Twenty years in the implementation of outcomes of the WSIS

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I. What is your organization's formal role and responsibilities concerning WSIS implementation?

The Internet Society supports and promotes the development of the Internet as a global technical infrastructure, a resource to enrich people's lives, and a force for good in society. Our efforts to advance the outcomes of the World Summit on the Information Society align with our goals for the Internet to be open, globally connected, secure, and trustworthy.

The Internet Society was accredited to the WSIS during its first phase and participated actively in the preparatory process and the Geneva and Tunis Summits. Since the Tunis Summit, our organization has been actively supporting the implementation of the WSIS targets, recommendations, and commitments. In the last two decades, we have been working at the local, regional, and international levels in cooperation with various stakeholders to promote and support the multistakeholder model of Internet governance, create Internet infrastructure to connect those who are not yet connected, facilitate access to information and knowledge, build capacity, and enhance confidence and security in the use of the ICTs.

II. What have been your organization's main contributions to the direct implementation of the WSIS outcomes and related areas of digital development since the Summit, particularly since 2015?

(a)-(b) WSIS action lines and related projects

In the twenty years since WSIS, the Internet Society has contributed to implementing its outcomes by working on a range of projects on growing connectivity and infrastructure, building capacity and

empowering communities, measuring the health and resilience of the Internet, and advocating for the open, globally connected, secure, and trustworthy Internet.

Our efforts focus on growing and strengthening the Internet and shaping the Internet of the future. These activities and related projects cut across several WSIS action lines.

Growing the Internet

Internet Society's commitment to growing the Internet focuses on providing reliable and affordable Internet access to those who need it the most. In relation to WSIS action lines, our major areas of work are:

- **Connecting the unconnected (WSIS action lines C2, C3, C4)**
  Internet Society became actively involved in community network initiatives in 2010. Since then, in collaboration with various partners and local stakeholders, we supported and helped deploy community networks in different regions across the globe. The examples include community networks built in the town of Murambinda, Zimbabwe[1], the rural village of El Cuy in Patagonia, Argentina[2], the mountainous region of Tusheti in Georgia[3], the Arctic's first community network in the remote community of Ulukhaktok in Canada[4], the highest in the world Everest community network[5], and many others. In 2020-2024, we granted over $3,100,000 USD to support 85 community networks.

  To help communities build connectivity, Internet Society supports the development of local technical skills. We offer open, publicly available resources, such as a Community Network Readiness Assessment Handbook (published in 2022) and a Do-It-Yourself (DIY) toolkit (launched in 2023). We also provide online training about building community-centered networking solutions.

  Since 2021, the Internet Society Foundation's BOLT Grants Program aims to support teams of creatives, technologists, researchers, and social/cultural workers to design and build prototypes and pilots that will bring into reality innovative solutions to Internet connectivity, particularly among communities where current technologies are unavailable or not readily accessible. In 2023, the BOLT program awardees included five innovative projects in four countries (Argentina, Malawi, Sierra Leone, and the US) that aim to advance

[1] https://www.internetsociety.org/issues/community-networks/success-stories/murambinda/

[2] https://www.internetsociety.org/blog/2019/07/in-patagonia-a-new-community-network-in-the-village-of-el-cuy/

[3] https://www.internetsociety.org/blog/2017/10/community-network-remote-georgian-region-tusheti/

[4] https://www.internetsociety.org/blog/2023/10/building-more-affordable-and-reliable-internet-access-in-the-arctic/

[5] https://www.internetsociety.org/blog/2024/06/return-to-everest-happily-connected-sherpas/

Internet access and connectivity for communities, with each project awarded up to 300,000 USD.

- **Growing sustainable peering infrastructure (WSIS action lines C1, C2, C4, C6, C8).** For many years, the Internet Society has been helping address connectivity gaps by supporting emerging and existing Internet exchange points (IXPs) to improve traffic flow, resilience of infrastructure, and Internet service. Internet Exchange Points (IXPs) are facilities where all Internet players can interconnect directly with each other, thereby improving the quality of service and reducing international transit costs across the globe, especially in developing countries.

