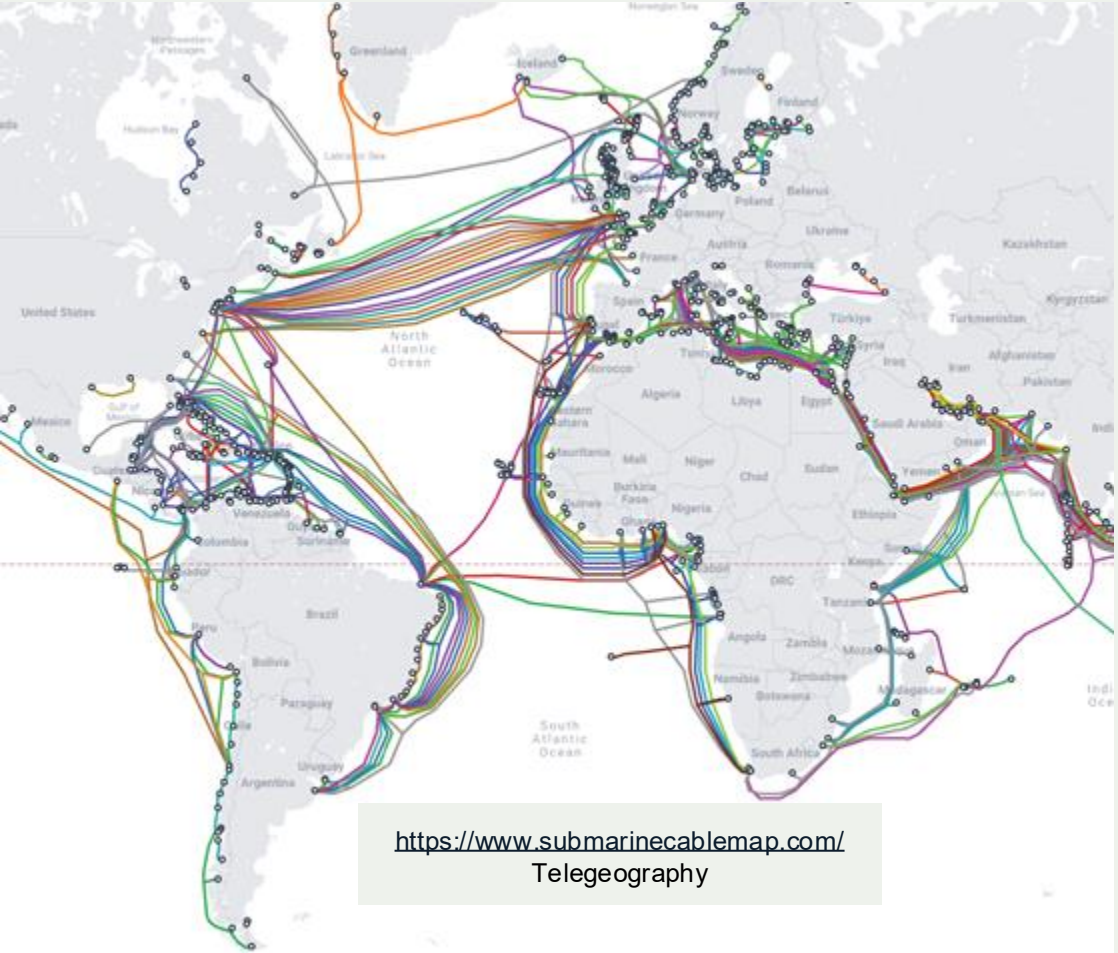
# Introducing the Open Fibre Data Standard

