The Future of Digital Cooperation at the UN – A Geneva Multistakeholder Retreat

Discussion Paper: Future of the Internet, including Internet fragmentation and IGF reform

Authors: Michael Kende, Jessica Espinosa, Swiss Digital Initiative

Introduction

> *Internet governance 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 programmes that shape the evolution and use of the Internet.*
>
> *Working Group on Internet Governance, **Château de Bossey**, June 2005*

The global success of the Internet can be measured in many ways – the number of users online and their geographic scope, and the amount and nature of their usage. The Internet has evolved from a slow, text-based network accessed by terminals through fixed lines to a real-time, multi-media network accessible through a myriad of devices using fibre or mobile access. The Internet grew and evolved from its earliest roots because of a number of technical success factors based on principles and ideals that were built into the Internet by its founders. These principles included the multi-stakeholder model of governance which drove the development of the Internet as well as its current governance through a number of different organisations and international fora.

Today the status quo is a global Internet that is not fragmented, and which operates under an open multi-stakeholder model. The Internet principles and the model of governance should be protected and promoted, and digital cooperation in the Global Digital Compact should build on this status quo, to address existing and future issues without fragmentation of the Internet or its governance.

The Principles of the Internet

The early development of the Internet was built on several guiding ideals – openness, simplicity, and decentralisation, with interoperability at the core. It was designed to interconnect networks regardless of the technology used, and to enable services regardless of the purpose. The ability of

Internet stakeholders to address the rapid increase in demand in response to COVID lockdowns is a testament to the resilience and flexibility that was built into the Internet from the beginning.

Broadly speaking, the Internet has three layers where fragmentation could occur.

- **Networks.** The Internet is a 'network of networks', with individual networks, including Internet service providers, content providers, enterprises, governments, and others agreeing to connect their networks together to exchange traffic.[1] Interoperability of the Internet enables almost 100,000 individual networks to connect, by using common protocols and identifiers for delivering traffic.
- **Protocols and identifiers.** The Internet is based on a set of common protocols. The Internet Protocol (IP) is the central building block of the Internet, conveying identifiers of the source and destination of traffic, so that it can be delivered across the networks. The identifiers used to route the traffic are IP addresses, while domain names are used for website names and email addresses. The domain name system (DNS) translates easy-to-enter domain names into the underlying IP addresses that can connect the user to their desired destination. These common protocols must be global, and the DNS must be unique and centrally operated so that traffic always finds its intended destination.
- **Content and applications.** The Internet is designed so that applications can be developed and be made available over the Internet, without requiring permission from, or agreement with, the networks or other intermediaries. The World Wide Web, developed in Geneva at CERN, is in fact an application on the Internet, designed to make it easier to access content and services.

Possible Fragmentation of the Internet

The *fragmentation of the Internet* relates to the idea that the Internet may be in danger of splitting into a series of cyberspace segments, turning it into a multitude of non-interoperable and disconnected internets[2]. The Internet could fragment at any of the layers discussed above. At the network layer, interconnection agreements are negotiated between owners, allowing a flexibility of arrangements that ensures a 'network of networks'. However, national governments can control the

[1] There are differences in access networks across and within countries using different technologies, with coverage gaps and quality differences, covered in the previous research paper on Digital Connectivity.

[2] 'Splinternets': Addressing the renewed debate on Internet fragmentation (July 7th, 2022). Think Tank European Parliament. https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU(2022)729530

networks within their borders, and there are a number of cases of 'shutdowns' of those networks during times of protest, which represents a complete (if temporary) fragmentation. Likewise, governments can impose limits on the flow of data out of their country, for reasons of privacy or security, or limit the flows of content into the country, for cultural or political reasons. While these forms of fragmentation have real impacts on those affected, they are not the focus this paper.[3] These forms of fragmentation also do not directly threaten the multi-stakeholder model and the organisations that use the model to govern the Internet.