  A study we commissioned in 2012[6] showed how IXPs enabled Kenya and Nigeria to save millions of dollars in telecom costs and raise additional revenue while simultaneously speeding up local data exchange and encouraging the development of locally hosted content and services. For instance, the Kenya Internet Exchange Point (KIXP) dramatically reduced the latency of local traffic from 200–600 ms to 2–10 ms on average while saving local ISPs almost 1.5 million USD per year on international connectivity charges. In Nigeria, the Internet Exchange Point of Nigeria (IXPN) produced a similar reduction in latency while saving operators almost 1 million USD in connectivity costs per year.

  Our review in 2020[7] showed the growth of IXPs founded in Africa from 19 to 46 in the 10-year period, which is an inspiring testimony to the power of stakeholder and community efforts. In 2021, more than half of the African countries had an IXP, and six countries had more than one.

  Since 2023, the Internet Society Foundation has offered grant funds to build new and enhance existing IXPs through our Sustainable Peering Infrastructure (SPI) Funding Program and strong technical communities via our Sustainable Technical Communities (STC) Program. Both efforts are partially supported by our trusted donors.

  We also direct our efforts at encouraging policymakers worldwide to promote the use of IXPs by creating an enabling environment for interconnection via clear and transparent policy and regulatory frameworks. We advocate for these frameworks to minimize barriers such as taxation, authorization, or licensing and implement cross-border interconnection policies to build resilience between countries and regions.

[6] https://www.internetsociety.org/resources/doc/ixpimpact/

[7] https://www.internetsociety.org/resources/doc/2021/moving-toward-an-interconnected-africa-the-80-20-initiative/

- Measuring the Internet (WSIS action lines C2, C5).
  Internet Society believes that measuring the health of the Internet over time is essential in evaluating progress toward growing Internet connectivity. We measure and analyze the Internet's health, availability, and evolution through our Pulse Platform to understand how the Internet is evolving to protect it from threats and build and maintain its resilience. Section II(c) of this document provides more details about Pulse Platform.

Strengthening the Internet and its multistakeholder governance model

Internet Society is working with its global community to make the Internet trustworthy. Together, we advocate for keeping the Internet resilient and functioning. We aim to ensure that policy and technology developments support what the Internet needs to remain a global resource for everyone. In relation to WSIS implementation and WSIS action lines, our efforts in the last two decades have been focused on the following:

- Enhancing security in protocols and the global routing system (WSIS action lines: C1, C5)
  In 2014, Internet Society supported the creation of Mutually Agreed Norms for Routing Security (MANRS), a global, community-driven initiative to improve the security and resilience of the Internet's global routing system that uses the Border Gateway Protocol (BGP). Initially created by a small group of network operators who recognized the need to join forces to improve the system, MANRS has grown from nine original operators to a community of more than 1,000 participants within a decade. The MANRS community comprises network operators, Internet exchange points (IXPs), content delivery networks (CDNs), cloud providers, and equipment vendors committed to taking MANRS actions and reducing common routing threats.

  Together, the MANRS community is driving the global adoption of MANRS actions and improvements in routing security. Efforts toward achieving this goal include providing reliable tools for compliance and measurement, such as the MANRS Observatory; building capacity of network engineers through tutorials, courses, and workshops; and promoting training, research, and policy analysis.

  In 2024, Internet Society transitioned the secretariat and MANRS Observatory to our partner organization, Global Cyber Alliance. After the successful transition, we continue to operate the training programs that support MANRS and will do so for the near future.