Name
bean@isoc.org

Event
16th June 2025

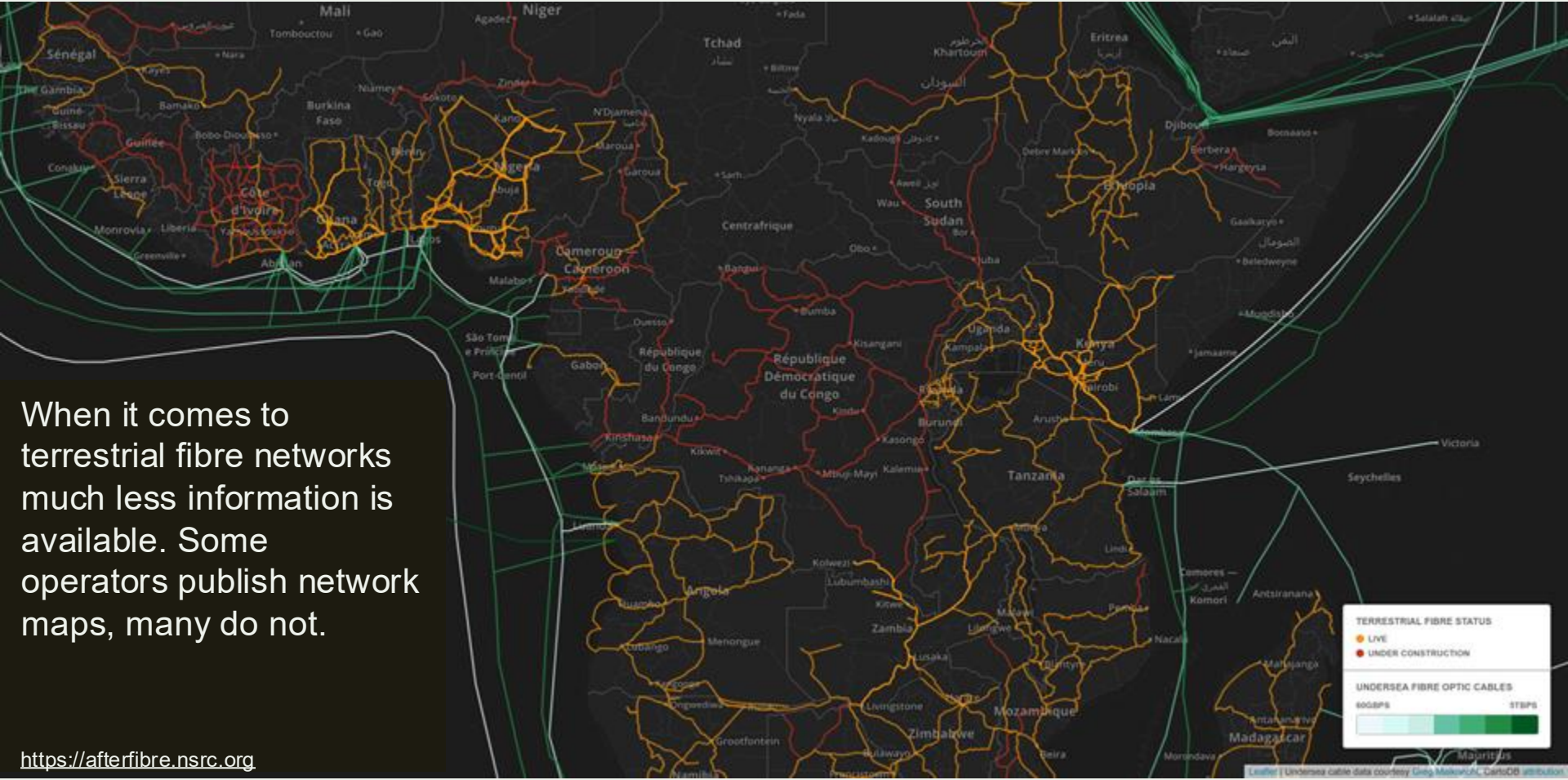
# The Evolution of Fibre Infrastructure



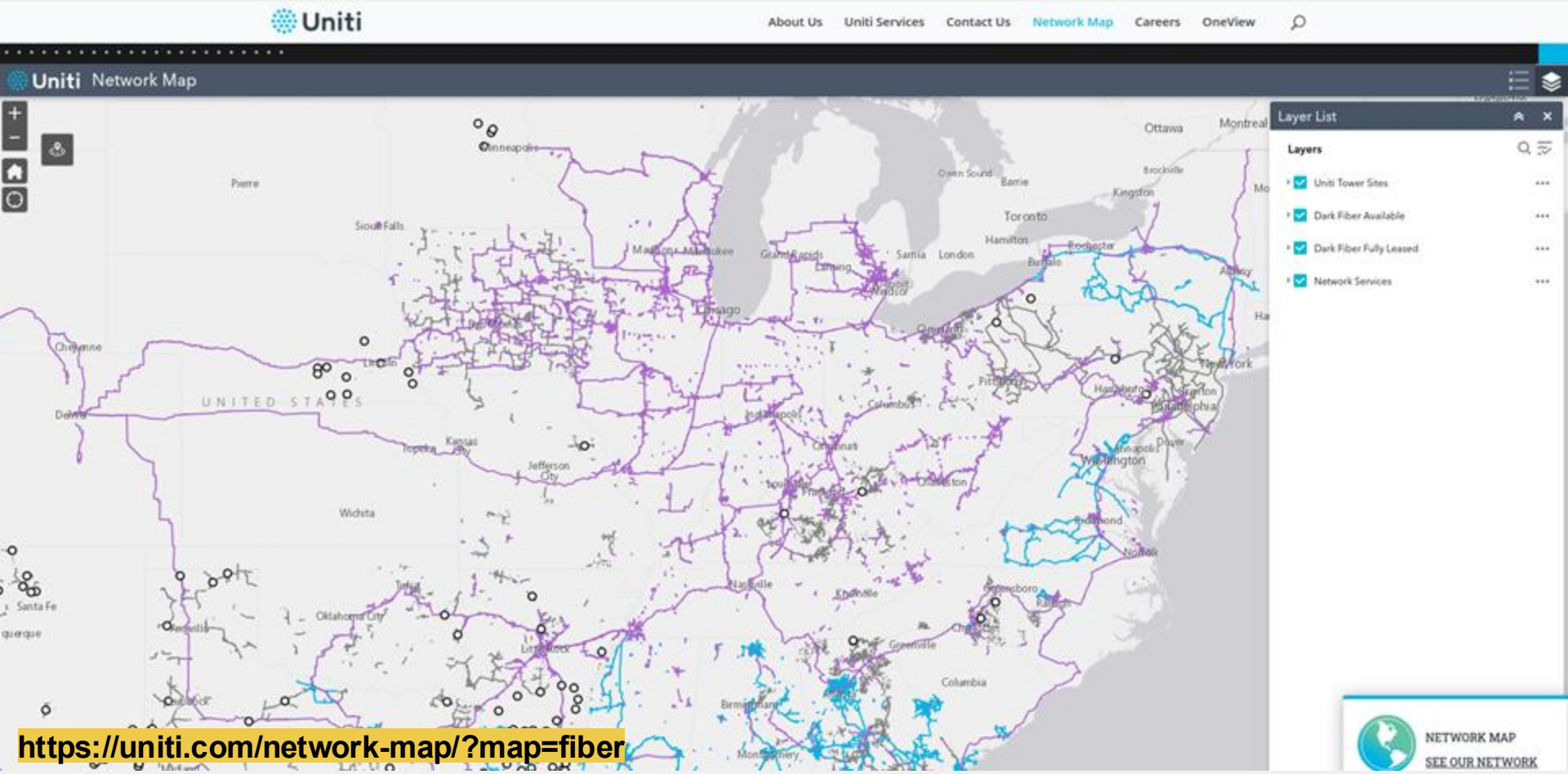

https://www.submarinecablemap.com/
Telegeography

- As of 2025, there are more than 550 undersea fibre optic cables, representing nearly 1.4 million kilometres of cable.
- A single cable can now carry over 300 Tbps.
- Undersea cable maps are readily available.

