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Unlocking Affordable Internet Access with Open Data

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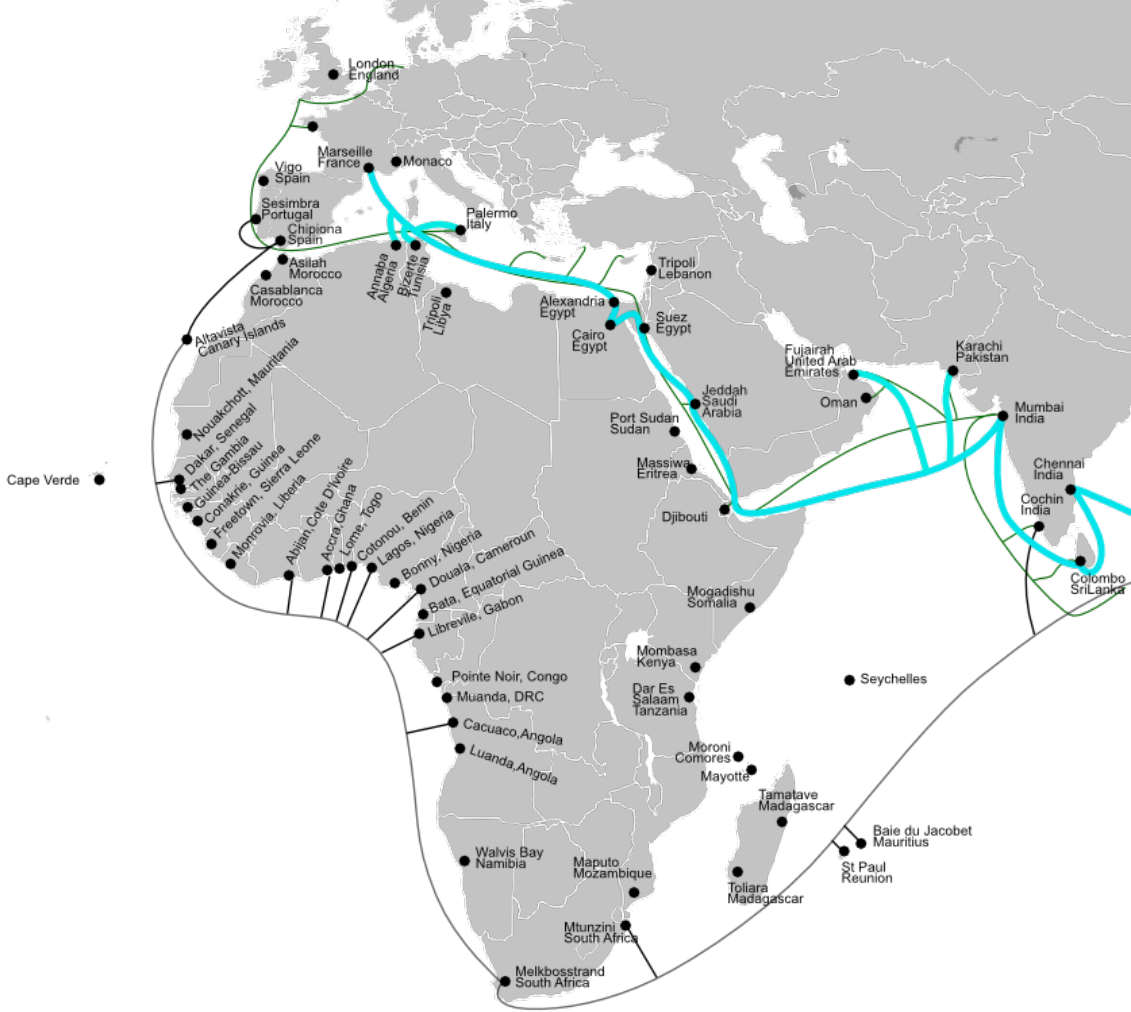