- Supporting the United Nations Internet Governance Forum (WSIS action line C1)
  The multistakeholder model in the development and governance of the Internet, set out in the Tunis Agenda, has been crucial to the successful implementation of the WSIS outcomes. The Internet Governance Forum (IGF) has grown into an indispensable element of the

Internet ecosystem. It has become the main platform for reinforcing cooperation by reducing barriers between different stakeholder groups. A key driver of this success has been the ability of the IGF model to evolve through its intersessional work and the proliferation of national and regional IGFs.

The Internet Society strongly supports these developments and provides financial contributions to the organization of the UN IGF Secretariat-recognized National and Regional Initiatives (NRIs) through the Internet Society Foundation's Internet Governance Forum (IGF) funding program. From 2021 to 2023, the Internet Society Foundation contributed over 140,000 USD in sponsorships for National IGFs and National Youth IGFs. In 2024, we supported 40 NRIs and committed more than 265,000 USD to them. In addition, we continue supporting the Global IGF by contributing 100,000 USD to the IGF Trust Fund.

- **Promoting effective encryption to keep people safe and secure online (WSIS Action lines C4, C5).**
  Internet Society is committed to promoting effective encryption to keep people safe and secure online. Over the years, we continued educating policymakers about the importance of strong encryption and collaborated with our partners to mitigate threats to encryption worldwide. In 2020, Internet Society co-created the Global Encryption Coalition with two civil society partners—Global Partners Digital and the Center for Democracy and Technology—to strengthen advocates' efforts worldwide to promote and protect a more secure and trustworthy Internet. We assumed a role on the coalition's steering committee, driving coalition activities and statements.

  By 2024, the Global Encryption Coalition has grown by more than ten times to over 430 members from civil society, business, and academia, united by a shared commitment to promote and defend encryption in key countries and multilateral forums where it is under threat. The coalition also supports efforts by companies to offer encrypted services to their users.

Shaping the Internet of the Future (WSIS Action line C4).

The Internet has become a vital resource that enriches people's lives and serves as a force for good, thanks to the dedication of those who have worked tirelessly to foster its growth. The Internet Society is committed to cultivating the next generation of Internet leaders by providing professionals and learners with the experience, skills, knowledge, and connections they need to make a significant impact on the Internet. For over 10 years, our programs have enabled, equipped, and supported Internet champions worldwide, regardless of their career stage.

- When the United Nations created the first IGF, the Internet Society actively participated and launched the IGF Ambassadors Program to involve younger members in Internet governance. In 2019, the Internet Society combined this program and the Youth@IGF program into the ongoing **IGF Youth Ambassador program**[8], equipping the next generation of Internet leaders to collaborate and innovate for a better world.

- In 2012, in response to the knowledge gap identified among policymakers about Internet technology, we launched the **IETF Policymaker Program**[9], which provides training to policymakers with a focus on the Internet Engineering Task Force (IETF), the premier standards development organization for the Internet. Since its inception, the program has brought, on average, ten policymakers to each of the three face-to-face IETF meetings each year, except during the COVID pandemic when no onsite meetings took place.

- **Our leadership programs,** such as the early career fellowship[10] and mid career fellowship[11], launched in 2021 and 2022, respectively, identifying and developing Internet leaders and providing them with a unique perspective on the Internet.

- In 2024, we launched a new **African Peering and Interconnection Forum (AfPIF) Fellowship**[12] supporting interconnectivity and Internet resilience in Africa. The program aims to prepare 15 fellows from across the continent to support an affordable and resilient Internet.

- Internet Society also offers **training and e-learning to provide advanced education** to specific audiences, including government officials, journalists, and technical communities. Our Learning @ Internet Society training and professional development program has offered learning opportunities to over 13,000 people across the globe. Course topics include Advanced Network Operations 2.0, Community Network Readiness Assessment, Privacy, Internet Governance, and many others.

- We also remain committed to **empowering our chapters, special interest groups, and organization members** to take concerted action to build and protect the open, globally connected, secure, and trustworthy Internet. We continue to put our community at the center of our efforts and aim to keep it engaged and equipped with the right tools, opportunities, and knowledge.

