

Forum: United Nations Educational, Scientific and Cultural Organization (UNESCO)

Issue: Bridging the global digital divide to promote connectivity and opportunities in the digital age

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## Introduction

With the introduction of the personal computer in the 1970s, the Digital Age began. It revolutionized the way people accessed information, communicated with one another, and lived their everyday lives. In fact, we are still living in the Digital Age, as technology continues to evolve and advance. The COVID-19 pandemic has served as a catalyst for digital transformation, with businesses, educational opportunities, and entertainment industries all shifting online. However, it has also widened the divide as developing countries and underprivileged communities struggle even more to catch up to the rapid change that is occurring. The Digital Revolution can drive connectivity and bring the world closer together, but it can also widen gaps for inclusivity, with dangers of leaving people without access to technology behind. Technological advancement is outpacing our abilities to adapt, and something must be done to bridge the global digital divide before it continues to grow.

When the digital divide first began to be discussed, it was a question of the gap between those that had access to the Internet and those that did not. Since then, technology has rapidly advanced, and with new digital technologies, there are also new digital divides. It is now no longer a matter of addressing basic Internet access for communities, but tackling the quality of access available to individuals, such as the bandwidth capacity or the internet speed. It isn't simply just the obtainment of technology, but the fostering of an environment where technology can be used appropriately and to its fullest potential. With technology opening up a whole new world of opportunities and possibilities, bridging the digital divide is more important than ever. Technology now invades virtually every part of our lives, not only as an individual, with barriers to employment, educational opportunities, and global engagement, but also in our societies, nations, and as an international community, where we face obstacles to communication between nations, global trade and diplomacy, and even the implementation of our Sustainable Development Goals. Thus, in thinking of our future and the future of the international community, we must harness the potential that modern-day technology offers to us. Steps must be taken in addressing the global digital divide to not only build connectivity but also to ensure equitable access to the endless opportunities that technology can bring.

## Definition of Key Terms

### The Digital Divide

The digital divide, in its broadest sense, refers to the gap that exists between individuals of different socio-economic levels in regards to their ability to access information and communication technologies as well as their opportunities to use the Internet. The divide largely stems from the uneven distribution of such technologies in society, creating gaps in both access and usage of modern technologies.

### Digitalization

Although there are various definitions for the term, digitalization most generally refers to the integration of digital technologies into our common, everyday lives. J. Scott Brennen and Daniel Kreiss, both at the University of North Carolina School of Media and Journalism, define digitalization as “the way in which many domains of social life are restructured around digital communication and media infrastructures”. Digitalization has also been defined by Gartner Inc. as “the process of employing digital technologies and information to transform business operations”. Regardless, digitalization should be thought of as a transformation, different from digitization, which simply refers to the conversion of data and processes into a digital format. For example, converting a paper report to a PDF would be digitization, whereas digitalization might be a company shifting from factory workers to computer-controlled equipment, in essence, you would digitize a document, but digitalize a factory.

### Information and Communication Technology (ICT)

Information and Communication Technology (ICT) serves as an umbrella term for all technologies that are used for the communication of information. The term is generally accepted to mean all devices, software, applications, and systems that together allow the facilitation of communications and interactions in the digital world. As a broader term for information technology (IT), ICT encompasses both the physical technologies, such as cell phones, computers, as well as the convergence of media technology, such as the linkage between various digital networks.

### Telecommunications

Telecommunications, also known as telecom, refers to the exchange of information over long distances. This can mean communicating through voice, video, data, or any other types of transmission. It is important to note that although modern telecommunications is commonly used to describe

communication between the transmitter and receiver through electronic means, such as telephones, radio, TV, and satellites, the term also includes non-electronic means as well.

### **Digital Literacy**

Digital literacy is the ability to live, learn, and work in a society where communication and access to information is increasingly reliant on digital technologies. Being digitally literate entails an individual having various skills and capabilities to deal with the digital world, including, of many, the ability to understand and use technology, effectively communicate and participate in online environments, manage an online identity as well as personal security. The level of digital literacy and fluency would vary depending on the context of an individual's situation, but as technology becomes more present in the modern world, developing the ability to use and manage technologies has become ever more important.