Satellite Dependency

2009

Total design capacity
of undersea cables

2Tbps



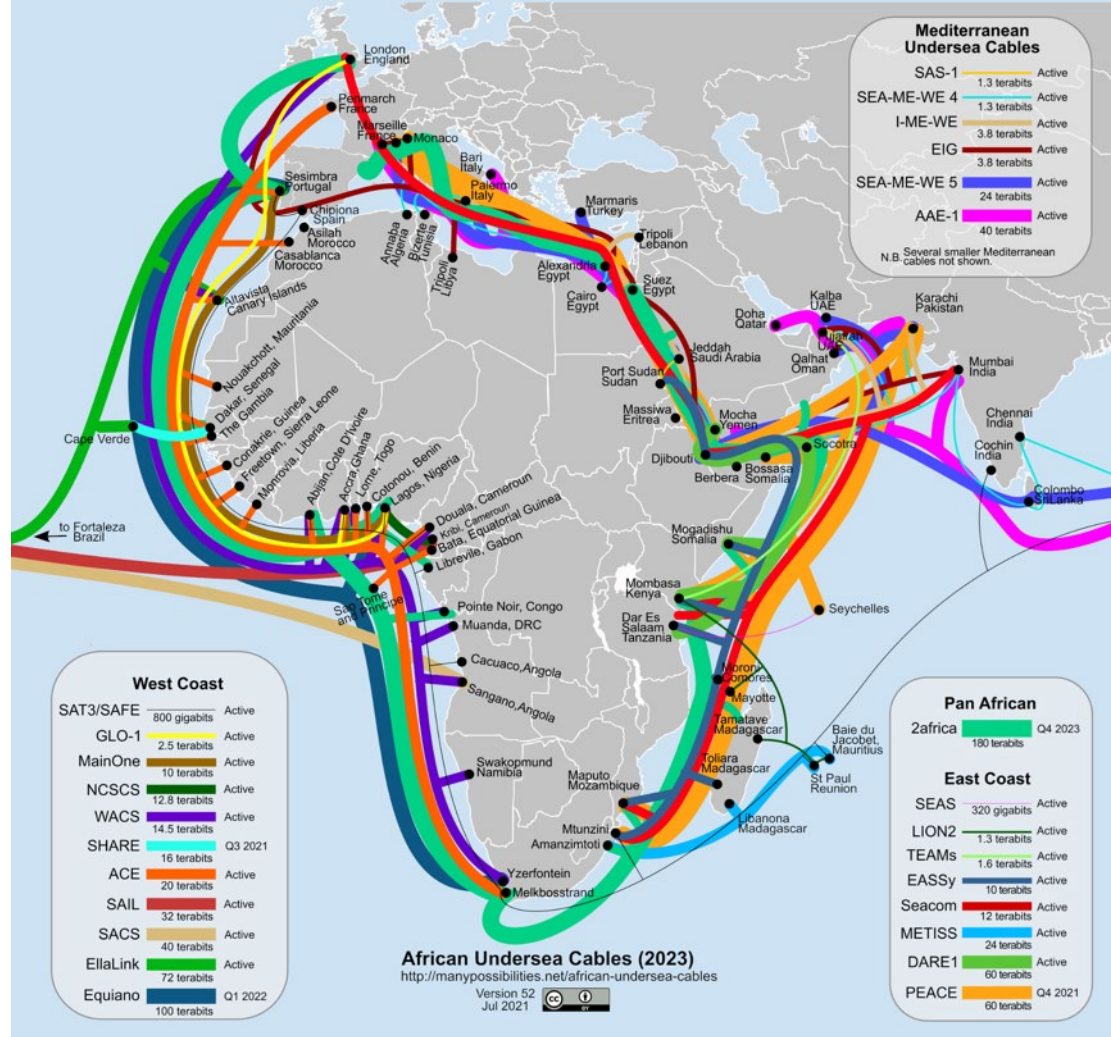
Fibre Optic Connectivity

