Meaningful Connectivity: Empowering People through Digital Rights and Literacy

Ensuring technology enables dignity, inclusion, and opportunity — not just access

Prof. Carolina Rossini, JD. LL.M., MBA

What Is Meaningful Connectivity?

Reliable Connection

Ensuring regular, safe, and dependable use

Consistent Usage

Access that is frequent and always available

Safe & Skilled

Possessing digital skills and secure online spaces

Adequate Tools

Having reliable devices and sufficient data

Global Digital Inclusion Partnership

4G-like speed

Internet speeds can make or break our online experience. We've all experienced the frustration of a buffering movie or an unstable video call. And without fast speeds, services like telehealth are out of the question. **A 4G mobile connection** is the minimum threshold for providing the speeds we need for the experience we want.

An appropriate device

To experience the full power of the internet, we need the right device for the task at hand. A **smartphone** provides us with the ability to create and consume content in ways that basic phones do not, as well as the portability to access the internet from anywhere. We should ideally have access to a wide range of device types.

Unlimited broadband connection

While some people have unlimited data plans, others experience severe data scarcity, which prevents them from doing certain online tasks or forces them to wait until they can connect to public Wi-Fi. An **unlimited broadband** connection at **home, or place of work or study** provides us with reliable internet access in our daily lives, allowing us to fully utilize the internet's potential.

Daily use

We benefit most from the internet when we can use it regularly. As our societies become more digital and the internet becomes more integrated into our daily lives, connecting occasionally is not enough. **Daily access** to the internet is the minimum we need to see real benefits for work, education and communication.

	ITU definition of internet use	Meaningful Connectivity
Speed	No minimum speed	4G-like speed
Device	Any device	Smartphone ownership
Data allowance	No minimum	An unlimited broadband connection
Frequency	At least once in the past three months	Daily use

CETIC.BR AND THE MEANINGFUL CONNECTIVITY AGENDA

2024

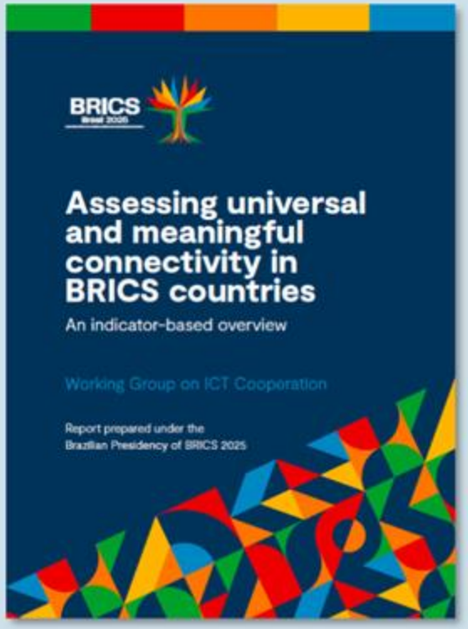
Conectividade Significativa no Brasil: o retrato da população.

(CETIC.BR | NIC.BR | CGI.BR)
www.cetic.br

2024

Universal and meaningful connectivity: A framework for indicators and metrics

(MINISTERY OF COMMUNICATIONS IN BRAZIL, ITU, CETIC.BR | NIC.BR | CGI.BR)



2025

Assessing universal and meaningful connectivity in BRICS countries

(MINISTERY OF COMMUNICATIONS IN BRAZIL AND CETIC.BR | NIC.BR | CGI.BR)

UNITED NATIONS
ECLAC

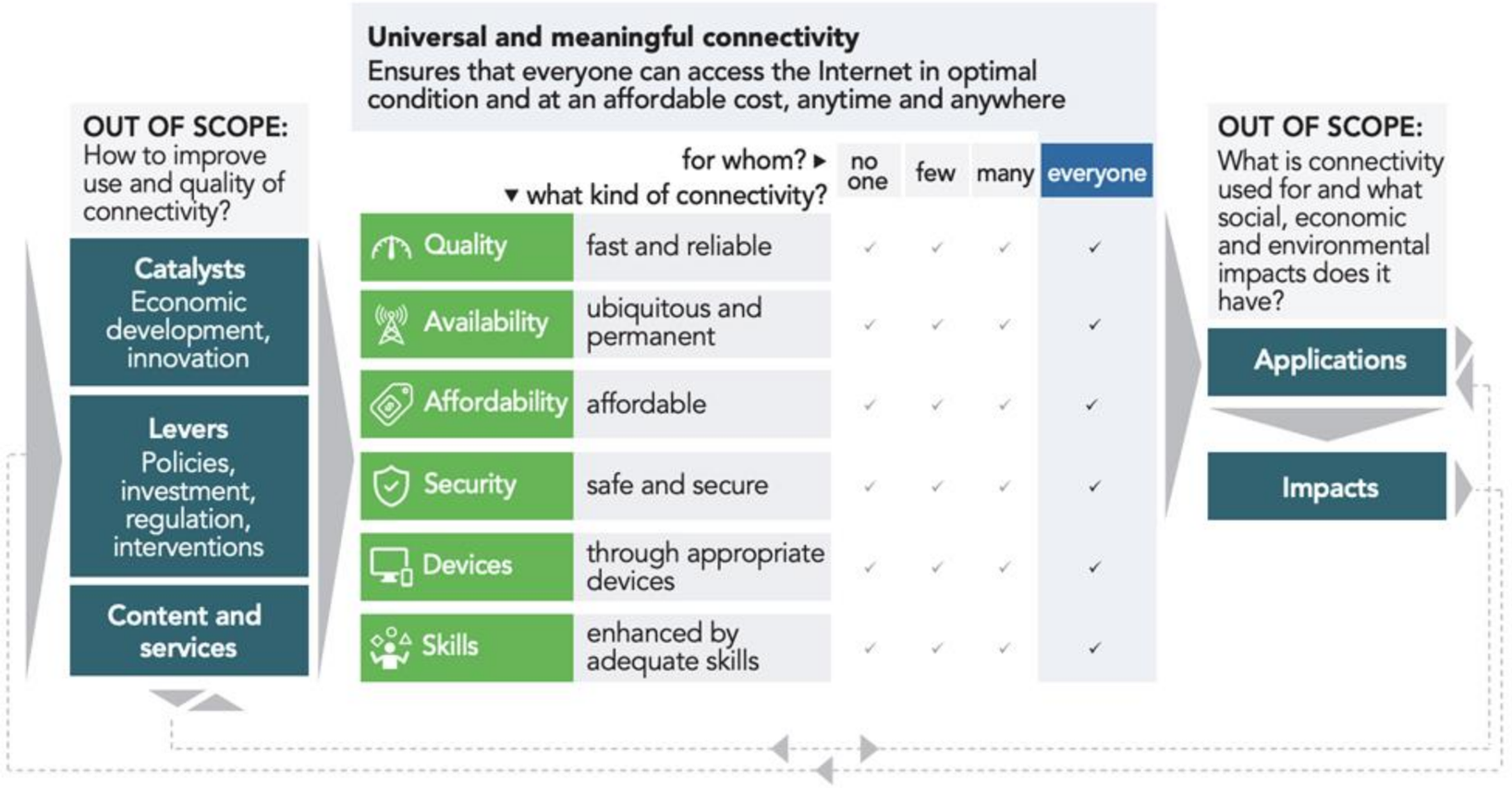
eLAC 2026
Digital agenda for Latin America and the Caribbean

