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Submissions from entities in the United Nations system, international organizations and other stakeholders on their efforts in 2020 to implement the outcomes of the WSIS

Submission by

Internet Society

This submission was prepared as an input to the report of the UN Secretary-General on "Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the regional and international levels" (to the 24th session of the CSTD), in response to the request by the Economic and Social Council, in its resolution 2006/46, to the UN Secretary-General to inform the Commission on Science and Technology for Development on the implementation of the outcomes of the WSIS as part of his annual reporting to the Commission.

Internet Society's contribution to the CSTD Annual Report of WSIS Outcomes

1. Executive Summary

As a global not-for-profit organization with a mission to support an open, globally-connected, trustworthy, and secure Internet, the Internet Society (ISOC) has continued to be actively involved in supporting the recommendations, commitments and targets of the World Summit on the Information Society (WSIS) recognizing this as a strong framework for contributing to the 2030 U.N. Sustainable Development Agenda. During 2020, the vision of a people-centered, inclusive and development-orientated information society has been brought into sharp focus by the COVID-19 pandemic. This global health pandemic has accelerated certain market trends in digitalization and exposed weaknesses in areas of the market which were unable to adapt quickly enough. It is clear to national policymakers and sector leaders that the digital economy will play a key role in post-COVID-19 economic recovery. More governments and international organizations will prioritize the formulation of digital policies that promote responsible digital transformation throughout national economies and key sectors, including manufacturing, agriculture, transport, health and education. The global digital divide remains a persistent challenge. Despite the great progress made since the WSIS, nearly half of the world's population still does not have Internet connectivity. The impacts of COVID-19 on everyday life, economic well-being, the way we work, access to health and social welfare generally, have underlined how critical this challenge is for the future of humanity. Without an acceleration of actions in the short term to address this challenge, it will not be possible to achieve the goals and targets of the Sustainable Development Agenda in 2030.

The Internet Society therefore advocates for the following areas of focused action as priorities for addressing this challenge in accordance with the priorities and action lines agreed at the WSIS:

- **Supporting** the establishment of complementary access solutions, such as community networks by promoting local partnerships, local capacity building, identifying sources of funding, and promoting more agile policy-making to foster an enabling regulatory environment;
- **Facilitating** the establishment of Internet Exchange Points (IXPs);
- **Identification** of and support for innovative uses of funding, and use of new and already established funding mechanisms (e.g. universal service funds) for Community Networks and other complementary access solutions;
- **Sustaining** the single interoperable global Internet that keeps networks fully operational;
- **Implementing** the recommendations of the UN Secretary-General's Roadmap for Digital Cooperation that underline the critical importance of multi-stakeholder governance and build on existing mechanisms and processes;
- **Reforming** the U.N. Internet Governance Forum (IGF) so it is more inclusive, remains multistakeholder and potentially used as a dispatch function to guide stakeholders who raise Internet-related policy issues. The IGF however should not evolve into a decision-making body, this would be contrary to the spirit of the Tunis Agenda.

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2. Overview of Trends and Experiences

The rapid growth in Internet traffic as a consequence of the COVID 19 pandemic has not led to widespread network failures, showcasing the resilience of the Internet. The layered architecture of the Internet, with a common protocol, a global routing system and a global framework that supports permission-less innovation has proven its importance and durability. Core infrastructure providers have been able to absorb traffic demand throughout the global system. Cloud providers have had sufficient compute, storage and bandwidth capacity that has enabled online learning and remote conferencing tool providers to scale up their systems to meet unprecedented levels of demand during 2020.

The greatest challenge brought into sharp relief by the impacts of the pandemic, however, is the even more pressing need to close the digital divide and increase the availability of affordable, reliable connectivity to unserved and under-served communities worldwide. This must be a paramount objective in the current roster of follow up objectives to the WSIS and the High-Level Panel on Digital Cooperation, and ISOC has several key initiatives underway with the aim of achieving progress.

The social and economic impacts of the market dominance of large online platforms has rightly continued to come under intense scrutiny during 2020. For example, in Europe, the upcoming Digital Services Act (DSA) and Digital Markets Act (DMA) aim to address the behavior of large online platforms and this new legislation will undoubtedly affect most digital businesses and have a major impact on how they operate. ISOC looks forward to engaging with national and regional policymakers alongside other non-governmental stakeholders in order, (a) to refine these proposals so that they foster innovation, transparency, openness and inclusivity; and (b) generally to strengthen the processes of governance and oversight so that they take into account the views of all relevant stakeholders.