2023

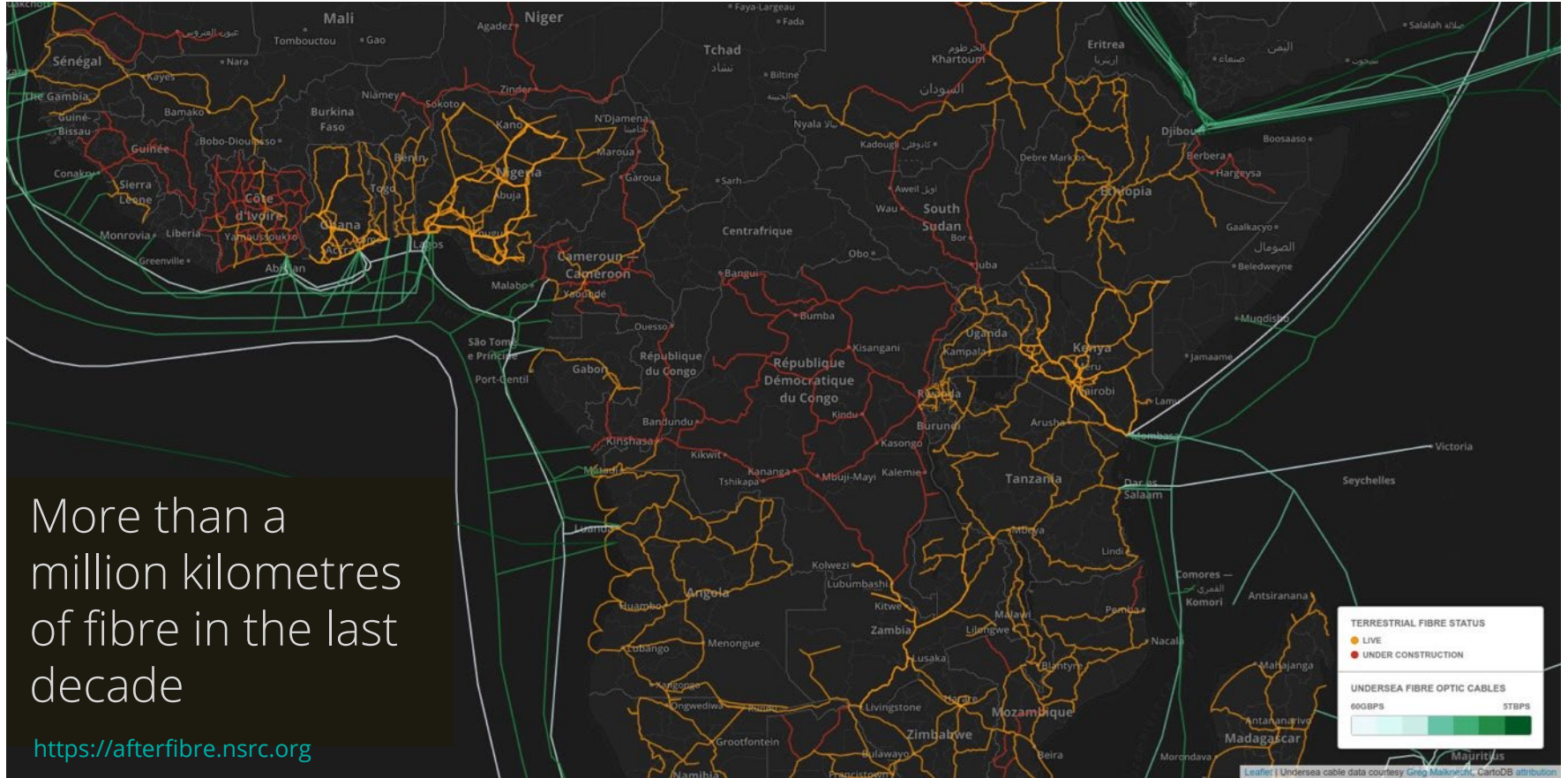
Expected total design capacity of undersea cables

>814 Tbps

An increase of over 400 times.