# Growth of Terrestrial Fibre

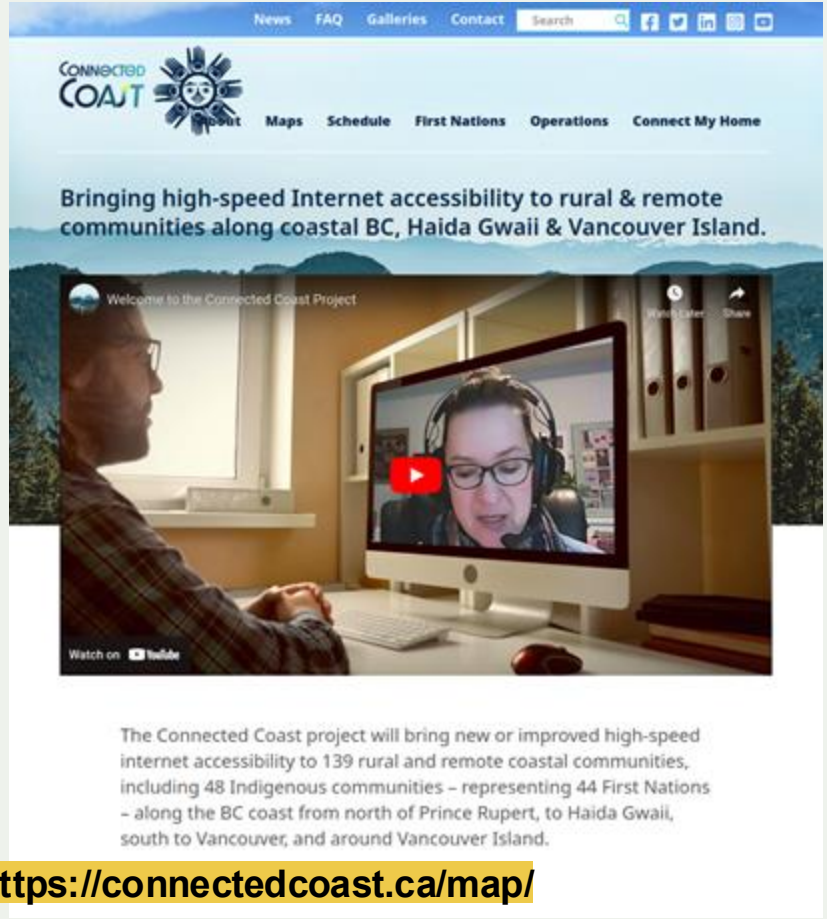


# United States: Uniti