### **E-inclusion**

E-inclusion is defined as the situation in which everyone in society obtains equal access in the use of digital technologies. It means both the spread of inclusive information and communication technologies as well as the use of such technologies to achieve wider inclusion for the participation of all individuals in all aspects of the information society. Through the reduction of gaps in the usage of ICTs, E-inclusion aims at a society in which economic performance can be improved and employment opportunities can be increased, building better quality of life and greater social participation and cohesion.

### **The Internet**

The Internet is a vast network that connects computers and other electronic devices from all over the world. It has grown to be so powerful due to the fact that it not only serves any purpose in relation to information, but it is also accessible to every single individual who connects to the network. The Internet supports communication, such as through email, videos, or social media, allows collaborative work across long distances, and provides access to wide ranges of information. With the Internet increasingly becoming an important part of everyday life, it should be a tool that every individual has access to to connect to the world.

### **World Wide Web**

The World Wide Web, or the Web for short, is a collection of various websites that can be accessed through the Internet. Although people often use "the internet" and "the web" interchangeably, they are not exactly the same. The Web is just one of the most common systems used to access and navigate the Internet. In fact, the world wide web was invented with three main technologies (HTML, HTTP, URL) that essentially served as a language for all computers to understand each other,

revolutionizing the way people could get and share information as well as communicate with one another.

### **WiFi Network**

WiFi is the wireless technology that is used to connect various electronic devices, such as computers and smartphones, to the Internet. It is important to understand that WiFi is a wireless connection that provides internet access to a device, not the Internet itself. In simple terms, WiFi uses radio waves to transmit data from a router to other devices, which then allows us to use the data for purposes such as accessing the Internet. However, to prevent nearby WiFi networks from interfering with each other, there are regulations on the power of WiFi networks, which can limit their range of connectivity.

### **Cellular Network**

A cellular network, or a mobile network, is a radio network that is distributed over a certain amount of land, known as a cell, that are each served by at least one fixed-location transceiver. These fixed-location transceivers, also called cell sites or base stations, serve as the hub of the cell's local wireless network. Due to the way cellular networks operate, they are able to span a much wider range than WiFi networks, as people traveling from one cell to another will have their connection moved automatically to the next cell. 1G, 2G, 3G, 4G, and 5G are all generations of mobile networks, with 5G, or fifth generation, being the newest kind of network meant to deliver higher performance and improved efficiency.

### **TV White Spaces**

TV white spaces are the unused gaps between active TV channels that were previously used as buffering gaps between adjacent channels to help prevent interference. However, with technological advancements, these spaces are no longer needed, and recent studies have even found that they can be repurposed. According to the US Federal Communications Commission, TV white spaces hold great potential for "expanding broadband capacity and improving access for many users". This spectrum can be used for services such as WiFi or as an extension of fixed-line broadband, reaching places that weren't able to be connected before.

### **Community Networks**

Community networks are local community-led initiatives to build and maintain a network infrastructure for digital communication. They are built on an "open commons" principle, where the users of the network jointly own and manage the network as well. With the collaboration of individual community members and local organizations, community networks can serve various purposes based on

the needs of each community, such as to allow people to communicate with one another, do business, obtain an education, etc. Often in places that are out of reach or non-profitable for traditional telecom service providers, community networks can serve as a means of tackling the obstacles that surface concerning the digital divide.

## History

### Looking at the Roots

The beginning of the Digital Age is commonly marked as the spread of mobile phones and personal computers for general use. However, it is important to examine the emergence of these technologies and how it has impacted its evolution over time. The mobile phone was first introduced in the 1970s. At the time, they were primarily used in the business and sales industry, typically by educated young men with prominent economic backgrounds. Similarly, the personal computer was initially designed for scientists and engineers, not becoming widely available until 1980s, at which point they were still mainly used by businessmen in the workspace. This dynamic, unfortunately, still continues to be reflected today with vast gender disparities in mobile ownership as well as in terms of socio-economic gaps across different communities and even countries as a whole.