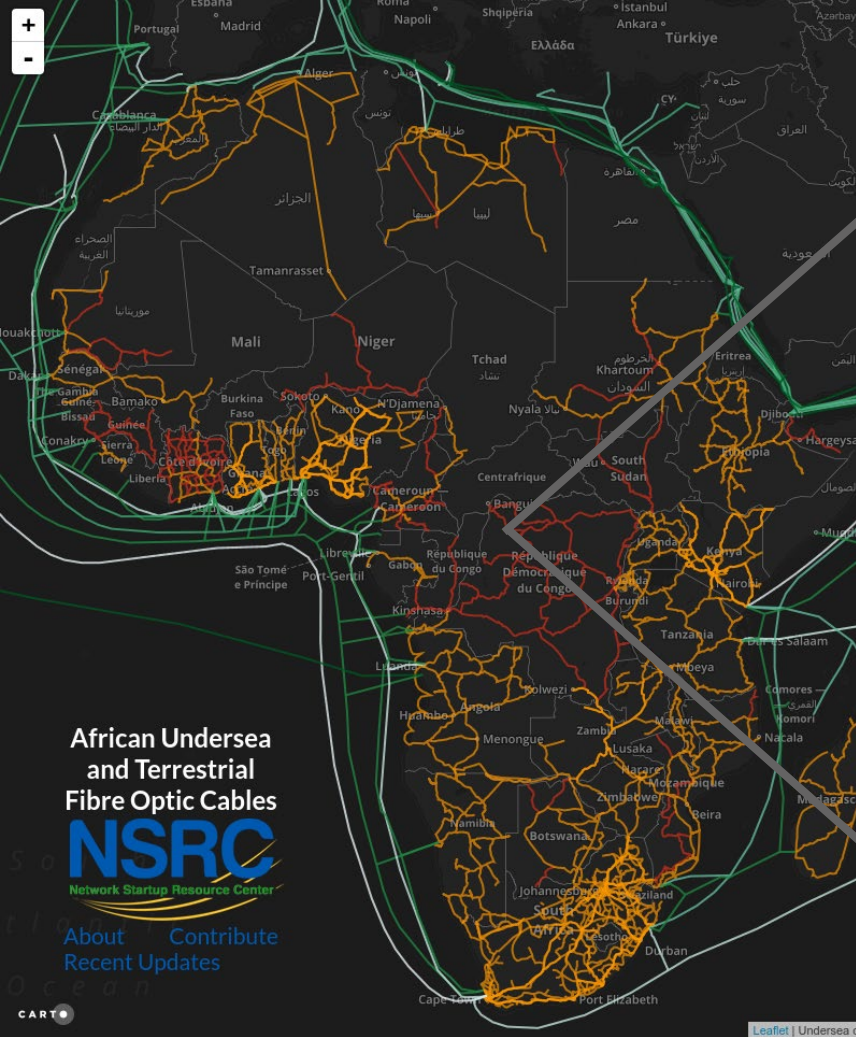
Growth of Terrestrial Fibre





More transparency is needed to understand how physical internet infrastructure is shaping our digital world.

That begins with the foundation on which the modern internet depends, fibre optic infrastructure.



African Undersea
and Terrestrial
Fibre Optic Cables

NSRC
Network Startup Resource Center

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The Arrival of Fast Internet and Employment in Africa

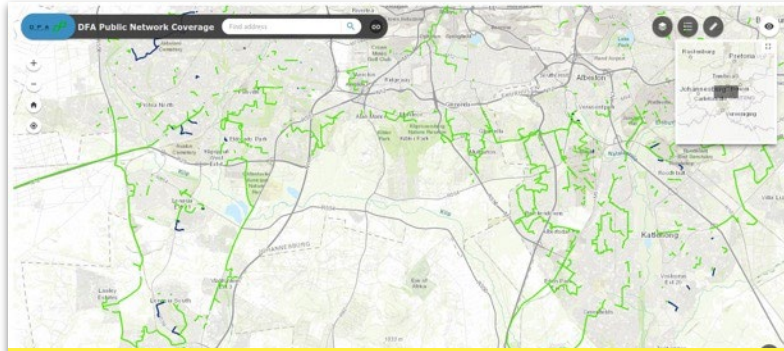
By JONAS HJORT AND JONAS POULSEN

To show how fast Internet affects employment in Africa, we exploit the gradual arrival of submarine Internet cables on the coast and maps of the terrestrial cable network. Robust difference-in-differences estimates from 3 datasets, covering 12 countries, show large positive effects on employment rates—also for less educated worker groups—with little or no job displacement across space. The sample-wide impact is driven by increased employment in higher-skill occupations, but less-educated workers' employment gain less so. Firm-level data available for some countries indicate that increased firm entry, productivity, and exporting contribute to higher net job creation. Average incomes rise. (JEL F14, J23, J24, J63, L86, O15, O33)

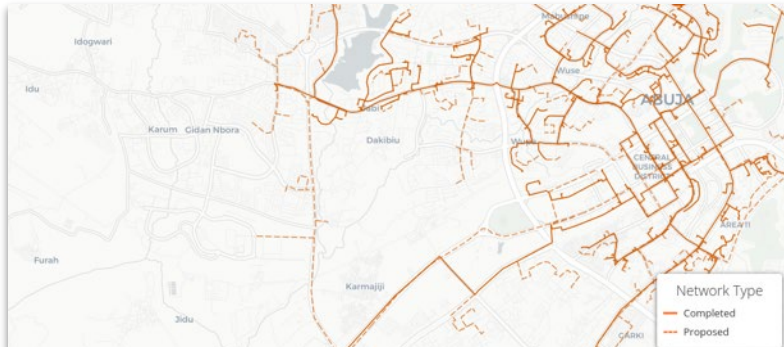
Traditional trade theory predicts a decrease in inequality in developing countries during periods of integration in the global economy. The slow economic progress of poor workers in many parts of Africa, Asia, and Latin America during the 1990s and 2000s, however, has raised economic growth to two potential causes. The first is the arrival of fast Internet, which has changed the nature of international trade. The second is the arrival of fast Internet, which has changed the nature of international trade. The first is the arrival of fast Internet, which has changed the nature of international trade. The second is the arrival of fast Internet, which has changed the nature of international trade.

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 †Go to <https://doi.org/10.1257/aer.20161385> to visit the article page for additional materials and author disclosure statement(s).