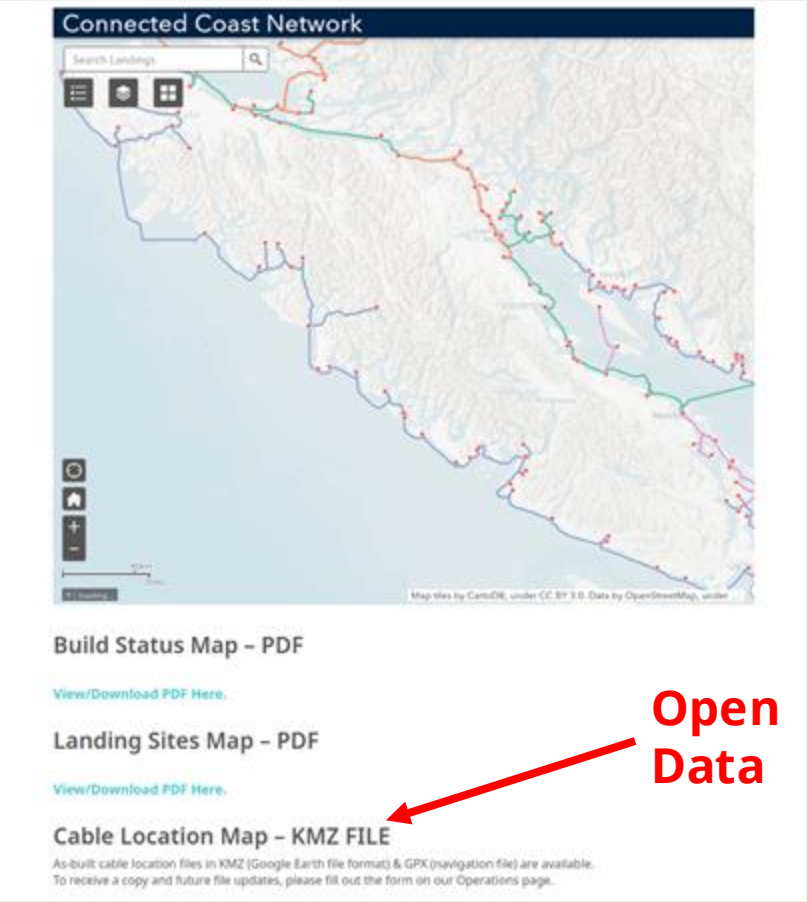



https://uniti.com/network-map/?map=fiber

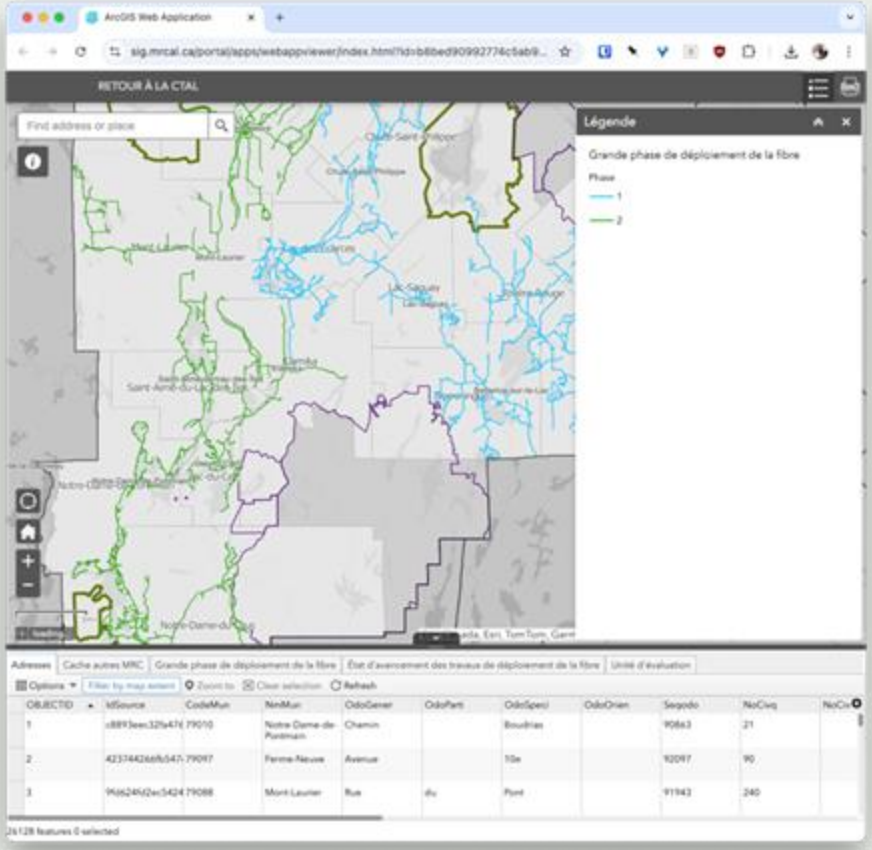