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[8] https://www.internetsociety.org/policy-programs/youth-ambassadors/

[9] https://www.internetsociety.org/policy-programs/policymakers-program-to-ietf/

[10] https://www.internetsociety.org/fellowships/early-career/

[11] https://www.internetsociety.org/fellowships/mid-career/

[12] https://www.internetsociety.org/fellowships/afpif/

(c) Indicators used to measure the impact of ICT in the achievement of the SDGs in your organization's area of work.

In December 2020, Internet Society launched its Pulse project, which measures the health of the Internet to evaluate progress toward growing Internet connectivity. Internet Society Pulse consolidates trusted third-party Internet measurement data from various sources into a single platform. We use this data to examine Internet trends and help everyone gain deeper, data-driven insight into the Internet's health, availability, and evolution.

This data-driven approach also informs the work of other stakeholders; for example, it aims to provide policymakers with relevant statistics, data, and context to support their positions and influence policy development. The project currently has the IXPs tracker and presents metrics on Internet technologies, Internet shutdowns (including a Netloss calculator that provides accurate estimates of the costs of Internet shutdowns), Internet resilience, and market concentration.

(d) What assessment has your organization made of its engagement in WSIS-related work and digital development in its areas of responsibility?

Internet Society annually submits inputs to the UN Secretary-General's report 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." Concerning our areas of work, every year, we publish an Action Plan which outlines the work the Internet Society will do to grow and strengthen the Internet. At the end of each year, we produce a subsequent Impact Report ('Year in Review') assessing what has been achieved.

III. What does your organization see as the main achievements, problems and emerging issues arising from WSIS and from digital development in its areas of responsibility since the Summit, particularly since 2015?

(a) What have been the main achievements of WSIS and digital development?

In 2005, only 16 percent of people worldwide, about 1 billion, were online. In the last twenty years, Internet use has grown significantly. By 2023, around 67 percent of the global population—5.4 billion people—are online, according to the International Telecommunications Union (ITU). This growth means that 4.4 billion more people are now connected, which is an increase of 51 percentage points.

The Internet has become an indispensable resource for information, communication, and human connection. It has fueled extraordinary economic growth and catalyzed social progress, enabling more and more individuals, communities, and people to achieve their full potential in promoting sustainable development and improving quality of life.

This extraordinary evolution was possible thanks to all stakeholders being involved in making the changes happen. Governments have adopted policies that favor the development of the Internet and Internet applications; the private sector has invested trillions of dollars in the infrastructure required; the technical community has been continually innovating over these years, ensuring our digital lives are mediated by secure, fast, generative, and interoperable Internet technology; civil society has consistently called for better access at global and local levels; academia and research communities have come up with solutions to allow more people to get connected in the period.

The multistakeholder approach, enshrined in the Tunis Agenda, has been vital to making the Internet a success. It opened the Internet governance ecosystem to all stakeholders and facilitated cooperation among governments, businesses, civil society, and the technical community, multiplying multistakeholder partnerships to implement the WSIS Action Lines.

(b) What problems, obstacles and constraints have been encountered?

Despite the considerable successes in implementing the WSIS outcomes, obstacles still exist in achieving global Internet connectivity. The WSIS target "to ensure that more than half the world's inhabitants have access to ICTs within their reach" was accomplished, as more than 60% of the world's population has access to the Internet. Yet this number doesn't show the high disparities between countries and regions that lie beneath the headline figure and doesn't reflect how widely the progress in global connectivity varies.

This uneven development creates different digital and economic divides, which have multifaceted impacts. Accelerating technological innovation and the digitization of essential services like healthcare and education broadens inequalities, leaving women, girls, and people in low-income countries at a disadvantage. The growing divides reduce the potential of the Internet to support the implementation of WSIS outcomes.