Good Practice in Sharing Exists Today

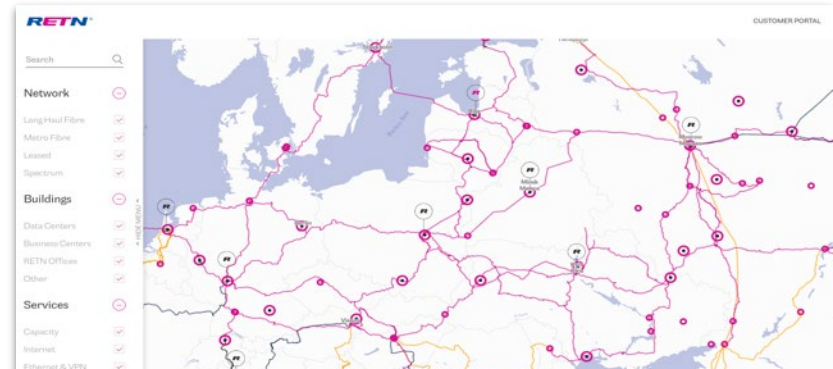


South Africa: <https://dfafrica.co.za/network/coverage/>



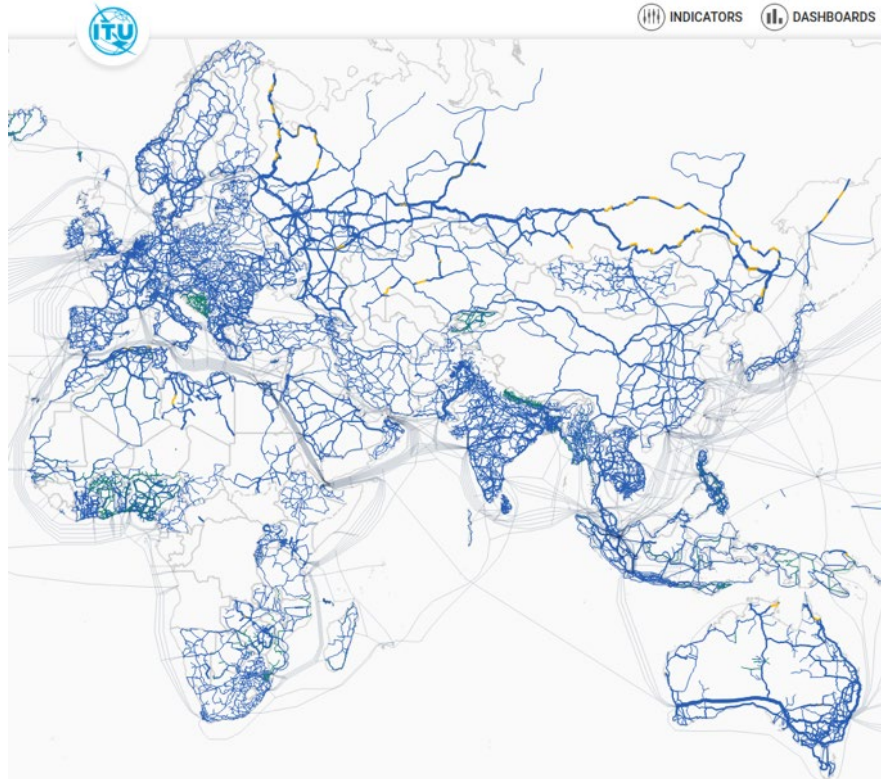
Nigeria: <https://bcnnigeria.net//index.php/our-network/>

Many fibre network operators around the world share their network maps, although they are still in the minority. There is no normalised practice of network information sharing.



Ukraine: <https://retn.net/en/network/network-map>

ITU Transmission Map



<https://www.itu.int/itu-d/tnd-map-public/>

ITU has maintained a global map of terrestrial fibre optic network infrastructure through its partnership with regulators and operators around the world.

In the absence of Open Data norms for network information sharing, operators often default to sharing under an NDA.

As a result the network map data is typically restricted from being downloaded, presenting an barrier to researchers who might leverage this resource.



