kale, it doesn’t taste good.” The effort to bring reliable electricity to all should be integrated with the effort to deliver affordable, secure internet access, Ms. Rubin said; the potential benefit of both together is greater than the combined benefit of delivering each in isolation.

Also, she said, “we really need to think about how we use energy and think about reliable and clean energy sources for the internet.” She pointed out that powering the internet accounts for maybe 10 percent of all energy usage today and that we aspire to bring online almost half of the world’s population and have those who are already online use it more than they do today. “We have to use the internet to make energy work better ... through an integrated approach.”

Ms. Rubin proposed a to-do list for the *IIAS* community:

- Make the development case for internet access
- Map energy and internet infrastructure
- Adhere to a build-once approach to infrastructure
- Establish future models for infrastructure capable of leapfrogging stages of technology development
- Integrate internet across sectors and global goals
- Maximize public-private partnerships

Panel Discussion: Working Groups

IIAS built on a series of related events in 2016 organized by the IEEE Internet Initiative. At a similar event in Washington in October, participants collaborated in developing a roadmap of next steps toward the goal of connecting the unconnected, and, from that roadmap, working groups were organized around critical themes.

The working-group leads closed the two-day event in Washington with a panel discussion moderated by Vint Cerf, internet hall-of-famer and founding father and founder of People Centered Internet. He characterized the working groups as representative of “certain conditions which have to be met in order to achieve inclusion ... If those conditions aren’t present, it’s going to be hard to achieve our objective of creating this inclusive access to the internet.”

Community Networks Working Group

Fostering adoption of community networks offers a tremendous opportunity to progress in connecting the unconnected, the Community Networks Working Group believes. But there is a lack of scientific evidences to validate the assumption, they discussed, and this is one of the first challenges the working group must tackle. Corresponding key performance indicators are

needed. In addition, the working group discussed the lack of a clear definition of “community networks” and its hindrance on meaningful conversation both within and outside the group.

The Community Networks Working Group also identified opportunities for making progress in cooperation with other *IIAS* working groups, such as:

- With the Public Access Working Group, establishing points of interconnection of community networks with the internet, leveraging libraries as a capacity-building reference, sharing existing public infrastructure and gathering efforts and need in influencing policy
- With the Innovative Business Models Working Group, providing a local economy boost, involving local small and medium-sized enterprises (SMEs) and the self-employed in micro local financing and self-financing
- With the Gender Digital Divide Working Group, bringing connectivity to the home (as the most effective way in many places to bring internet to women) and showing what women can do if only they had the opportunity in technology, management and civil society
- With the Evidence-based Research Working Group, defining a taxonomy for *IIAS*, in order to better provide facts and evidence to funding institutions, governments and regulators
- With the Digital Literacy Working Group, empowering local people for personal advancement and community improvement with digital literacy including technology, economic and social skills

And the working group decided to track a number of projects beyond *IIAS*, which are doing research or coordinating community-networks initiatives:

- 1 World Connected (<http://1worldconnected.org/>)
- UN IGF DC3 (<https://www.comconnectivity.org/>)
- EC netCommons project (<http://netcommons.eu>)
- IRTF GAIA (<https://trac.ietf.org/trac/irtf/wiki/gaia>)

The Community Networks Working Group agreed to start working to identify players and their relationships, in order to focus discussion, identify potential alliances, etc. Furthermore, it agreed to a six-month term to develop a plan to define and actionably answer explicit sub-questions. The working group created a Facebook group, “Internet Inclusion IEEE Community Working Group,” to facilitate conversation.

The working group noted its diversity of affiliations (World Bank, IEEE, Internet Society, Facebook, individuals, community networks, etc.); backgrounds (technical, finance, development, industry, etc.); interests (learn, promote, explore, etc.), and approaches (for-profit vs. non-for-profit, main vs. supplementary activity, etc.) and seeks to maintain or even expand

this variety of perspectives. The working group is “welcoming participants with all kinds of skills and expertise to encourage fruitful discussion and outcomes,” Mr. Baig Viñas said.

Public Access Working Group

The Public Access Working Group is dedicated to the proposition that any realistic strategy to meaningfully connect and enable the next billion(s) must have a public-access component. Connecting libraries and other public-access facilities is the most economical and equitable way to reach the greatest number of people, with potential to add value as training and support for digital literacy.