Methodological support for implementing the Meaningful Connectivity index in Latin America and Caribbean countries, in partnership with UN-ECLAC, based on the methodology developed by Cetic.br.

- Dominican Republica, Chile and Peru (completed)
- Equador, Uruguay, Costa Rica, and Colombia (in progress)

EU-LAC
DIGITAL ALLIANCE
POLICY DIALOGUES

Figure 1. Universal and meaningful connectivity framework



https://cetic.br/media/docs/publicacoes/1/20241209152714/G20_DEWG_Brasil_2024_Universal_and_meaningful_connectivity.pdf

Figure 2. Proposed framework for measuring UMC

DIMENSIONS	CONCEPTUAL QUESTIONS	MEASUREMENT OBJECTIVES
CONNECTION QUALITY	Do people have access to high-speed, stable Internet connections suitable for their specific needs and activities online?	Assessing the speed, reliability, and stability of Internet connections.
AVAILABILITY FOR USE	Are people able to use the Internet as frequently and intensively as they wish? Can people access the Internet in different locations, wherever and whenever they want?	Measuring the regularity and intensity of Internet use among individuals. Evaluating the accessibility and convenience of Internet use in various contexts and locations.
AFFORDABILITY	Are Internet access, devices, and data plans affordable and sufficient relative to people's incomes, allowing for flexible and desired quality of use?	Evaluating the affordability, adequacy, and flexibility of Internet services relative to individual incomes.
DEVICES	Do people have access to the appropriate devices necessary to fully engage with and benefit from digital opportunities?	Evaluating the availability, variety, and suitability of devices used to access the Internet.
DIGITAL SKILLS	Do people possess the necessary skills to leverage digital opportunities and manage potential risks effectively?	Assessing individuals' competency and confidence in using the Internet effectively.
SAFETY AND SECURITY	Do people have access to secure Internet connections, can they navigate online safely, and do they feel secure in their online interactions and activities?	Assessing the safety and security of user online experience including concerns and exposure to harmful content and to-enabled crime.

SOCIOECONOMIC DIMENSIONS

Demographic: Do people from various groups and stages of life have equal opportunities to access and benefit from the digital environment with the quality they need?

Economic: Do individuals across diverse socioeconomic backgrounds have equitable opportunities to access and fully utilize the digital environment?

Location: Do people in different regions and territories have equal chances to access and utilize the digital environment with the necessary quality?

Figure 3. Proposed indicators for measuring UMC

DIMENSIONS	PROPOSED INDICATORS
CONNECTION QUALITY	Households with broadband connections; Household broadband connections by technology and speed; Mobile connection by technology (e.g., 4G or 5G)
AVAILABILITY FOR USE	Frequency of Internet use; Perception that the use intensity meets their needs; Internet use by type of location (e.g., home, workplace, educational institution, public areas, community centers, on the move)
AFFORDABILITY	Cost of fixed-household Internet connection; Cost of a data-only mobile broadbandbasket; Cost of mobile and fixed devices; Availability of unlimited data package
DEVICES	Ownership of a smartphone; Availability of devices in the household (number and type); Diversified use of devices (e.g., smartphones, computers)
DIGITAL SKILLS	Information and data literacy; Communication and collaboration; Digital content creation; Problem solving
SAFETY AND SECURITY	Adopting security measures; Adopting privacy procedures; Perception of online safety

Demographic Indicators
Priority: Age; Gender; Household size (number of residents)
Additional: Ethnicity or race; Migration status; Belonging to traditional communities or groups

Location Indicators
Priority: Rural/Urban; Location (the more disaggregated the better, e.g., region, state, city, district)
Additional: Municipality size (number of inhabitants); Hard-to-reach territories

Economic Indicators
Priority: Education Level; Household income
Additional: Individual income; Workforce status (employed, unemployed, student, retired)

https://cetic.br/media/docs/publicacoes/1/20241209152714/G20_DEWG_Brasil_2024_Universal_and_meaningful_connectivity.pdf