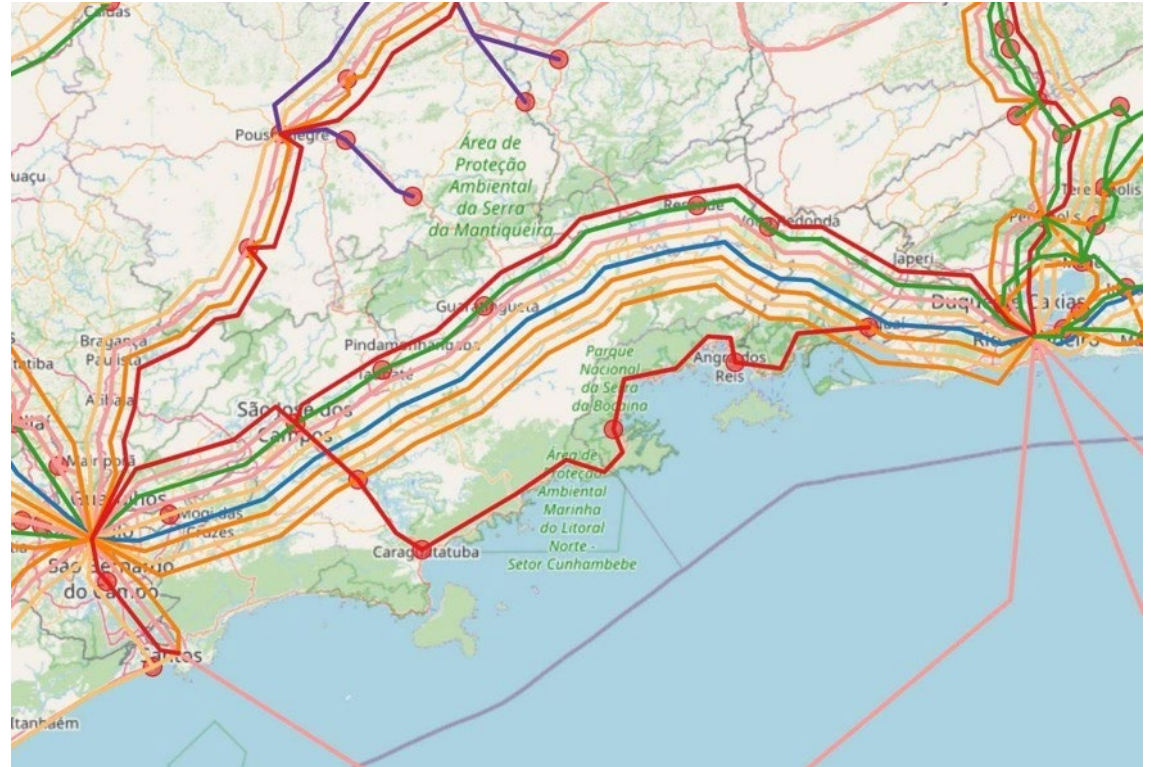
Multistakeholder Initiative

The World Bank, the International Telecommunications Union (ITU), Mozilla Corporation, the Internet Society (ISOC), Liquid Intelligent Technologies, CSquared, and Digital Council Africa are partnering to promote the collaborative development of open data standards for describing telecommunications infrastructure. The first challenge we have taken on is that of terrestrial fibre optic infrastructure.





- Understanding the true extent of national fibre infrastructure
- If 8 operators report fibre along a route such as that to the right, does that represent 8 unique fibre networks?



Map of fibre networks from Sao Paulo to Rio de Janeiro



A man wearing a white hard hat and safety glasses is looking at a laptop in a factory setting. The background shows industrial equipment and bright sparks from a process. The lighting is dramatic, with strong highlights and deep shadows.

BENEFITS TO OPERATORS

Benefits to operators

- Reduction of physical network interruption and destruction.
- More strategic information for investors
- Levelling the playing field in terms of information sharing and building trust
- Better evidence of the socio-economic impact of their networks
- Better network analysis tools

MTN suffers 939 fibre cuts in five months

By Starrfm.com.gh - July 18, 2022



LISTEN LIVE



MTN Ghana suffered nine hundred and thirty-nine (939) incidents of fibre cable cuts between January to May 2022, an increment of 14.65% compared to 819 cuts recorded same period last year.

The telecom giant experienced a monthly average of 11% traffic affected cuts during the first quarter of this year.