“The basic principle is that connecting public-access facilities is a smart way to build out from core network into every community,” said Don Means, founder/director, Gigabit Libraries Network.

At *IIAS*, the Public Access Working Group explored a range of strategies:

- Seek opportunities in specific countries/regions of common interest or activity among members to reinforce and support one other
- Advocate for enabling national and/or international policies (for example, Universal Service Funds reform and increasing shared, license exempt spectrum)
- Support other working groups within *IIAS* as integral and mutually reinforcing of public-access policies and implementation

Connecting libraries and other community anchors to “build out” infrastructure can serve to enable regional interconnect points, the working group discussed. It, furthermore, has the potential to serve the “build-in” approach of communities leading in self-provisioning by whatever mix of technologies (e.g., public spectrum) and business models (e.g., co-op) they deem optimal for their own market circumstance and local priorities.

Libraries and other public access centers, as neutral, trusted spaces for access, provide complementary resources and training to help users become not only skilled consumers but also active producers of internet content.

Mr. Means also said, “When we talk about access, we’re throwing the term around like we’re all talking about same thing. Handing out another billion smartphones would accomplish access, but meaningful access is not the same thing. If you can’t be productive such as in programming, studying, writing even a single page, filling out online forms, etc.—instead of simply consuming content, access is not meaningful *enough*.”

Digital Gender Divide Working Group

All IEEE internet-inclusion strategies, objectives and tactics should include a gender-equity component looking at the access, skills and leadership needed to ensure gender inclusivity, the working group believes.

“We need to look at whether projects are actually doing what they say they will in the area of gender equity,” said Gary Fowlie, head of the International Telecommunication Union (ITU) Liaison Office to the United Nations. He said this is essential if gender digital equality is to evolve out of being a standalone issue and is respected as fundamental as primary elementary education for boys and girls alike.

He said the working group is looking at development of a simple tactics checklist (“will this project help, hurt or be neutral on gender equity?”); opportunities to serve as a clearinghouse for gender-equity projects to optimize their exponential, catalytic impact through better coordination and the need for a gender-equity “report card” for projects and additional data.

“All gender roads lead back to education,” Mr. Fowlie said. “We need to look at combining basic education with basic digital literacy, because, in the long run, if we’re going to have digital equity, we need to have gender equity.”

One of the *IIAS* attendees urged the Digital Gender Divide Working Group to also look for opportunities to collaborate with gender-equality organizations *not* involved with technology. Mr. Fowlie affirmed this point and offered as an example efforts to drive toward universal birth regulation. “We have to look for more innovative ways to tackle the gender divide,” he said.

Innovative Business Models Working Group

The working group “took more of a show-and-tell approach” at *IIAS*, said John Garrity, with many of the members sharing presentations on projects with which they are personally involved. “We were successful in delivering a robust session of sharing different approaches in last-mile connectivity service delivery and discussing challenges,” he said.

Areas of focus for the Innovative Business Models Working Group moving forward include:

- Network infrastructure access mapping—exploring how to improve publicly available information on where network coverage gaps exist; linking similar efforts, and leveraging open-government/open-data initiatives to advocate for collection and dissemination information on spectrum allocation, terrestrial fiber and mobile network towers/coverage (“three crucial elements of network information at the national level,” Mr. Garrity said)
- Engaging the investor community—continuing to highlight and “road show” emerging innovations and working with the impact investor community to identify relevant metrics which communicate social returns on investments in last-mile connectivity

“Additional barriers that we discussed included technical capacity in the fields to build and maintain last-mile networks (networking engineers) and government regulations to allow for some of these business models to exist (similar challenge with regard to community networks),” Mr. Garrity said.

Digital Literacy Working Group

The working group discussed how little consensus exists on the concept of “digital literacy,” how its work fits with the rest of the *IIAS* activity, what IEEE/*IIAS* could do to move things forward and what “the transition towards action” looks like.

“Digital literacy is required in every single (working) group—we can’t do anything in terms of public access, community development, investment, gender ... without having the right skills,” said Melissa Sassi, Microsoft.

Added Stephen Wyber, manager, policy and advocacy, IFLA: “We’ve had the printing press since about 1440, and we still haven’t cracked universal literacy. Can we do it a little bit faster in terms of digital literacy to realize the potential and get everyone benefitting?”