3.i. Innovative Policies, Projects and Programs

ISOC's actions under its 2020 Strategic Action Plan for growing the Internet and strengthening its resilience consistent with the WSIS objectives are based around some of the following complementary project-based building blocks:

- Building Community Networks
- Support Innovative funding mechanisms for Internet infrastructure
- Promote change and agility in enabling access policies and regulations
- Fostering infrastructure and Technical Communities
- Measuring Internet Resilience
- Securing Global Routing
- Internet impact assessments of decisions by governments and business
- Capacity building at the regional, national, and local levels
- Research collaboration

Building Community Networks

ISOC is committed to promoting and supporting community networks as a means for bridging gaps in connectivity created by high costs of service provision and lack of incentives for investment in infrastructure in so-called "last mile" networks of urban, rural, remote and unserved or underserved locations. ISOC first became involved in community network initiatives in 2010 and since

then we have proven to be a viable partner for providing affordable, complementary connectivity where traditional options have not achieved this. ISOC is therefore committed to promoting and actively supporting further efforts to develop community-based initiatives involving local stakeholders and regional partners. ISOC has launched a programme of engagement with governmental and financial institutions in support of these initiatives and provides technical training of local people.

An enabling regulatory environment that takes into account local, national, and regional connectivity assessment needs is key to the success of community networks. It is important to ensure that national and local policies (including taxation, spectrum allocation, licensing frameworks) and onerous regulatory requirements do not inhibit or constrain the development and build out of community networks. As an example, schools and libraries were prevented from serving as network nodes as a result of outdated spectrum allocation mechanisms or rules. Regulators should think of ways to allow for new network models and create simpler licensing regimes.

Fostering infrastructure and Technical Communities

The benefits of transformative digital technologies can only be realized if communities have a strong, reliable and sustainable Internet infrastructure. Initiatives will only succeed if there is effective collaboration with public and private stakeholders at the national, regional and local levels. With the assistance of key partners, ISOC believes it is vitally important to work with governments, regulators and other institutional local partners to address any institutional, regulatory and local legal barriers to infrastructure development.

The benefits of establishing local Internet Exchange Points (IXPs) as drivers of reducing costs, improving quality of service and promoting local Internet initiatives and online content, are well documented and the number of IXPs worldwide has grown in the years since the WSIS. However, many countries and regions still lack this kind of local, open and interoperable infrastructure and this remains a deep-rooted challenge especially for the many local communities that have limited local technical capacity to build, support and scale such infrastructure.

ISOC has a major project focused on IXP development and deployment. At the technical level, we support the development and deployment of new IXP infrastructure, as well as the ongoing improvement of existing IXPs. With regard to capacity-building and community development, a key aim of ISOC's work with partners is to foster and encourage local communities such as Network Operator Groups (NOGs), National Education and Research Networks (NRENs), who are building, operating and maintaining Internet infrastructure, as well as doing research, education, and training.

Measuring Internet Resilience

Assessing the resilience of the Internet is a key component of ISOC's work. Internet interruptions and service degradations have a significant impact in undermining the benefits of digital connectivity. It is important therefore to track and measure these impacts primarily through network telemetry which can identify infrastructure and traffic problems, latency variations and changes in traffic levels. This in turn informs the decisions taken by operators, policymakers and regulators to address these issues, and generally serves the interests of content providers and users.

However, Internet measurement is not common practice in Africa due primarily to a widespread lack of tools and local skills. MIRA - Measuring Internet Resilience in Africa – is a collaborative project launched in July 2020 by ISOC and Africa's Regional Internet Registry (AFRINIC) which is aimed at addressing this fundamental knowledge gap. The aim is to facilitate sustained Internet measurement that national policymakers, regulators, operators, network engineers and end users need in order better to understand the accessibility, quality and reliability of Internet connectivity. Work has already started in Benin, Congo DRC, South Africa, Kenya, Nigeria, Tunisia, Madagascar and Burkina Faso. More countries will be added as suitable measurement vantage points are identified with the help of local ISOC Chapters.

Securing Global Routing

Routing security is vital to the future and stability of the Internet and ISOC is a leading partner in a global initiative called "Mutually Agreed Norms for Routing Security" (MANRS) with the aim of reducing the most common routing threats.

The number of participants in MANRS more than doubled during 2020, with 507 ISPs encompassing 658 networks (ASNs) and 61 Internet Exchange Points committing to improved routing security by subscribing to the MANRS actions. An additional program for CDN and Cloud providers was also launched in March that includes some of the largest names in the Internet, and participation grew steadily throughout the year.

The MANRS Observatory was created as an online tool to measure a network's adherence to the MANRS Actions— its "MANRS readiness" — which is a key indicator of the state of routing security and resiliency of the Internet. This proved its value as ISOC has been working with several large ISPs with a history of routing incidents, and the Observatory enabled them to quickly identify and address their issues, culminating in them joining MANRS during 2020.