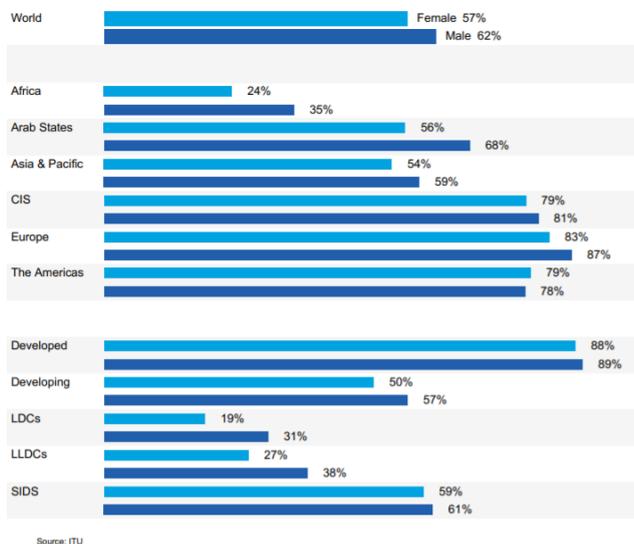


Figure 1: Percentage of female and male population using the Internet, 2020

### Shifting Ideas

The Independent Commission for World-Wide Telecommunications Development chaired by Donald Maitland in 1982 marked a large turning point in the discussion regarding the digital divide. Initiated by the International Telecommunication Union (ITU), the commission aimed to identify the barriers to technological development across the world. The Commission's report *The Missing Link* drew

international attention and awareness to the issue, deeming that “neither in the name of common humanity nor on grounds of common interest” should the disparity be tolerated. The commission recognized for the first time the power of telecommunications infrastructure in influencing the world and the dangers of countries being left behind. From the time of the Commission targeting the need to build fixed telephone lines, modern technology has rapidly developed and shaped the way we interact and function in society. As technologies continue changing and continue to be adopted first by the people who can afford it most, The Commission’s principles have become increasingly difficult to achieve, yet they still stand true and must be addressed.

### **Stages of the Digital Divide**

The digital divide is often thought to be a disparity between the access of technologies in more economically developed countries (MEDCs) and less economically developed countries (LEDCs). Although this is true, the digital divide goes beyond just that to encompass the divide between genders, the older and younger generations, as well as for underprivileged communities. Structural inequalities exist between capital cities, towns and rural areas and between different social groups and different socio-economic classes. As technology has evolved, the divide has evolved as well, roughly broken up into three stages: the economic divide, the usability divide, and the empowerment divide.

The digital divide is mostly directly rooted in the economic gap between people who can and can’t afford these technologies. This is largely due to both an income disparity in individual earnings as well as, on the larger scale, geographical restrictions. According to the UN, almost 40% of the world population lives in low-income countries and about one billion people have no access to information and communication technologies (ICTs). MEDCs have a greater capacity to set up telecommunications infrastructure while people of LEDCs may be hindered by the nation’s inability to build up widespread information and communication technologies. The same geographical barriers exist between urban and rural regions in the accessibility of cellular and internet connections.

As the economic divide rapidly closes due to our sustained efforts, the usability divide surfaces, emphasizing that the problem is deeper than simply the affordability of technology, needing, instead, to face the lack of knowledge and understanding of technology. Currently, digital literacy stands most directly in the way of accessibility to technology across the world. This not only applies for the type of education that an individual or community is receiving but also for the older generation as they struggle to grapple with the changes. The usability divide currently remains our biggest challenge as the world seeks to tackle digital literacy in providing more comprehensive digital skills for those that are learning while still battling a general lack of interest or motivation to learn. The mentality must be changed before we are able to move forward.