(c) What new opportunities and challenges have emerged over the years since WSIS which need to be addressed?

Opportunities

Over the years, innovation and technological evolution have facilitated the implementation of WSIS outcomes. This includes the evolution of wireless mobile technology, the development of fiber cable

technology, and the progress made by the device manufacturing industry, all contributing to faster, more affordable connectivity. More recently, developments in satellite industries, such as the evolution of low-earth orbit (LEO) satellites, have brought more opportunities to connect the unconnected. While most LEO constellations are in the early stages of deployment and there are still many unknowns, we see considerable potential in using LEO satellites for Internet access for unserved or under-served communities, especially where other ways of delivering Internet access are not viable.

The combination of less expensive launch systems, smaller and mass-produced satellites, better and smaller ground antennas, and better technology has created possibilities for large-scale deployment of LEO satellite systems for Internet access. These new LEO systems provide high-speed, low-latency connections to places where such connectivity was not possible before. There is considerable potential to bridge the digital divide and connect many more people to the Internet using a combination of land-based and space-based "complementary" Internet access solutions. However, to be a useful solution to connect the unconnected, Internet access via LEO systems needs to be sustainable, affordable, and reliable for the people who need it most.

Even with the development of technology and innovation, some populations will continue to be offline unless we use new connectivity models, such as community-centered solutions, including community networks. Community networks are deployed and operated by people to meet their needs. In recent years, the community networks movement has expanded significantly, with many experts highlighting them as a viable solution to bridge the digital divide in various regions, including South Africa, the Democratic Republic of Congo, Argentina, the United States, Thailand, and Pakistan. While the technology—the "network" part of a community network—is essential, our experience shows us that the most crucial part of building a sustainable community network is the human factor—the "community" part of a community network. Equipping these communities with the right tools and knowledge is an excellent opportunity to bridge the existing digital divides.

Challenges

Alongside the challenges of incomplete and uneven connectivity highlighted above, significant new threats exist to the open Internet and to what we call the Internet's 'critical properties'—the foundational pillars underpinning its growth and adaptability. Some threats pose a serious risk to the Internet as we know it today and its future, including but not limited to Internet shutdowns, fragmentation, and encryption threats.

Internet shutdowns are a major concern, as they have become an increasingly common tactic for governments to restrict connectivity at national and sub-national levels, often primarily for political

reasons. According to the Internet Society's Pulse platform,[13] there were 128 Internet shutdowns from January to November 2024, with eight incidents ongoing at the time of writing. The Internet Society believes Internet shutdowns harm societies, economies, and the technical infrastructure of the global digital economy. Internet shutdowns constitute a significant risk for many businesses and investors, including those building infrastructure or developing services.

Another trend is Internet fragmentation, where the Internet is carved up along political, economic, and technological boundaries in a fundamental contradiction to the original principles of the globally connected Internet, where data flows freely and securely across the world. A growing number of government and corporate decisions around the world have the potential to adversely impact the open and interoperable global Internet, often with unintended consequences. The Internet Society is gravely concerned about this trend and continues to work with its community of stakeholders worldwide to support sustaining the single, globally interoperable, open Internet.

The Internet Society is concerned about threats to encryption technology, which is essential for protecting the personal security of billions of Internet users worldwide and the national security of countries globally. Many governments are considering laws and regulations that could weaken encryption, significantly jeopardizing security and safety on the Internet. These developments may have a harmful impact on achieving the goals set by the World Summit on the Information Society (WSIS). As more people connect to the Internet, it is important for everyone involved to take steps to keep it safe. This includes protecting against security threats, exploitation, personal privacy harms, online gender-based violence, discrimination, and other abuses of human rights.