Next steps for the working-group co-chairs include:

- Draw together available definitions and sources of digital literacy
- Work with members of the group to identify and share programs, toolkits, initiatives, resources and strategies
- Identify and share impact metrics (social and other)

One attendee suggested from the floor that reading tutorials could be embedded in the rollout of any broadband-access project in a developing region. “Welcome to our Digital Literacy Working Group,” responded Ms. Sassi.

Evidence-based Research Working Group

The Evidence-based Research Working Group discussed challenges around data gathering and rigorous impact-based evaluations and paved the way forward for future collaborations with members of the working group. Takeaways from the meetings of the Evidence-based Research Working Group at *IIAS* included:

- Drawing connections between connectivity and the larger development agenda
- Identifying key partners for rigorous impact evaluations to scale our work
- Developing a better understanding of the right angles to approach partners and other stakeholders

- Exploring ways to tap into the resources provided by the technical community/IEEE to support our research and outreach activities

The group also discussed the importance of stories in mobilizing policymakers and communities themselves to generate data to support evidence-based decision making.

“Everyone says we need data,” said Christopher S. Yoo, John H. Chestnut Professor of Law, Communication, and Computer & Information Science, and founding director, Center for Technology, Innovation and Competition at the University of Pennsylvania. “Nobody knows what it means, and nobody’s collecting it.”

Often, decision makers for a particular underserved market are “dug in on particular business models. ‘Libraries aren’t a solution here,’ they’ll say, in a community where, in reality, some kind of community-based anchor institution may be only way,” Professor Yoo remarked. Systematic and rigorous research is necessary to galvanize the development community and provide key information relevant to decision making.

He said the reasons for limited provision of internet access include lack of capital formation and technical expertise. He said communities need to be able to creatively “right-size and customize solutions to meet their own unique needs.”

Conclusion

In offering closing remarks, Mr. Lee said he concentrated during the two days of *IIAS* on “what IEEE could do to impact the challenges we face.” He talked about his own list of action items out of *IIAS*, including exploring development of an IEEE “connectivity corps” to engage in local underserved communities and provide technical expertise and fostering “even greater collaboration across actors in the internet-inclusion space.”

Mr. Cerf added: “Meetings like this are quite important; the people in this room wouldn’t be here if you didn’t care about this problem ... But the real challenge is, when you leave the room, will you be able to do something to make a difference? If there is a metric that you should be applying to your own activities, it is that one ... If you can go out and do something to improve the inclusiveness of access to the internet, you will have done something very important.”

IEEE, the world’s largest professional organization dedicated to advancing technology for humanity, is eager to work with finance ministers, multi-lateral development banks (MDBs), non-governmental organizations (NGOs) and industry globally to continue the conversation about internet inclusion and to make additional progress in extending affordable access to more and more people globally. Please visit <http://internetinitiative.ieee.org> or email internetinitiative@ieee.org for more information.

Appendix

The working groups were asked to address a range of follow-up questions after *IIAS*, and responses per working group follow.

Community Networks Working Group

What are specific projects around the world within your focus area that are making real progress today?

Swazi Bridge Project/Swazi
Nicholus Steward, Nicholus@swazibridgeproject.org

Colnodo/Colombia
Julian Casasbuenas, julian@colnodo.apc.org

APC/world-wide
karel Novotný karel@apc.org

ISOC/world-wide
Jane Coffin coffin@isoc.org

Rhizomática/Mexico
Erick Huerta redescomunica@gmail.com

Facebook TIP

Tim Danford tdanford@fb.com

Guifi.net/Iberian Peninsula
Roger Baig roger.baig@guifi.net

What else could IEEE's Internet Initiative do to advance the identified project? Who might IEEE reach out to partner with? Where else in the world could this be replicated? How could it be effectively initiated?

Swazi Bridge Project/Swazi
A project in a developing country. All kind of contributions are welcome (to pay a salary to the maintainer, buy hardware, develop software)
Potential collaborations with neighboring regions. Still in a state that requires a lot of human intervention for replication

Colnodo/Colombia
Similar situation than Swazi Bridge Project. This project is more on services; the previous, on networking. All kind of contributions welcome. Strengthening relationships and partnerships across Latin America.
There already are some collaborations at Latin America. Still in a state that requires a lot of human intervention for replication

APC/worldwide
Small NGO. Support for specific actions. Develop together a strategy for community networks. Dissemination. Intermediation (e.g., MDB)
Worldwide, no need for replication. Contribution to make it bigger through specific actions.