Although we hold the ability to bridge the usability divide, the empowerment divide moves forward in looking at a world where every individual is able to utilize technology completely in making the most of all the opportunities it has to offer. The empowerment divide looks into the future of a technologically integrated world that brings all communities together. Although individuals may learn the basics of using modern technologies and accessing the internet, the challenge remains in allowing everyone to maximize its opportunities, promoting connectivity and bridging the divide in its entirety.

## Key Issues

The digital divide stems from a variety of factors, whether it be financial limitations, low level of education, lack of digital literacy, poor technical assistance, or simply a lack of knowledge and understanding of technology. This, in addition, to the ever-evolving nature of modern technology, exacerbates the problem further, where new technologies bring about new divides and new challenges. Thus, the urgency of the situation must play a large factor in considering and approaching the issue.

Moreover, as the digital divide continues to evolve and unfold, and as the problem shifts from a matter of supply to a matter of knowledge and understanding, simply providing monetary support for development is no longer enough. Instead, a whole society approach must be taken to effectively tackle the issue. The digital divide is deeply rooted in structural inequalities, where there is a perpetual cycle of the underprivileged receiving less access. For this reason, digital divides cannot simply be solved with policies and regulations. To bridge the digital divide, the structural inequalities underpinning the issue must first be addressed.

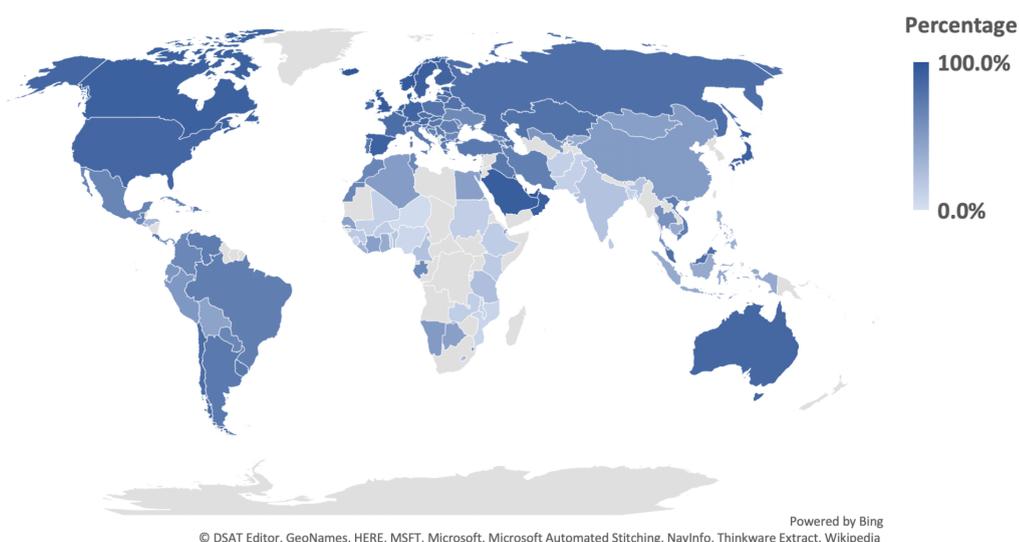


Figure 2: Percentage of Individuals with Internet Access (2018)

Technology serves an ever-more important role in the modern day as it brings new opportunities and connects communities all around the world. However, it also holds the same ability to push those who do not have access out of reach of essential services. For example, with businesses shifting towards remote work and with the Artificial Intelligence (AI) industry continuing to grow, the lack of access can greatly damage economic prospects. An inability to use information and communication technologies has also taken a toll on education, with entire communities falling behind. Even as developing nations seek to obtain resources in the face of crises, the need for data and communication technologies continues to persist, with the lack of being a hindrance on relief work. It is imperative that technology acts as a bridge that brings us together rather than as a harm that breaks us apart.