The threat of technical fragmentation could come about because of changes to the factors that make the Internet interoperable. For instance, an alternative DNS system - one that resolves names to IP addresses differently than the current DNS, is one such threat. It could even re-use existing names but point them to different online services, or involve a new name system altogether. Either way, this would fundamentally fragment the Internet between users of the existing DNS and the new DNS, even while using the same networks. In other words, there could be two websites with the name www.example.com, and users of one DNS would not reach the website identified through the other. While there have been a number of attempts to create an alternative DNS, none have had a significant impact on the interoperability of the Internet to-date.

Another form of technical fragmentation would result from a new set of basic protocols that would operate apart from IP and the existing protocols. This would involve a new set of identifiers, and could involve new protocols for using those identifiers. The new protocols could use the existing networks and devices, once updated with the new protocols, but would not be able to communicate with the Internet unless a gateway – a hardware device with software which would translate between the protocols – was possible. Such new protocols might be designed to address perceived shortcomings in the Internet, such as a lack of intrinsic security, or to impose more complete control over a national Internet. One such effort, known as New IP, is discussed below. To date, no such redesign has succeeded, including the proposed New IP.

Multi-stakeholder model

One of the central principles of the Internet is decentralisation. At the technical level, this is reflected in the autonomy of networks to develop their own interconnection arrangements, and at

[3] A number of these were addressed by the UN Secretary-General's High-level Panel on Digital Cooperation, and proposals for augmenting digital cooperation to address challenges are outlined in the Roadmap for Digital Cooperation.

the application level in developers making applications available and users deciding which ones to use. Most fundamentally, at an organisational level there is no central authority that owns, operates, or controls the Internet as a whole. Rather, these roles are distributed among various organisations, network providers, businesses, developers, and users, with stakeholders often acting in more than one role. The result is a key element of the multi-stakeholder model of Internet governance.

The multi-stakeholder model follows the above multi-stakeholder definition derived during the World Summit on Information Society (WSIS). In this model, governments, and international organisations, participate alongside other stakeholders, but do not have centralised power or ownership. The private sector also plays an important role, given their role in deploying and operating networks, and developing content and services. Civil society organisations, academics and researchers, and non-governmental organisations are also involved to represent the interests of users, and users themselves can be involved. The model relies on all these actors' participation.

The Internet Engineering Task Force (IETF) is a standards development organisation (SDO) that evolves IP and other existing protocols, and identifies and develops new ones. The IETF embodies openness – anyone can participate in developing the protocols, and they are open to anyone to use without royalties. Other standards organisations include the World Wide Web Consortium (W3C) which develops open standards for the Web, and IEEE, which develops Internet access standards such as Wi-Fi and Ethernet. Each subscribes to the OpenStand Principles for developing and making available open and global standards.

As noted above, identifiers used to route traffic must be managed centrally to ensure that there is no duplication so that all traffic can be routed to the right destination. The Internet Corporation for Assigned Names and Numbers (ICANN) assigns and co-ordinates globally unique identifiers - the domain names and IP addresses - that make up the DNS. ICANN is a not-for-profit public-benefit corporation run with a multi-stakeholder model, in which governments, companies, civil society and others can all have an input. ICANN delegates IP addresses to regional Internet Registries (RIRs), which in turn are responsible for allocating them to Internet service providers and other networks.

Any effort by government or others to fragment the Internet at the technical level would also fragment the multi-stakeholder model, as new organisations would take the role of IETF, ICANN, and others within the fragmented Internet.

International Fora

In December 2001, the UN General Assembly adopted Resolution 56/183 to endorse the World Summit on the Information Society (WSIS), which happened in two phases. The first one took place in Geneva, in December 2003 and resulted in the Geneva Declaration of Principles and the Geneva Plan of Action. The second phase took place in Tunis, in November 2005, where the Tunis Commitment and the Tunis Agenda for Information Society were adopted. It is noteworthy that the WSIS was a multilateral event, convened by the UN Secretary-General, but established what was at the time a unique multi-stakeholder approach. The WSIS led to two annual international events taking a multi-stakeholder approach, the WSIS Forum and the Internet Governance Forum (IGF), both of which examine critical issues of Internet governance.