The Digital Divide Has Evolved

Creation

Ability to create, not just consume

Rights & Risks

Knowledge of digital protections

Cultural Relevance

Language and local context

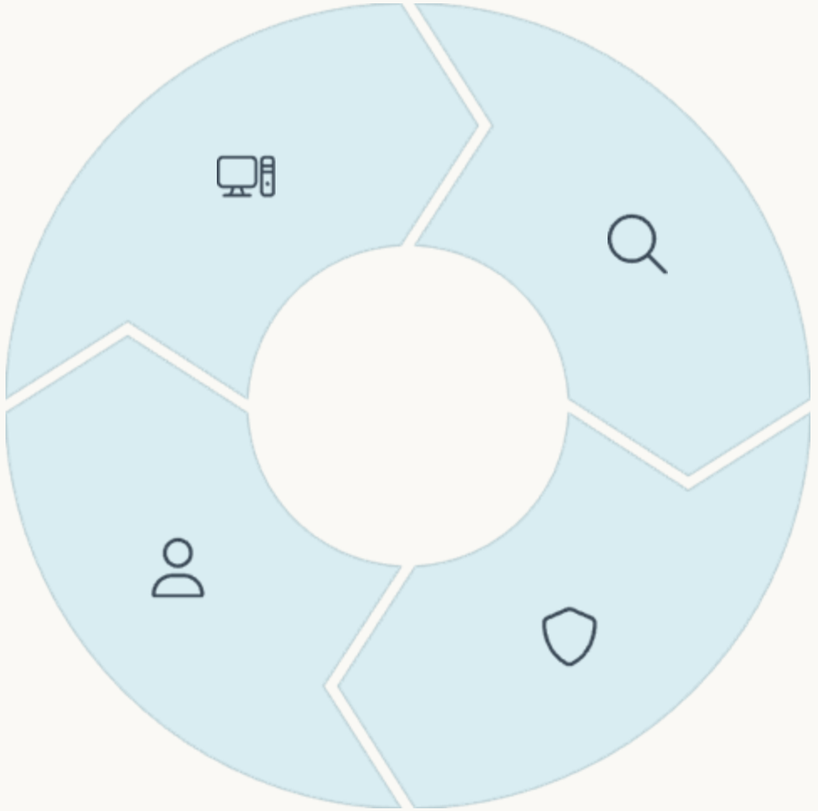
Quality Access

Speed, bandwidth, affordability

Literacy for the Digital Age

Technical Literacy

Using devices and software effectively



Information Literacy

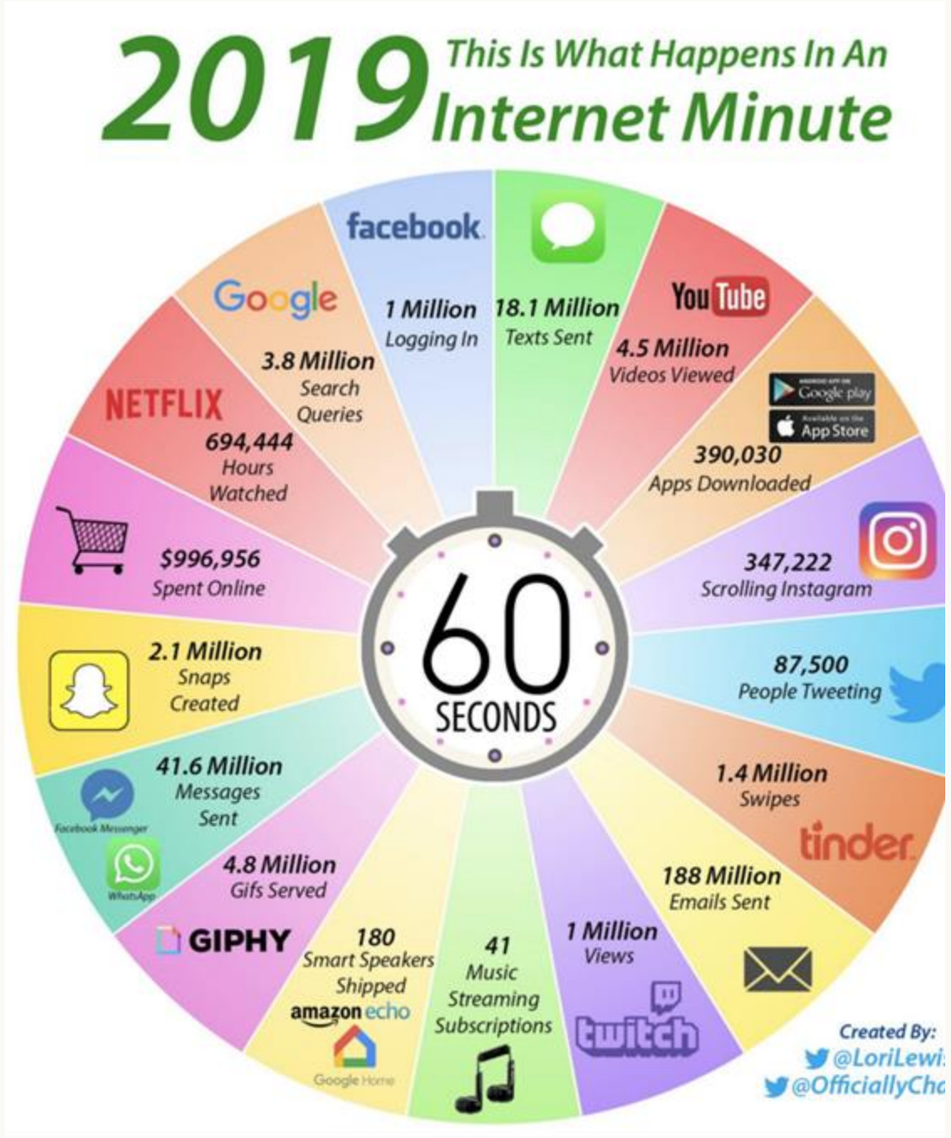
Discerning truth, sources, and bias

Civic Literacy

Tech's role in society

Rights Literacy

Understanding privacy and expression

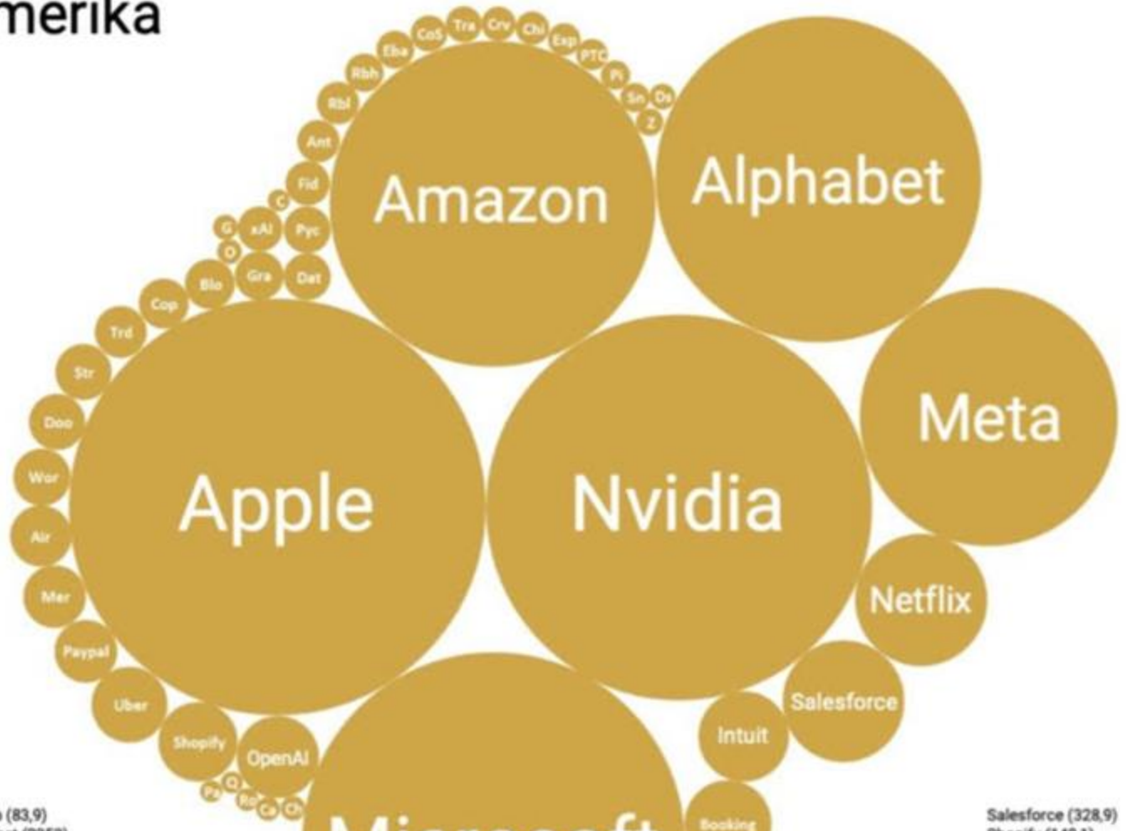

2019 This Is What Happens In An Internet Minute
facebook
1 Million Logging In
18.1 Million Texts Sent
YouTube
4.5 Million Videos Viewed
390,030 Apps Downloaded
347,222 Scrolling Instagram
87,500 People Tweeting
1.4 Million Swipes
tinder
188 Million Emails Sent
1 Million Views
twitch
41 Music Streaming Subscriptions
180 Smart Speakers Shipped
amazon echo
Google Home
4.8 Million Gifs Served
GIPHY
41.6 Million Messages Sent
2.1 Million Snaps Created
$996,956 Spent Online
NETFLIX
694,444 Hours Watched
3.8 Million Search Queries
Google
60 SECONDS
Created By:
@LoriLewi
@OfficiallyCha


AIRBNB GUESTS BOOK 747 STAYS
AMAZON SHOPPERS SPEND $455K
X USERS SEND 360K TWEETS
6.3M SEARCHES HAPPEN ON GOOGLE
WHATSAPP USERS SEND 41.6M MESSAGES
LINKEDIN USERS SUBMIT 6,060 RESUMES
VIEWERS WATCH 43 YEARS OF STREAMING CONTENT
3,720 USERS DOWNLOAD INSTAGRAM THREADS
CYBER-CRIMINALS LAUNCH 30 DDOS ATTACKS