Starr1035f

MORE NEWS

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ITU partner2connect pledge



Open Data in Telecommunications Pledge

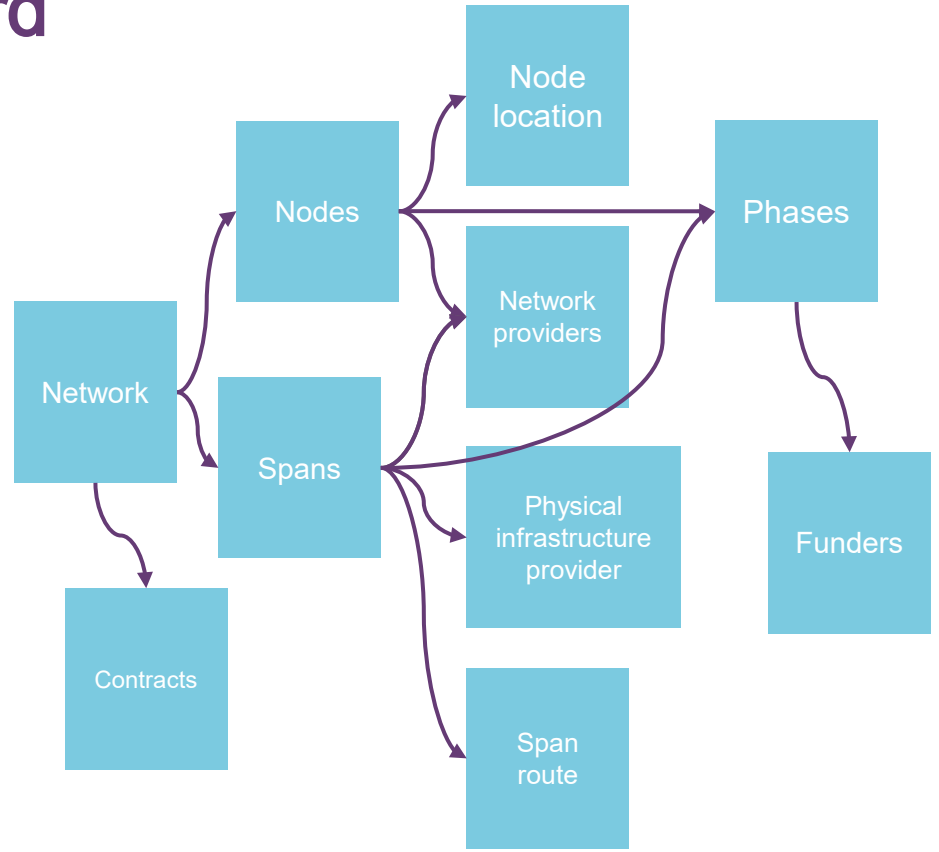
We believe that trusted open data is essential in order to extend affordable, high-quality broadband to all. Accordingly we pledge to:

- promote the collaborative development of open data standards in the ICT infrastructure sector in order to better understand the challenges and opportunities of providing affordable access to communication for all;
- begin by developing open data standards for describing terrestrial fibre optic networks;
- develop sustainable mechanisms for promoting public input, management, and adoption of these standards; and,
- promote a culture of openness and trust among regulators, infrastructure owners and operators.