Since 2006, the WSIS Forum has been taking place on an annual basis in Geneva. It is co-organized by ITU, UNESCO, UNDP and UNCTAD, and brings together the ICT for development community for sharing information and best practices. The WSIS process has been fundamental to set in motion the debate around Internet governance and has delineated concrete Action Lines to strengthen the impact of ICTs for sustainable development, now aligned with the SDG Agenda 2030. The Action lines address a wide variety of issues, including Capacity Building, Building confidence and security in the use of ICTs, a variety of ICT Applications including e-agriculture and e-health, and International and regional cooperation. The WSIS process is reviewed every five years, and as with previous review processes, the upcoming WSIS+20 review in 2025 is an opportunity to review the WSIS outcomes including progress on the Action Lines, and set new goals for the future.

The Internet Governance Forum (IGF) was called for in the conclusions from the 2005 WSIS Summit. The IGF is a "global multi stakeholder platform that facilitates the discussion of public policy issues pertaining to the Internet". It is organised annually by the Multistakeholder Advisory Group (MAG), (in conjunction with the IGF Secretariat) which is comprised of 55 members from governments, the private sector and civil society, along with members from academic and technical communities. The MAG is responsible for evaluating session proposals for the annual forum, among other responsibilities. The IGF takes place in a different city each year. Addis Ababa hosted the IGF 17th Annual Meeting on Resilient Internet for a shared sustainable and common future in late 2022, which covered five main topics, closely aligned with the proposed focus areas of the upcoming

Global Digital Compact, including Internet fragmentation. It also conducts intersessional work and has overseen the development of a range of national and regional initiatives.

Overview of Current Initiatives

In this section, we cover current initiatives addressing possible fragmentation of the Internet, as well as broader efforts to reform Internet governance, which could be addressed in the Global Digital Compact.

Current initiatives and debate relating to fragmentation

As noted above, fragmentation at the technical level would involve introducing a **new set of identifiers to replace the current DNS**, so that there would be a parallel 'internet' that would not be interoperable, which would also fragment the governance of the DNS. At this point there is no immediate risk from this taking place, however it does require concerted effort to uphold.

Another form of technical fragmentation would result from a **new set of basic protocols** that would operate apart from IP and the existing protocols. As an example, a number of such proposals, together referred to as New IP, were first raised at the ITU and then brought through multiple channels to other standards development organisations. The attraction of New IP is that it claims to be designed to address technical challenges in the Internet, relating to quality of services guarantees to enable new industrial applications as well as security concerns. However, New IP would essentially create an alternative Internet while introducing new human rights concerns regarding the identification or anonymity of users.

Introducing these new protocols and identifiers would also result in threats to the current governance model, as **new organisations may compete to develop the protocols and govern the identifiers**. The technical challenges raised by New IP are already being addressed by existing Internet standards organisations including IETF, and the proposal was rejected at the ITU. Efforts to replace multi-stakeholder models of governance with multi-lateral control have also been raised and rejected. The GDC can help prevent fragmentation by strengthening multi-stakeholder governance bodies against future efforts to pull apart the foundations of the Internet.

In 2021 the Policy Network on Internet Fragmentation (PNIF) was created, under the IGF umbrella. This Network has three main objectives: 1) Provide a framework to define Internet fragmentation, its causes, and its potential consequences; 2) Collect and analyse case studies for further knowledge

building; and 3) Develop shared principles, recommendations or codes of conduct to prevent fragmentation. Moreover, this Network has defined three main fragmentation areas relating to: the user experience; the Internet's technical layer; and Internet governance and coordination. The Network is carrying out events and creating material to develop further discussions and knowledge sharing on the topic.