CHATGPT USERS SEND 6,944 PROMPTS
INSTAGRAM USERS SEND 694K REELS VIA DM
EVERY MINUTE 01:00 OF THE DAY
PRESENTED BY DOMO
FACEBOOK USERS LIKE 4M POSTS
DOORDASH DINERS PLACE $122K IN ORDERS
FANS STREAM A TAYLOR SWIFT SONG 69.4K TIMES
VENMO USERS SEND $463K IN PAYMENTS
GLOBAL INTERNET USERS SPEND 25.1M HOURS ONLINE
THE AVERAGE PERSON PRODUCES 102 MB OF DATA
PEOPLE TRADE $398M IN TREASURY BONDS
PEOPLE SEND 241M EMAILS
TWITCH USERS WATCH 48K HOURS OF CONTENT

Top-100 Plattformen der Welt

Börsenwert / Bewertung jüngste bekannte Finanzierung
Gesamtwert 22,67 Billionen Dollar
Einzelwerte (in Milliarden Dollar)
Stand 20. Dezember 2024

Amerika



Airbnb (83,9)
Alphabet (2353)
Amazon (2365)
Anthropic (40,0)
Apple (3846)
Block (55,6)
Booking (167,1)
Carmax (13,0)
Carvana (26,2)
Ceridian (10,9)
Chewy (13,7)
Chime 25,0)
Copart (56,1)
CoStar (29,3)
Datadog (50,8)
Discord (15,0)
Doordash (71,0)
Dropbox (9,1)
eBay (31,1)
Expedia (23,7)
Fidelity (43,9)
Goodleap (14,2)
Grainger (53,2)
Instacart (10,8)
Intuit (180,1)
Match (8,4)
Mercado Libre (87,2)
Meta (1477,0)
Microsoft (3246,0)
Netflix (388,6)
Nvidia (3298,0)
Okta (14,3)
OpenAI 150,0)
Paychex (50,2)
Paylocity (11,0)
PayPal (87,4)
Perplexity (9,5)
Pinterest (19,9)
PTC (22,5)
Qualtrics (11,0)
Robinhood (33,9)
Roblox (11,7)
Roku (11,7)
Salesforce (328,9)
Shopify (140,1)
Snap (19,1)
Stripe (70,0)
TradeDesk (61,7)
Tradeweb
Twitter (9,4)
Uber (127,9)
Unity (9,1)
Workday (72,6)
xAI (45,0)
Zillow (17,8)