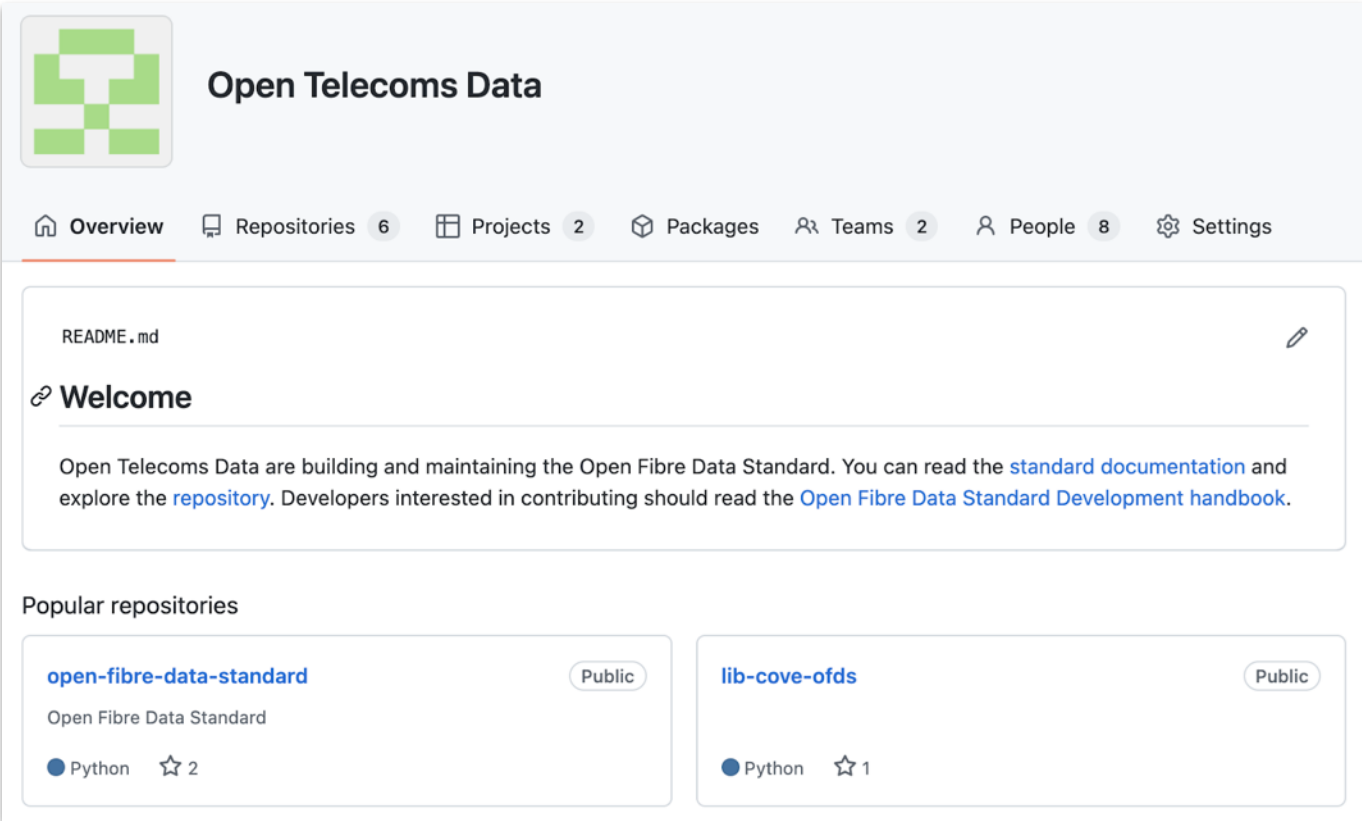
Open Fibre Data Standard


- Describes **what data to publish** about fibre networks
- Provides a **vocabulary** and **structure** for fibre network data
- Offers **guidance and tooling** for publishers and users






A beta version of the standard is publicly available



 **Open Telecoms Data**

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README.md 

Welcome

Open Telecoms Data are building and maintaining the Open Fibre Data Standard. You can read the [standard documentation](#) and explore the [repository](#). Developers interested in contributing should read the [Open Fibre Data Standard Development handbook](#).

Popular repositories

open-fibre-data-standard Public Open Fibre Data Standard Python ☆ 2	lib-cove-ofds Public Python ☆ 1
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Documentation and digital tools are available

The screenshot shows the 'Open Fibre Data Standard' website's 'Browser' section. The top navigation bar includes 'Open Fibre Data Standard' and 'latest'. A search bar is present. A left sidebar contains a menu with items: 'Primer', 'Guidance', 'Reference', 'Schema reference', 'Browser', 'Reference tables', 'Codlists reference', 'Publication formats reference', 'Identifiers', 'History', and 'Governance'. The main content area is titled 'Network' and describes it as 'A telecommunication network. A network consists of a set of nodes interconnected by spans.' It lists several schema elements: 'id' (string, format: uuid), 'name' (string, min 1), 'nodes' (array of Node), 'spans' (array of Span), and 'phases' (array of Phase). Each element includes a brief description and links to further information or RFCs.

open-fibre-data-standard.readthedocs.io/

The screenshot shows the 'Open Fibre Data Standard' website's 'CoVE' (Convert, Validate, Explore) interface. The top navigation bar includes 'Open Fibre Data Standard' and 'Standard Documentation'. The main content area is titled 'CoVE' and includes a 'Load New File' button. Below this, there are sections for 'Schema Version' and 'Download Data'. The 'Download Data' section provides information on the publication format reference and lists several data formats and files: 'JSON (original)' (network-package.json, 9.1 KB), 'GeoJSON' (Nodes GeoJSON, 12.7 KB; Spans GeoJSON, 11.2 KB), and 'CSV' (Compressed: CSV in a ZIP file, 3.7 KB; Uncompressed: contracts.csv, 333 bytes; contracts_documents.csv, 316 bytes; contracts_relatedPhases.csv, 141 bytes; links.csv, 198 bytes; main.csv, 756 bytes; nodes.csv, 876 bytes; nodes_internationalConnections.csv, 291 bytes; organisations.csv, 1.5 KB; phases.csv, 168 bytes; phases_funders.csv, 141 bytes; spans.csv, 1.2 KB).

ofds.cove.opendataservices.coop/

Action has already begun

Earlier this month the Brazilian government released network fibre optic infrastructure data using the draft Open Fibre Data standard.



<https://www.itu.int/en/ITU-D/Technology/Pages/OpenFibre.aspx>

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Thank You

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