# Canada: Connected Coast



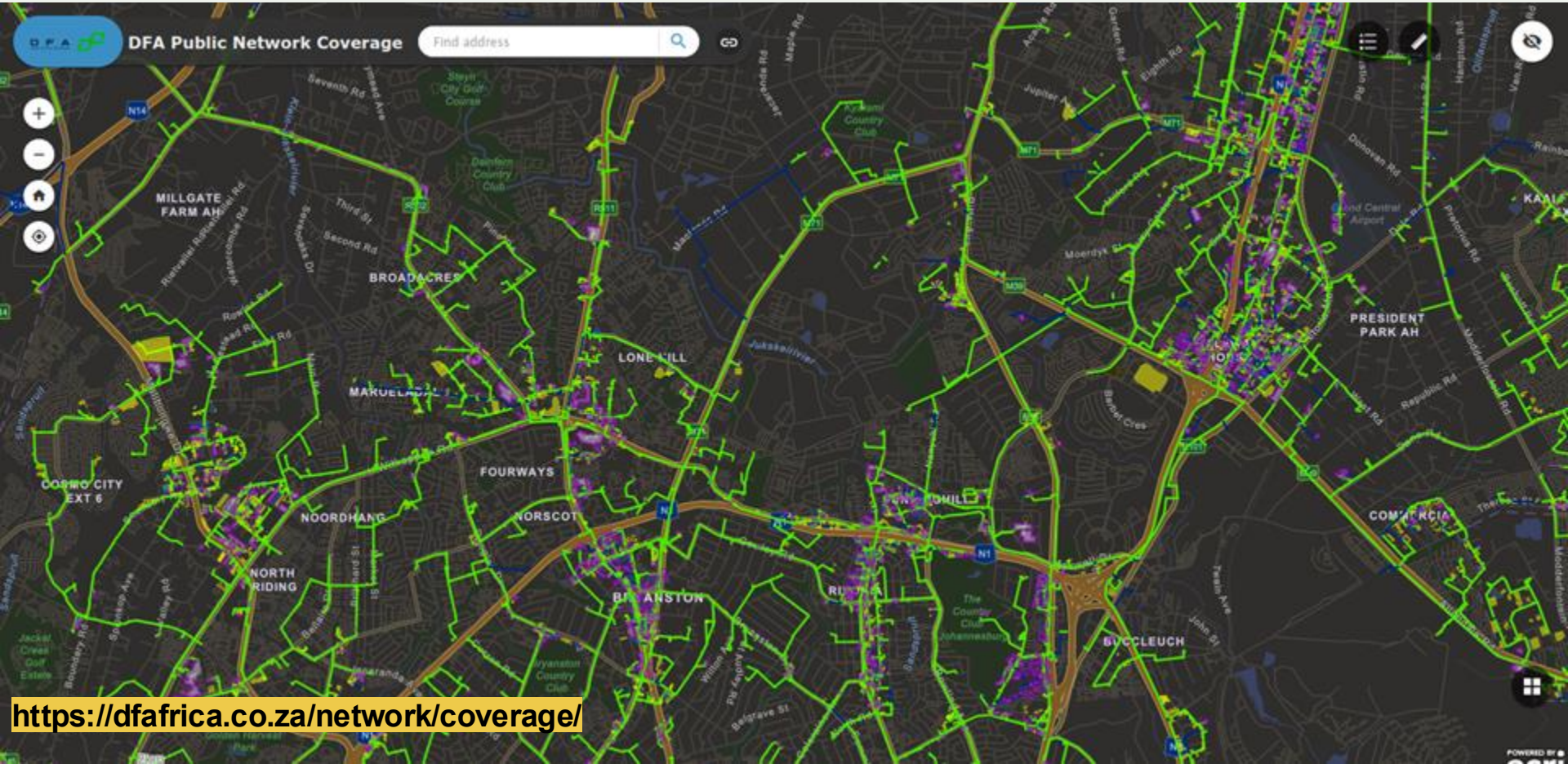

https://connectedcoast.ca/map/