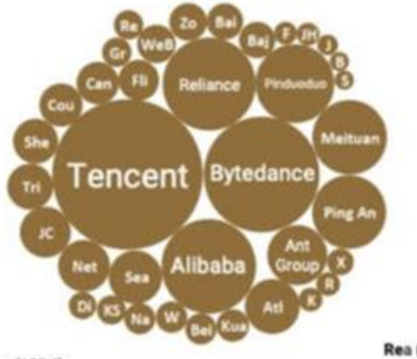
Europa

Adevinta (12,7)
Adyen (49,2)
Delivery Hero (8,2)
Revolut (45,0)
SAP (296,8)
Spotify (93,1)

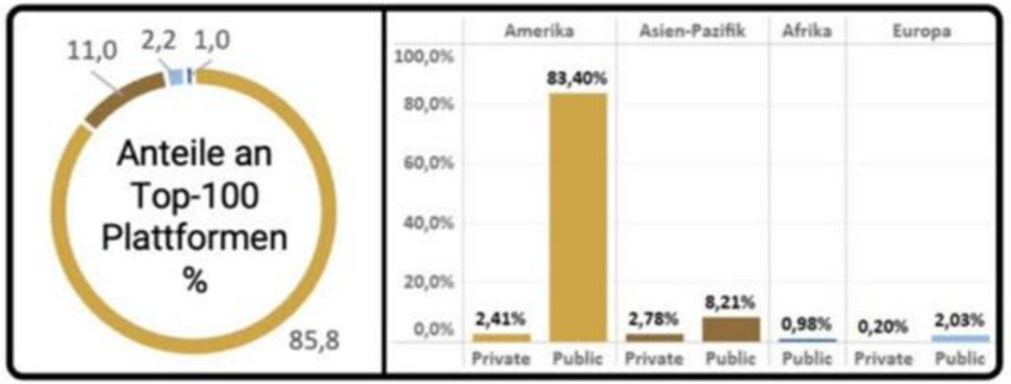
Afrika

Naspers (41,5)
Prosus (181,9)

Asien-Pazifik



Alibaba (198,6)
Ant Group (80,0)
Atlassian (67,0)
Baidu (30,4)
Bajaj (29,5)
Beike (22,6)
Bilibili (8,0)
Bytedance (300,0)
Canva (40,0)
Coupang (41,3)
Didi Global (16,8)
Flipkart (37,0)
Full Truck (11,6)
Grab (197)
JD Digits (9,5)
JD Health (11,6)
JD.Com (57,6)
Kakao (12,4)
Kaspi (19,0)
Kuaishou (23,6)
Meituan (123,4))
Naver (21,7)
Netease (59,8)
PDD 138,2)
Ping An (121,1)
Rakuten (12,7)
Rea (19,3)
Reliance (192,1)
Sea Group (63,5)
SEEK (7,9)
Shein (45,0)
Tencent (503,0)
Trip.com (47,2)
WeBank (33,0)
WuXi App (22,0)
Xero (15,9)
Zomato (3,7)



https://www.netzoekonom.de/2025/01/03/kuenstliche-intelligenz-treibt-plattformunternehmen-auf-neue-

But it's more complex, and it's essential to embrace complexity .

Digital rights are the fundamental human rights that apply in the digital environment, ensuring individuals can access, use, and benefit from digital technologies while being protected from harm. They include, for instance:

- **Right to Privacy**: Protection of personal data from misuse and unauthorized access.
- **Freedom of Expression**: The ability to share opinions and access diverse information online without censorship.
- **Access to Information**: The right to freely obtain and share knowledge on digital platforms.
- **Data Protection & Security**: Safeguarding personal and sensitive data from breaches and misuse.
- **Digital Inclusion & Accessibility**: Ensuring equal access to digital tools, especially for marginalized communities.
- **Right to Be Forgotten**: The ability to request the removal of personal data from online platforms.
- **Net Neutrality**: Ensuring equal treatment of all internet traffic without internet service providers discriminating.

Recc. 78. While blocking and filtering measures deny users access to specific content on the Internet, States have also taken measures to cut off access to the Internet entirely. The Special Rapporteur considers **cutting off users from Internet access, regardless of the justification provided**, including on the grounds of violating intellectual property rights law, **to be disproportionate and thus a violation of article 19, paragraph 3, of the International Covenant on Civil and Political Rights.**

https://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27_en.pdf

United Nations A/HRC/17/27

General Assembly

Distr.: General
16 May 2011

Original: English

Human Rights Council
Seventeenth session
Agenda item 3
Promotion and protection of all human rights, civil, political, economic, social and cultural rights, including the right to development

Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, Frank La Rue*

Digital Rights 101

Privacy & Data Protection

Control over personal information

Freedom of Expression

Access to information and voice

Protection from Harm

Safety from online violence

Digital Inclusion

Accessibility for all abilities

And it does not stop in these “core rights”

Our digital life is intrinsically connected to our analog life. Thus, we must consider how these various rights are expressed along the technology value chain and the impact of a technology on our own life cycle.

e.g., norms can be created for better AI design or PETs can be developed for better privacy and data security issues, BUT if you are still discriminated, we will need ANTI-discrimination norms later in the “system”

Because it's VERY HARD to think about all the good and BAD impacts of technology (wicked problems within innovation theory)