ISOC/worldwide
Develop together a strategy for community networks.
Worldwide, no need for replication. Contribution to make it bigger through specific actions.

Rhizomática/México

Same as Swazi and Colnodo. In this case, IEEE can help a lot in the relationship with the regulators for frequency issues.

Collaborating with Colnodo. Successful cases of replication.

Facebook TIP

Coordination of efforts with IEEE can result in very powerful innovative actions

Worldwide presence

Guifi.net/Iberian Peninsula

Contribute to strengthen community networks' reputation (e.g., including them in *IIAS*). Ambitious project to rewrite the whole software platform code—opportunity to contribute funding of in kind.

Rather replicable already. Potential qualitative step forward with the new platform

What new relationships were formed today among members of this working group, and how could this relationship potentially advance progress toward the goal of connecting the unconnected?

The group met for the first time in the event, so we had to introduce ourselves, focus the area of discussion, etc. Given the interesting combination of interests, backgrounds and skills, the working group can bring new preservatives and expertise to a set of initiatives that are, in general, too local and too low-scale to be able to tackle barriers that would help them to scale up. This can happen in all fields; for example:

- Regulation:
 - Access to public infrastructure (existing ducts, fibre and towers)
 - Access to more spectrum

- Economics:
 - How to make an initiative sustainable (revenue streams, risks evaluation, etc.)
 - How to make an initiative bankable (financial plan, liability, etc.)

Is there anything else that the members of this working group can do together to advance progress toward the goal of connecting the unconnected?

Help to increase the impact that community networks can have in the process of connecting the unconnected by “helping them to connect.”

What else could the IEEE Internet Initiative do to advance efforts of this working group?

For the current phase (spinoff-six months), participate in the working group to ensure that it moves forward and it comes to a conclusion/s. In the next phases, we should be able to make more specific requests.

Let us know of events that are relevant for our Internet Inclusion community.

Summit on Community Networks in Africa & Wireless Networking Workshop 2017, 25 – 26 May in Nairobi, Kenya, alongside the Africa Internet Summit (AIS'17)

ISOC / to disseminate the activity of the WG and to gather info about the current state of community networks in Africa (how mature is it, what do they need, etc.)

<https://www.internetsociety.org/events/summit-community-networks-africa/2017>

Wireless battle mesh June 05 – 11 v10 In Vienna, Austria

Independent / Consolidated tech meeting to recruit members and understand the latest concerns of the tech community

<http://battlemesh.org/BattleMeshV10>

Internet Governance Forum 2017, Geneva, Switzerland
UN / Participate in the DC3 activities
<https://www.intgovforum.org/multilingual/content/igf-2017>

Evidence-based Research Working Group

What are specific projects around the world within your focus area that are making real progress today?

1 World Connected (1worldconnected.org)
Tambuli RCT – Philippines
USAID-Dalberg Evaluation of a Metro Fiber project in Monrovia

What else could IEEE's Internet Initiative do to advance the identified project? Who might IEEE reach out to partner with? Where else in the world could this be replicated? How could it be effectively initiated?

1 World Connected will benefit from IEEE's convening power at *IAS* sessions to meet and form relationships with key partners, as well as reach out to communities outside of the traditional connectivity/telecommunications experts.

What new relationships were formed today among members of this working group, and how could this relationship potentially advance progress toward the goal of connecting the unconnected?

The Evidence-based Research Working Group met for the first time at this *IAS* meeting. We discussed partnerships with EveryoneOn, learning from USAID's current evaluation efforts in Liberia in collaboration with Google and the Ghana Hope Foundation to study connectivity in rural health clinics in Ghana.

Is there anything else that the members of this working group can do together to advance progress toward the goal of connecting the unconnected?

Sharing lessons learned from their projects' work at *IAS* sessions, as well as identifying key platforms for resource sharing, would be helpful.

What else could the IEEE Internet Initiative do to advance efforts of this working group?

Help us reach out to IEEE SIGHT working groups of relevance, as well as broker ties with IEEE Smart Villages.

Let us know of events that are relevant for our Internet Inclusion community.

WSIS Forum 2017, Geneva, Switzerland
ITU

Internet Governance Forum 2017, Geneva, Switzerland
UN
Participate in the Dynamic Coalition on Innovative Approaches to Connect the Unconnected