Governance Reform in the United Nations

There has been a significant effort within the UN to address questions of digital cooperation, as well as reviews and reforms of the two international fora introduced above, the WSIS Forum and the IGF.

The High-level Panel on Digital Cooperation was convened by the UN Secretary-General in 2018 to advance global multi-stakeholder cooperation in the digital space to help achieve the benefits of the digital age and minimise the risks. In 2019, the Panel submitted their report The Age of Digital Interdependence, in which it concluded that despite the broad multistakeholder platform the IGF provides, its current structure has limitations to effectively address the challenges emerging from new technologies. Moreover, it highlighted the shortcomings of digital cooperation, emphasising the need for better inclusion, less complexity on policies and process, higher trust among countries and more reliable data, evidence and metrics for policy making. Therefore, the report also outlined three possible ways to improve global digital cooperation, including the IGF Plus, which were addressed further in the UN Secretary General's Roadmap for Digital Cooperation.

These three models are:

- *The IGF Plus*, which would build on the existing IGF's strengths (governance structure and procedures[4], acceptance, gender balance, national and regional IGFs) and address the shortcomings, including notably the lack of actionable outcomes and limited government and business participation, particularly for smaller businesses.
- *The distributed co-governance architecture* would fill gaps with new mechanisms with the self-forming 'horizontal' network approach used by the IETF, ICANN and others to rapidly produce digital cooperation solutions and publish them for stakeholders to consider and adopt on a voluntary basis (the way that IETF develops voluntary open standards).

[4] The IGF Multistakeholder Advisory Group (MAG) advises and facilitates the organisation, schedule, and program of the annual meetings, including supporting panellists, speakers, and moderators. Moreover, the IGF also has Best Practice Forums, Dynamic Coalitions and Policy Networks to provide analytical views on specific topics that will be discussed at the IGF annual meeting.

- *The digital commons architecture* would borrow on the approach to space, climate change and the sea, with treaties, norms, and functional cooperation to govern spaces designated as international commons, in the way that common Internet protocols are treated.

Regarding the IGF Plus model, some reforms have already begun. For example, the IGF has a Leadership Panel in charge of providing strategic input and advice, promoting the IGF and its outcomes and supporting agenda-setting processes and fundraising. Moreover, in 2022, the IGF carried out an Expert Group Meeting to collect further recommendation on the IGF role, reform, and innovation, mainly focusing on better and more inclusive decision-making fora, multistakeholder engagement, digital development discussion and on how to improve IGF operations. In this same sense, the IGF has also improved communication on the topics and messages brought up during its Annual Meeting.

For example, the *Addis Ababa IGF Messages* contains the main messages and recommendations from the five topics[5] addressed in the 2022 IGF Annual Meeting. Broadly, on Internet fragmentation the key messages revolve around it being a multi-layered and multistakeholder issue, ranging from technical and structural aspects to public policy debates related to access, rights, and impacts. Some of the recommendations on the topic included to put in place multistakeholder governance mechanisms of a global unfragmented Internet, vigilance on new and potential risks, international coordination, and greater knowledge, data and information sharing among stakeholders. Having evidence of the key messages and recommendations happening on international fora allows more effective follow-ups and builds evidence of the discussions that are taking place, permitting better decision making, and policy development.

The UN Secretary General's 2021 report Our Common Agenda highlighted avoiding Internet fragmentation as a key issue to be addressed through digital cooperation. In this report, Internet fragmentation is highlighted as a concern for topics such as global commons and public goods, the need for trust among actors and in technology, and on networked multilateralism. Subject to agreement of the UN Member States, this theme may form part of the Global Digital Compact.