IV. Lessons learned in the implementation of the Summit outcomes in your organization's specific areas of responsibility

The main lesson learned in 20 years of the implementation of the WSIS outcome is that the growth of connectivity would be impossible without the collaboration of various stakeholders in the efforts to build and strengthen the Internet. The multistakeholder approach to Internet governance has grown from the Internet's own DNA and is what allows it to thrive. The multistakeholder model helped address numerous challenges in connectivity: for example, more inclusive access was possible thanks to the enabling environment established by governments and regulators, the considerable investment of the private sector, and the active contributions and capacity-building efforts from all other stakeholders. This model also enabled new stakeholders, previously not involved, to be included and contribute their share to finding solutions to problems.

[13] See: https://pulse.internetsociety.org/shutdowns

The global Internet Governance Forum (IGF) and National and Regional IGF initiatives are crucial elements of this open multistakeholder ecosystem. As a multistakeholder platform, the IGF provides a unique opportunity for governments, businesses, civil society, and the technical community to share experiences and best practices that can inform decision-making in their local communities.

In addition to developing and preserving the multistakeholder model as the key to growing the Internet and sustaining its value for our future, we must also recognize and protect what makes the Internet unique. There have been many kinds of computer networks, but only one of them—a 'network of networks', the Internet—has evolved into an essential global tool and a whole new space for innovation, growth, and transformation. The Internet Society identified the critical properties[14] that define the Internet Way of Networking and underpin the growth and adaptability of the Internet. Specific technologies and business models may come and go, but the Internet Way of Networking has been a constant foundation for the success of the Internet from the beginning.

As the global community works towards connecting those not yet connected and achieving universal connectivity, it is crucial to understand that no matter the method of delivery—wires, wireless, mobile, or satellite—the networks must incorporate and preserve these 'critical properties' of the Internet and its enablers. Only by protecting these properties can we ensure that tomorrow's Internet remains innovative and sustainable and continues enabling economic and technological development around the globe.

V. Observations or recommendations concerning the future of WSIS and digital development, taking into account the outcomes of the Summit of the Future in September 2024

The future of WSIS and digital development depends on the global multistakeholder community's efforts to connect the remaining one-third of the global population to the Internet and address significant threats to the Internet, such as increasing shutdowns and fragmentation. This situation necessitates a collective effort among communities, partners, and stakeholders to enhance global connectivity and optimize the benefits derived from the Internet.

Our long-term dedication to the World Summit on the Information Society (WSIS) outcomes reflects our conviction in fostering an open, secure, and trustworthy Internet. Adopting a multistakeholder governance model, we can contribute positively toward achieving the United Nations' 2030 Sustainable Development Goals. It is imperative that we collaborate to transform a connected future into a reality for all.

[14] https://www.internetsociety.org/resources/doc/2020/internet-impact-assessment-toolkit/critical-properties-of-the-internet/

As the United Nations works to realize the objectives of the Global Digital Compact (GDC), the Internet Society believes that its follow-up and implementation must be multistakeholder, transparent, and inclusive. We strongly call to fully leverage existing mechanisms such as the CSTD, WSIS Forum, and the IGF to avoid duplicative efforts that would divert resources for international and multistakeholder cooperation.

The Internet Society remains committed to continuing its work to grow the Internet for everyone and protect it from threats. We will do this in coordination with our community and in collaboration with other stakeholders. We hope for an open and inclusive process for the WSIS+20 review and urge it to confirm the commitment to the multistakeholder model of Internet governance and the IGF as the crucial platform for stakeholder cooperation.

VI. Please identify publications, reports and other documents by your organization which you consider can contribute to the work of the review.

We are pleased to share the following resources which could contribute to the work of this review:

- Internet Society's Pulse Platform: https://pulse.internetsociety.org/
- The Internet Way of Networking: Defining the critical properties of the Internet: https://www.internetsociety.org/resources/doc/2020/internet-impact-assessment-toolkit/critical-properties-of-the-internet/
- Community Networks Success Stories https://www.internetsociety.org/issues/community-networks/success-stories/
- 'Our Impact' (impact stories) https://www.internetsociety.org/our-impact/