Moving forward, we must work to harness the complete opportunities that technology has to offer. A lack of access to technology is no longer just an inconvenience but a barrier. Even for those who fear or refuse to use technology, it has nonetheless become integrated into their everyday lives, being an unavoidable matter. Whether it be using the ATM or paying for groceries with a credit card, or even the internal systems of cars, technology serves an integral part. Digital literacy, even, has become a set of skills that everyone must learn and have. It has become a necessity in the technical and scientific industries and is slowly becoming more prevalent in all other field as well. It is evident that if the digital divide is bridged, we are open to a whole new world of opportunities. According to Forbes, access to online education can allow more to advance their businesses, and the option to work from home can reduce transportation costs and childcare fees. Technology holds the potential to encourage individuals, foster communities, and support nations in looking towards a brighter future, but we must first bridge the digital divide.

## Major Parties Involved and Their Views

### United States of America

In 1999, President Bill Clinton recognized in his State of the Union address the necessity to connect all Americans to the Internet. Since then, the United States of America has made huge strides to bridge their digital divide. In 2013, the US initiated its Power Africa program, which offers a variety of support tools, such as technical advice and guidance for policies, finance, and legal assistance, in addition to billions of dollars in funding for infrastructural development. In 2020, the USAID announced its Digital Strategy 2020-2025 that aims to increase engagement in the private sector and promote the adoption of international standards. Just last November, President Biden signed a \$1 trillion-plus infrastructure package that would allocate \$65 billion to expanding broadband access. Nonetheless, the US continues to face gaps in access, with telehealth being inaccessible in more rural regions and with

nearly half of Americans without internet access being from Black or Hispanic households. Thus, the US is continuing to develop plans and implement new policies moving forward.

### **United Kingdom**

The United Kingdom has been a global leader in digital technology, yet, with the recent coronavirus outbreak, the challenge of digital exclusion has resurfaced. In 2021, there was an estimated 11.7 million people in the United Kingdom that lacked the basic digital skills needed for day-to-day life. The UK government has taken direct action, initiating Project Gigabit, which would subsidize 5 billion pounds towards building broadband in rural areas, and implementing the Shared Rural Network (SRN) agreement that aims to bring 4G coverage to 95% of the UK landmass by 2025. They have also taken steps towards enhancing digital literacy, announcing a plan to encourage telecom providers to offer social tariffs to low-income households and to launch a £2.5 million Digital Lifeline Fund to reduce the digital exclusion of people with learning disabilities.

### **India**

As India has transformed itself into an industrial power, it has made significant efforts and improvements towards internet usage and access throughout the nation. However, a significant gap still remains between those who have access and those who don't. Rural villages, people of lower socioeconomic status, and women are generally left at a disadvantage as they face the greatest amounts of digital exclusion, often deprived of the ability to possess any digital device, limiting their ability to access educational resources and receive global, regional, and local news. In addressing this issue, the Indian government has established the Digital India program with the ultimate goal of getting the entire country online. The program encompasses a wide range of initiatives, from universal access to mobile connectivity to integrating technology in government systems, and even job training for the youth in the IT sector. The Digital India program is being slowly implemented, with analysts predicting that it will ultimately boost India's GDP by 1 trillion dollars while creating opportunities for marginalized people in rural communities.

### **Denmark**

Denmark is a leader in policies for fostering digital inclusion, ranking the highest globally in the 2020 UN E-Government survey. In 2011, Denmark established its Agency of Digitization under the Ministry of Finance, which was placed in charge of implementing the government's policies for digital welfare. The agency has already overseen a wide variety of digital transformation efforts, including the digitalization of government communications as well as public services. Denmark continues to seek improvement with its Digital Growth Strategy 2025, aiming to improve the digital skills of children, offer training for individuals in the workplace, and create a center for vocational training specifically targeting

technological skills and application. The government has already achieved some of its goals, with schools entitled to national funding for the integration of information and communication technologies. Denmark serves as a good example for nations looking to bridge their digital divides.