Risks of Digital Exclusion

Surveillance

Exploitation of personal data

Service Exclusion

Missing e service opportunities

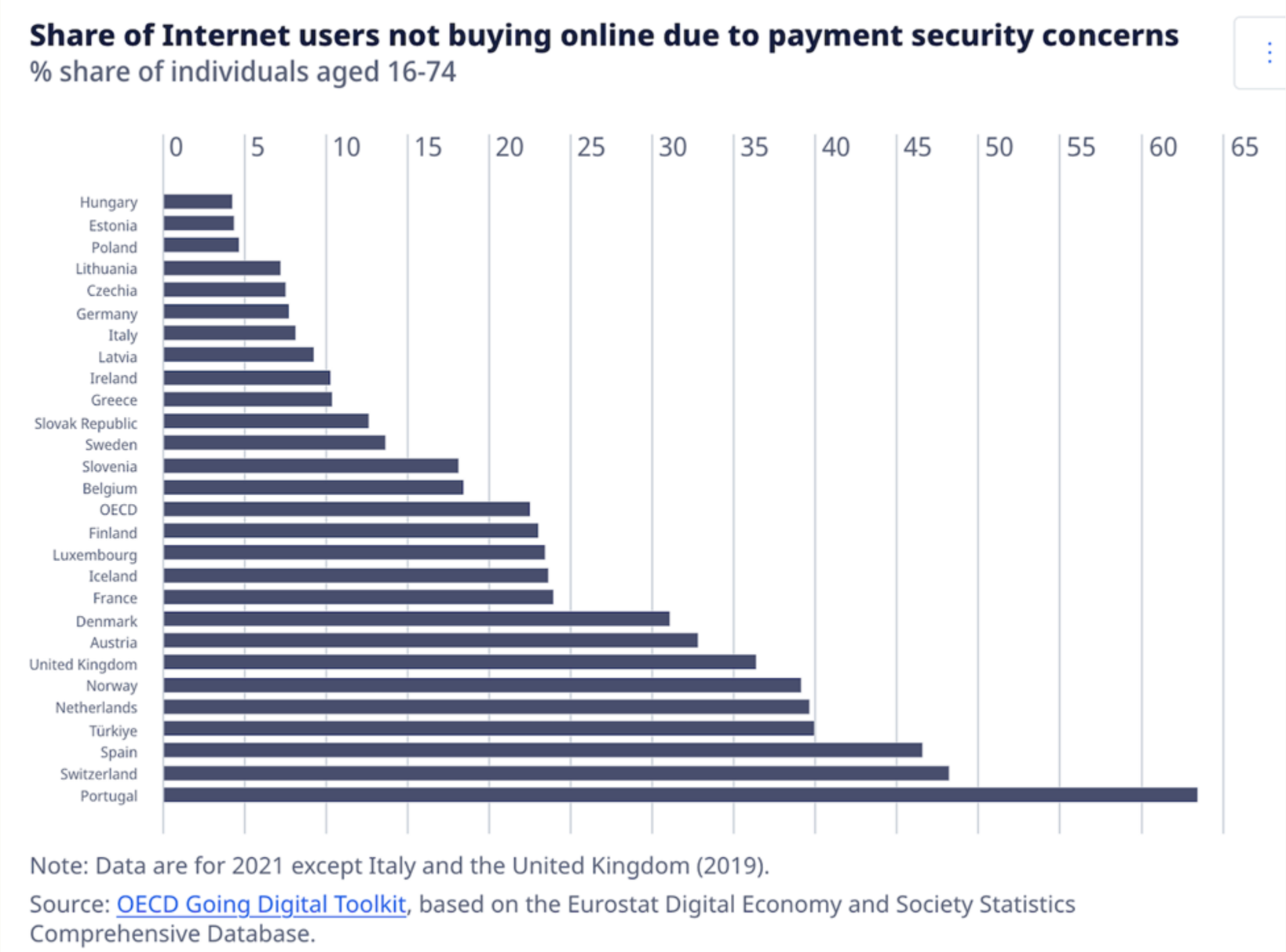
Misinformation

Vulnerability to manipulation

Rights Violation

Inability to assert protections

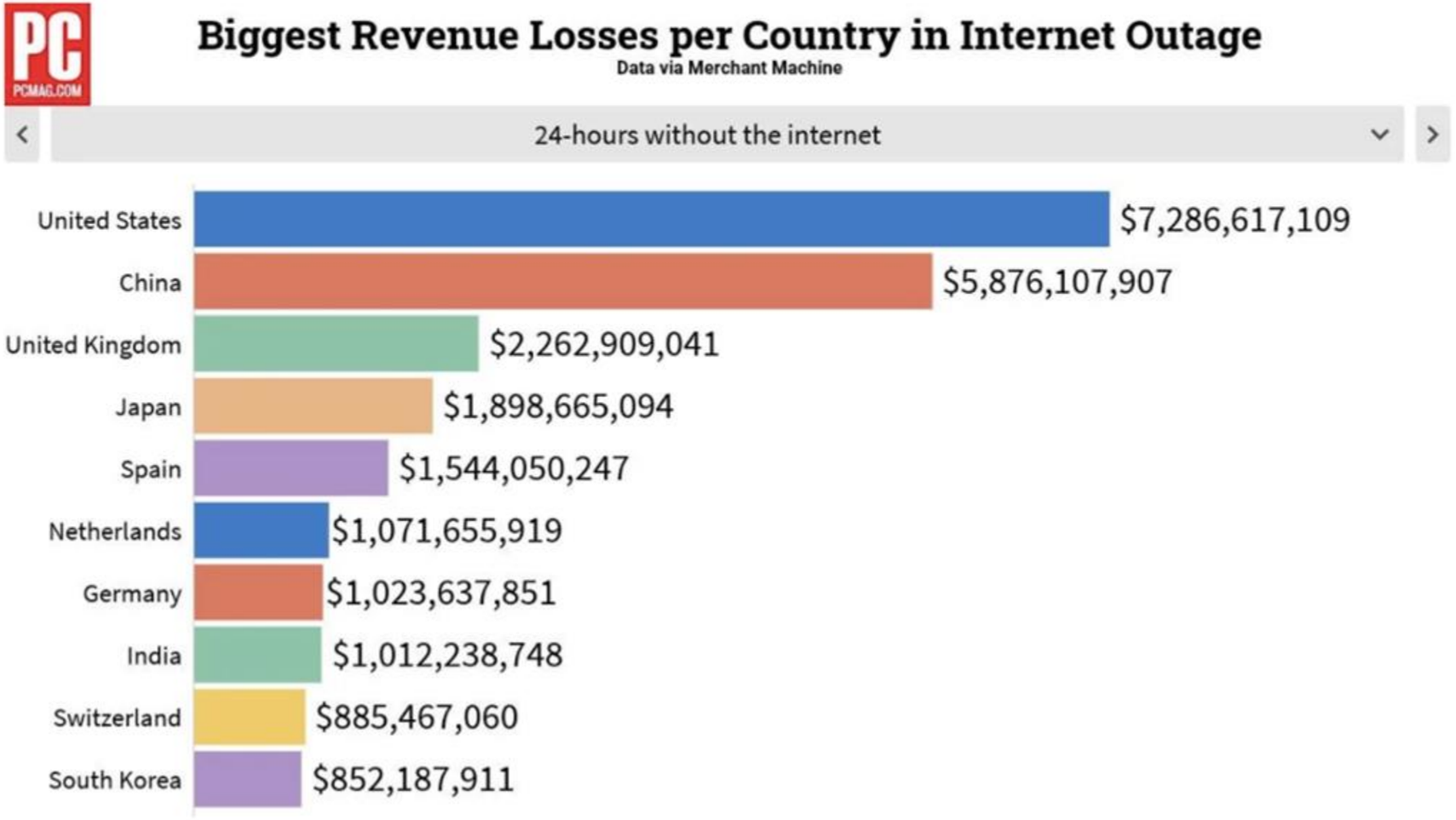
And the impacts of Digital Rights are not only about Human Rights