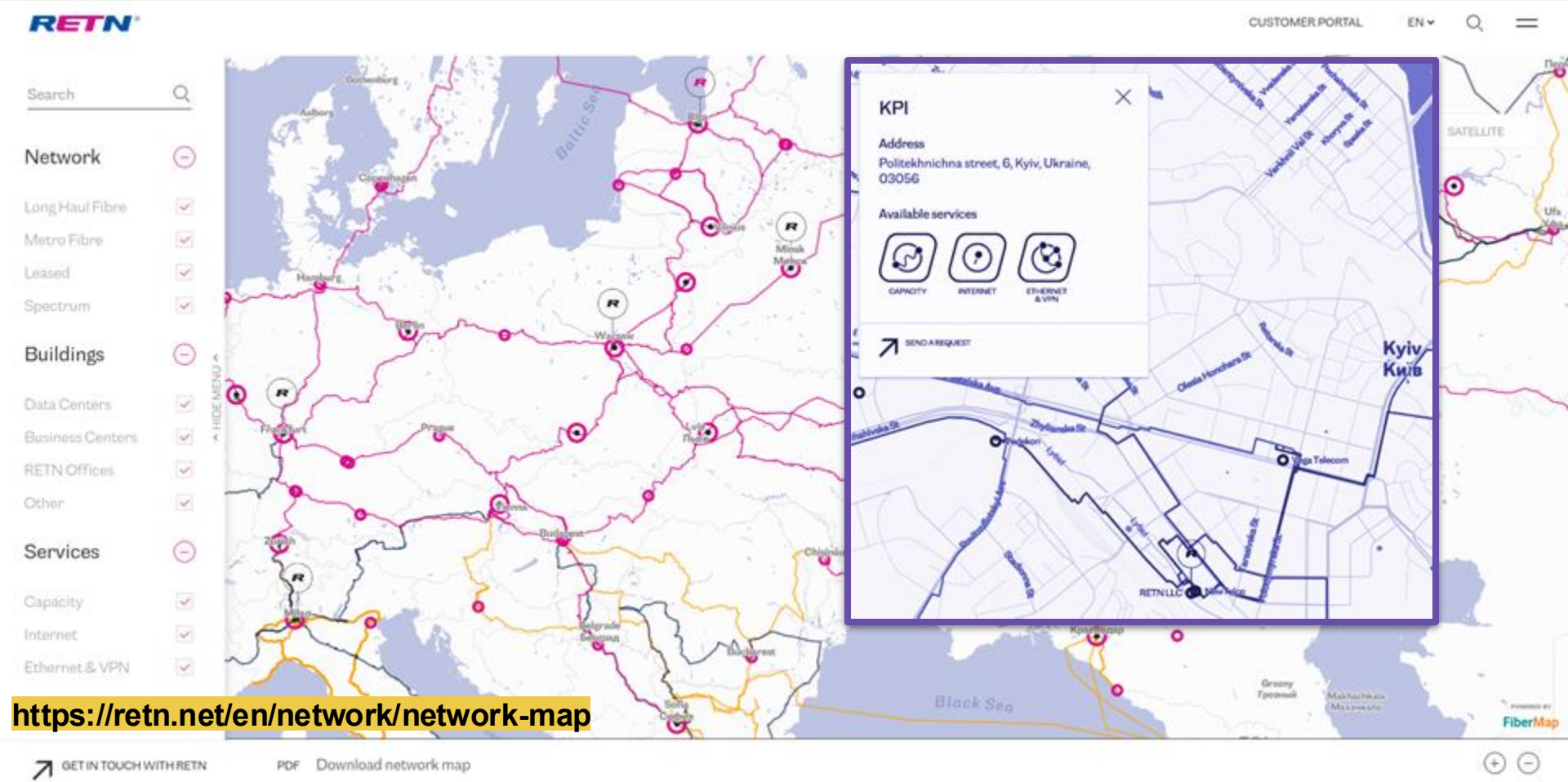
# Canada: Coopérative de télécommunication d'Antoine-Labelle (CTAL)