## **Estonia**

Estonia is recognized as the most comprehensively digitally advanced and integrated country in the world. It has built one of the world's most advanced digital societies, providing services such as electronic voting, online learning in schools, digital bureaucracy, and healthcare. Thus, when the coronavirus pandemic struck, 99% of government services remained available to citizens. With adequate financial and regulatory backing from the government, digitization has served as a tool to improve the lives of all Estonians. Technology has also allowed Estonia as a country to optimize on connectivity through digital means. Governments often opt for digital means when holding conferences or meetings, even passing a recent legislation stating that all governmental officials are able to hold and attend meetings online, able to exercise their complete decision-making powers through online platforms. This allowed for greater opportunities to participate in political forums while also connecting to more global sectors through the digital platform. Still, 10% of the Estonian population does not use the Internet, largely due to digital illiteracy combined with a lack of motivation. Thus, even with the opportunities provided for a digitalized society, Estonia still needs to tackle the barriers of digital literacy that stand in the way of connectivity.

## **World Bank**

The World Bank has pioneered three programs that, together, aim to help bridge the digital divide and assist countries in harnessing the full potential and opportunities of the Digital Development revolution. One of its largest programs is the Digital Development Global Practice initiative, which works with governments around the world to help create a strong foundation for their digital economy to thrive. So far, the program has established Bangladesh's first national data center, implemented technological solutions to combat gender-based violence in Peru, provided support for remote working facilities for the Malawi government, and structured a project for safe schooling through distance learning in Turkey. For researchers, policymakers, and others in the digital development field, World Bank has established the Digital Development Toolkit Series to guide individuals in identifying challenges and analyzing potential solutions in terms of building broadband access, ICT integration, and strong digital capacities. As an overarching framework, the Digital Development Partnership (DDP) brings the public and private sector together to assist developing countries in building a digital inclusion plan. Altogether, the World Bank has built a strong system to assist nations worldwide in promoting connectivity and opportunities provided by technology and digital development.

## UN Office of the Secretary-General's Envoy on Technology

In January of 2021, the UN Office of the Secretary-General's Envoy on Technology was established to lead the implementation of the Secretary-General's Roadmap for Digital Cooperation as well as serve as an advocate and focal point for digital cooperation internationally. As one of its main tasks, the UN Office of the Envoy on Technology serves to guide the work towards the execution of the Secretary-General's Roadmap for Digital Cooperation, which aims to achieve universal connectivity by 2030, strengthen digital capacity building, and ensure digital inclusion for all. The Office of the Envoy on Technology has already set plans of action moving forward, such as to establish a set of metrics to measure digital inclusion and literacy as well as to agree on a baseline of digital connectivity that individuals must have to access the online space.

## International Telecommunication Union (ITU)

The International Telecommunication Union is the United Nations specialized agency for information and communication technologies. Since its establishment in 1865, the ITU has continuously worked towards facilitating international technological connectivity. For example, the ITU has worked with UNESCO to establish the Broadband Commission for Sustainable Development, bringing together industry leaders, senior policy-makers and government representatives from all over the world to discuss the importance of broadband on the international policy agenda and the expansion of broadband access in every country. The ITU is also working on the launch of the Giga Connectivity Bond with UNICEF, which is essentially a \$5 billion fund to accelerate critical digital infrastructure development. The Partner2Connect Digital Coalition is another recent initiative of the International Telecommunication Union, aiming to support digital transformations in nations facing the most barriers, such as the least developed countries, landlocked developing countries, and small-island developing states that face specific challenges to expanding connectivity and achieving digital inclusion for all.