The Biggest Losers in a Catastrophic Internet Outage Would Be Amazon and America

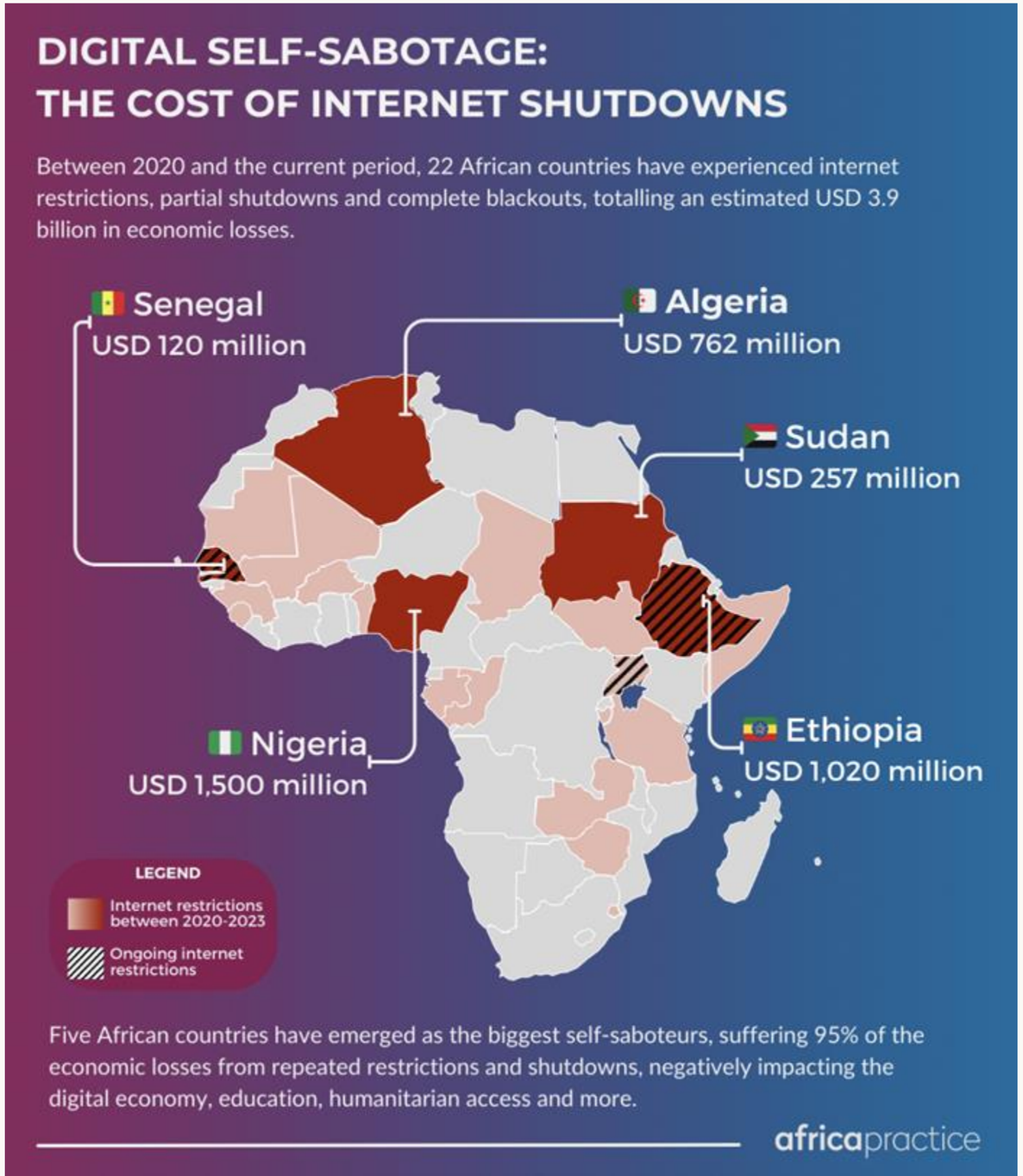
If the world were to lose access to the internet entirely for a 24-hour period, the economic hit would come to over $51.4 billion. If we're lucky.

By Eric Griffith May 24, 2021, 5 p.m.