One UN organisation addressing the fragmentation of the Internet is the Commission on Science and Technology for Development (CSTD), which is where discussions around science and technology and their impact on development and sustainability happen. As a functional commission of ECOSOC, it

[5] 1) Connecting All People and Safeguarding Human Rights, 2) Avoiding Internet Fragmentation, 3) Governing Data and Protecting Privacy, 4) Enabling Safety, Security and Accountability, 5) Addressing Advanced Technologies including Artificial Intelligence (AI)

provides high-level policy advice and recommendations on the positive use of rapidly evolving technologies. In particular, the CSTD has been mandated to serve as the focal organisation to follow-up on the advances and outcomes of the WSIS. Each year, after the WSIS Forum, the CSTD publishes a Report on the "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", with contributions from civil society organisations and other UN organisations.[6]

With regards to the WSIS process, in 2022, the High Level Dialogue: WSIS+20 - WSIS beyond 2025 took place to discuss the next steps for the WSIS implementation process and its role in the advancement of ICTs for development and for the digital future overall. At the same time, the IGF reforms can help to develop a forum to discuss, innovate and define conjoint efforts on Internet governance, for policy development and to build an inclusive platform with a multistakeholder approach.

The fragmentation of the Internet is a significant challenge to the global Internet and multi-stakeholder Internet governance model. While the specific technical challenges are addressed by existing specialised organisations, the basis for a multistakeholder approach to addressing the challenge has been identified, including UN System organisations, public and private sectors, civil society and academia. The GDC represents an opportunity to further extend this cooperation in an inclusive dialogue in which stakeholders can exchange perspectives and explore new possible solutions.

The role of the GDC in addressing these issues

The Internet was developed with a multi-stakeholder approach, which has resulted in a robust set of principles and practices that have enabled the Internet to grow and evolve without fundamental fragmentation. The WSIS was the first multilateral process addressing the Internet, which introduced multi-stakeholder participation, which was then enshrined in the definition of Internet Governance. The development of common protocols and assignment of identifiers are addressed by multi-stakeholder organisations, while the IGF is a key forum for discussion of public policy issues related to the Internet In this light, there are several issues that can be addressed to ensure that the Internet remains whole and the future of the Internet builds on what has made it successful to-date:

[6] Among the organisations that contribute to the follow-up and observance of the WSIS outcomes are the Association of Progressive Communications, the Council of Europe, DESA, ECLAC, ESCAP, ESCWA, FAO, ICANN, IGF, ISOC, UNCTAD, ITU, OECD, UNECA, UNECE, UNICEF, UNODC, UN WOMEN, WIPO, WTO, among others.

- How to ensure that the GDC process itself is multi-stakeholder, following in the model of the WSIS and what followed.
- What is the status of IGF reform considering the recent IGF, and preparation for the review of the WSIS (WSIS+20).
    - Is the IGF Plus the best of the three models proposed by the High-Level Panel on Digital Cooperation or should others be explored further?
    - Can the Policy Network on Internet Fragmentation be impactful, and if so, can it be strengthened?
- How can the GDC help to support the IETF, ICANN, and other Internet bodies whose work is critical to ensure that the Internet remains interoperable, to address challenges while preventing fragmentation?
- Can the GDC simplify the jargon and technicalities around the fragmentation of the Internet for everyone to understand the meanings and implications?

ANNEX

Other relevant links

- **IGF Expert Group Meeting**
- **IGF Leadership Panel**
- **The World Summit on the Information Society (WSIS) Publications**
- **Enhanced cooperation on public policy issues pertaining to the Internet (2010)**
- **With 2.7 billion people still left offline, UN Forum to find solutions for creating a human-centred and resilient digital future**
- **Global potential of Internet remains largely untapped, says UN agency for digital technology**
- **The WSIS goal involves a shared journey to the last mile: What will stakeholders need to reach their destination?**
- **United Nations Group on the Information Society (UNGIS) Input to the United Nations High Level Political Forum (HLPF) 2020**
- **Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society ECOSOC 2022**
- **Study Groups of ITU's Telecommunication Standardization Sector**