## Timeline of Relevant Resolutions, Treaties and Events

Date	Description of Event
Jan. ~ Aug. 1977	<p><b>Three preassembled mass-produced personal computers were introduced:</b> Apple Computer Inc.'s Apple II, the Tandy Radio Shack TRS-80, and the Commodore Business Machines Personal Electronic Transactor (PET). The event marked a turn in the usage of technology as these personal computers were much more affordable in comparison to the mainframe computers used in large businesses and government organizations, allowing individuals, small businesses, and schools to purchase these computers for their own use. The introduction of personal computers is also commonly marked as the beginning of the Digital Age.</p>

Jan. 1985	<b>The Independent Commission for World-Wide Telecommunications Development submitted its report, which is officially titled <i>The Missing Link</i>.</b> The Commission was formed to identify obstacles in the development of communications infrastructure and to propose ideas for the expansion of telecommunications. The report not only drew international attention to the telephone access disparity between developing and developed countries but also highlighted that a direct correlation existed between the availability of communications infrastructure and a country's economic growth.
Dec. 10-12, 2003	<b>The first phase of the World Summit on the Information Society (WSIS) was held in Geneva.</b> The summit concluded with a Declaration of Principles and Plan of Action identifying specific action lines to advance the achievement of the Millennium Development Goals. In the long term, the UN Conference defined the issues, policies, and frameworks regarding Information and Communication technologies in order to foster further development.
Mar. 2006	<b>May 17 was declared World Telecommunication and Information Society Day.</b> The purpose of the day, according to the UN, is to "help raise awareness of the possibilities that the use of the Internet and other information and communication technologies (ICT) can bring to societies and economies, as well as of ways to bridge the digital divide". It also underlines the relevance of the new media and technologies and emphasizes the pressing need to bridge the gap in the rapidly advancing digital world.
Jul. 2018	<b>High-level Panel on Digital Cooperation was established.</b> Chaired by philanthropist Melinda Gates and e-business leader Jack Ma, the panel seeks to strengthen international and multi-stakeholder cooperation in realizing the potential but addressing the risks of digital technologies. The panel ultimately produced a report titled "The Age of Digital Interdependence" that calls for the fostering of global digital cooperation in building an inclusive digital society.
Jun. 11, 2020	<b>The United Nations Secretary-General issued a Roadmap for Digital Cooperation.</b> The roadmap addresses how the international community can maximize the benefits and opportunities presented by digital technologies while still dealing with their challenges. It also serves as a vision moving forward, laying out actions for the global community to build a digitally interdependent world.
Jan. 2021	<b>UN Secretary-General appointed the first Envoy on Technology and in effect, establishes The Office of the Secretary-General's Envoy on Technology.</b> The office mainly aims to coordinate the implementation of The Roadmap for Digital Cooperation, demonstrating the recognition from global leaders of the importance of technology as a fundamental global issue.

## Relevant UN Treaties and Events

- The Promotion, Protection and Enjoyment of Human Rights on the Internet, 27 June 2016 (A/HRC/32/L.20)
- Information and Communications Technologies For Sustainable Development, 10 January 2020 (A/RES/74/197)

- Outcome Document of the High-level Meeting of the General Assembly on the Overall Review of the Implementation of the Outcomes of the World Summit on the Information Society, 1 February 2016 (A/RES/70/125)
- Declaration of Principles and the Plan of Action adopted by the World Summit on the Information Society, 12 December 2003 (WSIS-03/GENEVA/DOC/4-E)
- Road map for Digital Cooperation: Implementation of the Recommendations of the High-level Panel on Digital Cooperation (A/74/821)

## Evaluation of Previous Attempts to Resolve the Issue

The United Nations (UN) has taken much action in attempt to bridge the digital divide, not only establishing a guiding framework, the Roadmap For Digital Cooperation, but also taking direct methods to promote universal connectivity. Individual bodies of the UN have also contributed to the effort, with UNESCO and ITU working jointly to establish the Broadband Commission, which advocates for universal broadband connectivity for underserved communities, and UNICEF launching the Giga Initiative with the aim of providing internet access to every school. The work of the UN has helped to spread a powerful message to all nations around the world of the imminent need for action to be taken in tackling the digital divide. For example, through the UNICEF Giga Initiative, the Sierra Leone government was able to cooperate with the UN and various corporations and NGOs in mapping the distance from communities to schools and to connectivity, helping to map out-of-school children and identify factors, such as availability of learning materials and teacher training, that greatly impacted learning outcomes in the communities. However, their actions could be furthered by pushing national governments towards implementations of the international standards and diving deeper into the structural inequalities behind the issue. Governments often either lack the necessary data and information about the community to act or feel that they have already done enough from looking at the statistics on the surface, leaving out marginalized communities, so this would be an area to continue to target more.