MANRS and the importance of improving routing security gained wider attention in the media and has been referenced at national government levels as an industry-led, best practices approach to addressing the security and resilience issues of one of the critical components of the Internet.

Internet Way of Networking and the Internet Impact Assessment Toolkit

ISOC has developed the Internet Impact Assessment Toolkit (IIAT) to assess new trends, and to support decision-making by governments and businesses. The IIAT has a specific focus: it identifies the critical properties of the "Internet Way of Networking" as they relate to the Internet's infrastructure. These properties are critical both because they are necessary for the Internet's healthy evolution and because they convey what makes the Internet unique. This provides a stable frame of reference to evaluate current networking conditions, proposals for technological development, regulations and technical and policy governance arrangements. If a new development undermines or even reverses one or more of the critical properties, it offers a lens through which to view its effects in order to inform better decision-making. Going forward, ISOC will continue to engage with all stakeholders to help further develop this initiative, and to apply the toolkit in their own work. The goal is to provide an accessible tool for all of the Internet community, and in support of achieving the WSIS vision and the ongoing discussions about the future of Digital Cooperation.

Capacity building at the regional and local level

ISOC continues to offer fellowship programs such as the IGF Youth Ambassadors aimed at building a cadre of young Internet leaders that are empowered and motivated to learn, engage, and act within their region and beyond, on Internet governance issues and other topics. ISOC also works with a broad range of academic partners to provide research in support of ISOC projects but also to deliver capacity building programs to the ISOC community.

The Internet Society Foundation was launched in 2019 as a supporting organization of the Internet Society to provide grant-funded activities in support of innovative projects across a range of Internet areas. The Internet Society Foundation (Foundation) provides grants to Internet Society Chapters through the Beyond the Net Programme which includes projects that are building local and regional capacity to: create community networks, measure and produce data on important Internet trends, raise awareness around Internet security issues, and respond effectively to the COVID-19 pandemic.

The Foundation also administers a programme with a focus on digital skills development known as "Strengthening Communities/Improving Lives and Livelihoods" (SCILLS). The SCILLS grant programme aims to expand economic growth, improve health outcomes and increase educational opportunities by supporting individuals and communities to more knowledgeably and skillfully use the Internet. The Foundation has provided funding for projects in Bangladesh, Colombia and Senegal.

Additionally, the Foundation launched an Emergency Response: COVID-19 grants programme providing funding to innovative projects that are using the Internet to help communities respond and adapt to the challenges created by the COVID-19 pandemic.

Research collaboration

The Internet Society Foundation's Research Programme supports global research collaborations that advance understanding of the Internet and its value for all with the following objectives:
- Promote novel methodologies that generate solutions to Internet-related challenges;
- Identify and support a diverse and collaborative group of researchers and research institutions;
- Facilitate access to intersectional research that can be applied to decision-making in government and industry.

Research areas of focus for 2020 include Greening of the Internet, and the Internet Economy.

3. ii Future Actions and Initiatives

Measuring the Internet

There are many initiatives, projects, and organizations that are collecting data on issues, opportunities, challenges and barriers relating to the evolution of the Internet, the growing digital economy and the impacts of rapidly emerging transformative technologies. To assist stakeholders in obtaining a deeper insight into the Internet, ISOC launched its Insights platform in December 2020 which will consolidate in a single open platform trusted third-party Internet measurement data from a wide range of partners and various sources available to all stakeholders. This data will be used to examine trends, generate reports, and tell data-driven stories about how the Internet is evolving, with a focus on five areas:

- Adoption of enabling technologies that improve Internet scalability, availability trust and security;
- Internet resilience;
- Frequency, duration and social and economic impact of Internet shutdowns;
- Metrics on the "Internet Way of Networking," and;
- Local Internet traffic and content (including impact of IXPs).

4. Conclusion

The Internet provides unprecedented opportunities for advancing social and cultural understanding. The online environment empowers individuals to connect, speak, innovate, share, learn, and organize. The rapid evolution of digital technologies are now transforming the way we live, work and interact. As the underpinning global critical infrastructure, the Internet owes its success not only to the technology but to the way it operates and evolves.

The WSIS established the critical framework for stakeholders worldwide to cooperate in realizing the potential of Internet technologies. The same ambition now applies to ensure that the emerging global digital economy leaves no-one behind in the social and economic transformation that the COVID 19 pandemic is accelerating. ISOC stands ready to work with the UN, intergovernmental organizations, regional public bodies, individual governments, business leaders, the global online platforms, the technical community, parliamentarians and civil society in addressing the challenges, realize the opportunities, and mitigate the risks and threats created by these new technologies. In relation to sustainable development, ISOC offers extensive project-based experience and expertise regarding connectivity, inclusivity and capacity-building in unserved and under-served regions.