Digital economy

Digital self-sabotage: The cost of internet shutdowns in Africa



https://africapractice.com/digital-self-sabotage-the-cost-of-internet-shutdowns-in-africa/

"Technology brings risks as well as opportunities – risks that threaten to undermine potential positive outcomes. **Policy is needed that drives responsible technology design**."

-Technology Policy GFC White Paper

https://www3.weforum.org/docs/WEF_Technology_Policy_Responsible_Design_Flourishing_World_2024.pdf

Various governance frameworks (let's call them "norms") ensure these rights are protected globally, regionally, nationally, and—in some countries—at the state level.

Norms can be:

- from **private actors** or **public actors** or result from **multistakeholder efforts** (e.g., internet governance processes)

- **formal** (established, written rules like laws) or **informal** (folkways, mores, and taboos - unwritten rules guiding behavior)

- **soft** (voluntary and non-binding agreements, guidelines, and principles) or **hard** (legally binding rules and regulations that can be enforced through the legal system)

- and be at different **hierarchical levels** (which helps to resolve conflicts between norms and ensures that legal rules are consistent and coherent)

And norms can also be Code!

Public Interest Technology (PIT) is the **making, managing,** and **using** of technology to

- *advance social welfare*
- *while reducing human risk.*

Antidiscrimination Law Meets Artificial Intelligence—New Requirements for Health Care Organizations and Insurers

August 29, 2024 | By Michelle M. Mello

SUBSCRIBE

(Originally published by *JAMA Health Forum* on August 29, 2024)

Responding to the threat that biased health care artificial intelligence (AI) tools pose to health equity, the US Department of Health and Human Services Office for Civil Rights (OCR) published a final rule in May 2024 holding AI users legally responsible for managing the risk of discrimination. This move raises questions about the rule's fairness and potential effects on AI-enabled health care.

Health Hum Rights. 2022 Jun;24(1):93–103.

Algorithmic Discrimination in Health Care

An EU Law Perspective

Malwina Anna Wójcik [1,✉]

Author information · Copyright and License information

PMCID: PMC9212826 PMID: 35747275

This essay explores whether the EU's current anti-discrimination legal framework offers adequate protection to patients who face automated discrimination. In order to answer this question, I analyze the problem of discrimination in health care from three perspectives: social, legal, and technological. I argue that EU anti-discrimination law, in its current state, is not well suited to address the challenges raised by algorithmic bias. Thus, there is an urgent need for reform.

https://pmc.ncbi.nlm.nih.gov/articles/PMC9212826/

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THE VANDERBILT JOURNAL OF ENTERTAINMENT

AI Bias Through the Lens of Antidiscrimin

Posted by brinklmx on Thursday, February 6, 2025 in Blog Posts.

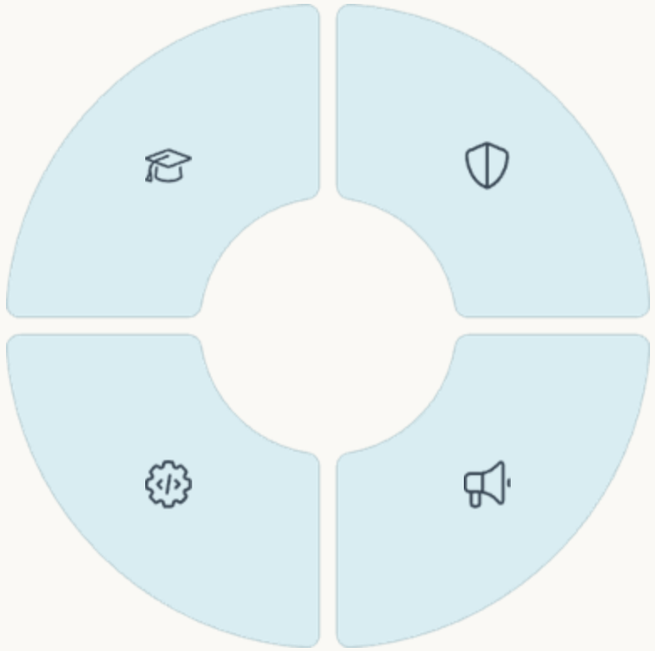
By Cassidy Tshimbalanga; Photo Credit: Phonlamai Photo/Shutterstock

Over the last few years, artificial intelligence (AI) algorithms have become increasingly significant in the medical world.[1] AI algorithms have the ability to facilitate clinical tasks such as risk prediction and disease screening.[2]

The Role of Public Institutions

Skills Training
Digital literacy programs

Safe Environments
Inclusive digital spaces



Public Interest Design
Technology for common good

Rights Awareness
Public education campaigns

Local Voices, Local Design

Culturally Relevant

Respect local context

Local Languages

Beyond English dominance

Community Input

Marginalized voices heard

Lived Realities

Not just tech utopias

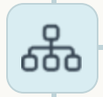
Policy and Ecosystem Support

Community Education

Invest in tech literacy

Rights Protection

Enforce digital safeguards



Platform Regulation

Responsible data practices

Open Standards

Equitable tech frameworks

A Call to Action

Invest in Education

Digital rights literacy for all

Prioritize Equity

Focus on marginalized communities

Design with Empathy

Center human needs, not just tech

Measure What Matters

Meaningful connectivity, not just access

Graduate Public Interest Technology Certificate

The Graduate Certificate in Public Interest Technology (PIT) equips professionals, graduate students, and change-makers with the skills to navigate and lead at the intersection of technology, ethics, law, and social impact. This fully online, 9-credit program is designed to help students build critical competencies in tech policy, governance, and responsible innovation, preparing them for careers that drive meaningful change across sectors.

Fully Online | **9 Credits** | **Start Fall 2025**

GSF GLOBAL SANDBOXES FORUM

https://sandboxes.thedatasphere.org/resources/sandbox-summer-school-2025/

DATASPHERE INITIATIVE

ABOUT OUR SERVICES RESOURCES AFRICA FORUM CONTACT

Sandbox Summer School 2025

The First Ever Sandbox Summer School

Join the Pioneers of Innovation and Become a Sandbox Facilitator