The United Nations High Commissioner for Refugees (UNHCR)'s Innovation Service Digital Inclusion Program is particularly worth highlighting in not only its success but also the connectivity and opportunities it has brought and continues to bring to refugee communities. The project started as an initiative to address the issue of digital connectivity for refugees, an issue often overlooked. The program's first successful operation was in Uganda. Although initially, there were many unknowns and mobile operators and telecommunication companies had to be persuaded of the potential market that refugees could bring, eventually their work led to more than 80% 3G coverage in the northwest region and even the introduction of some 4G coverage in areas that had previously had no coverage at all. The networks not only allowed individuals to communicate with their loved ones or have direct access to

humanitarian aid centers in times of need but also granted them the opportunity for saving and investing money through digital means, connecting refugees to the world and providing them opportunities for growth.

The private sector has also played a large role in addressing various aspects of the issue. Google's Next Billion Users initiative targets continued development as it conducts research and builds products specifically geared towards first-time internet users. Amazon and SpaceX have both started projects involving satellites to aid in filling internet dark spots around the world. Microsoft's Airband Initiative seeks to bring the internet to everyone, particularly servicing underserved areas, with the ultimate goal of providing internet access to 40 million unserved and underserved people around the globe by July 2022. Private corporations play a particularly important role in the issue as they hold the necessary funds and resources to bridge the gap. However, there are also risks of becoming too reliant on large corporations, as they may not have as large a reach as do international organizations and even national governments.

## Possible Solutions

1. The government should set up a framework to become actively involved in supporting the development of accessible services, tools and applications and facilitating the establishment of telecommunications infrastructure.
  - **Pros:** A regulatory approach from the government may act most directly in initiating efforts to bridge the digital divide both for urban and rural communities as well as in setting up guidelines for the private sector to commit to a common vision.
  - **Cons:** Governments may be less effective in reaching the individual level, especially when governments are corrupt or lacking proper monetary funds to support the effort, potentially prioritizing other needs first.
2. Programs that assist in developing training and curriculum specifically targeted towards improving digital literacy and information literacy should be made easily accessible to all.
  - **Pros:** A lack of knowledge and understanding of technology currently stands most directly in the way of bridging the digital divide. Thus, making education more widely available for individuals serves as a simple and yet, effective tool to allow everyone to have access to the opportunities that technology and the internet can offer. Information literacy is also incredibly important along with digital literacy as individuals must obtain the correct tools to navigate the information they are able to receive and access.

- **Cons:** Foundational skills, although allowing individuals to familiarize themselves with the basic functions of technology, may not completely help an individual become fully engaged, needing more in-depth, technical training for more specific situations such as the workspace or research.
3. More community access centers should be set up or expanded where everyone, regardless of age, gender, and social class, can have access to the internet.
- **Pros:** Groups that are most affected by the digital divide are able to have a space where, regardless of their ability or inability to obtain personal technologies, they can be within reach of an internet connection and computers for education and work. These centers may also have staff or assistants that can aid in helping to develop the necessary skills for using such technologies.
  - **Cons:** Community access centers, though effective in the short-term, may not last in the long run, in a world where ideally, every individual has access to their own information and community technologies. Geography may also hinder the effectiveness of these centers as some rural regions that are more sparsely populated may receive less support. The establishment of community access centers could also potentially act as an excuse for governments and corporations to not push for further infrastructural development, as they believe a community center is sufficient for access for all individuals.

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