# South Africa:  Dark Fibre Africa

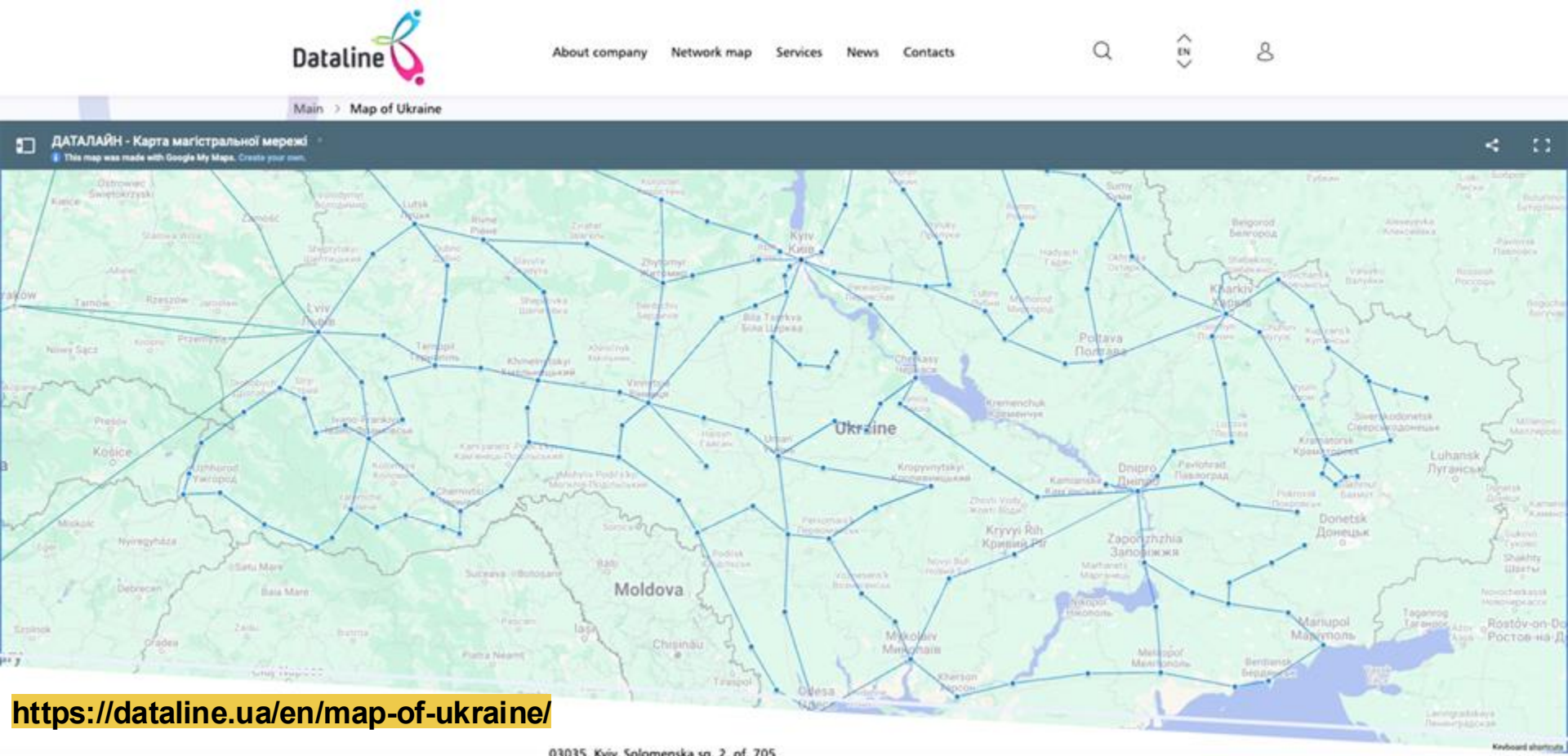


# Ukraine: RETN




https://retn.net/en/network/network-map

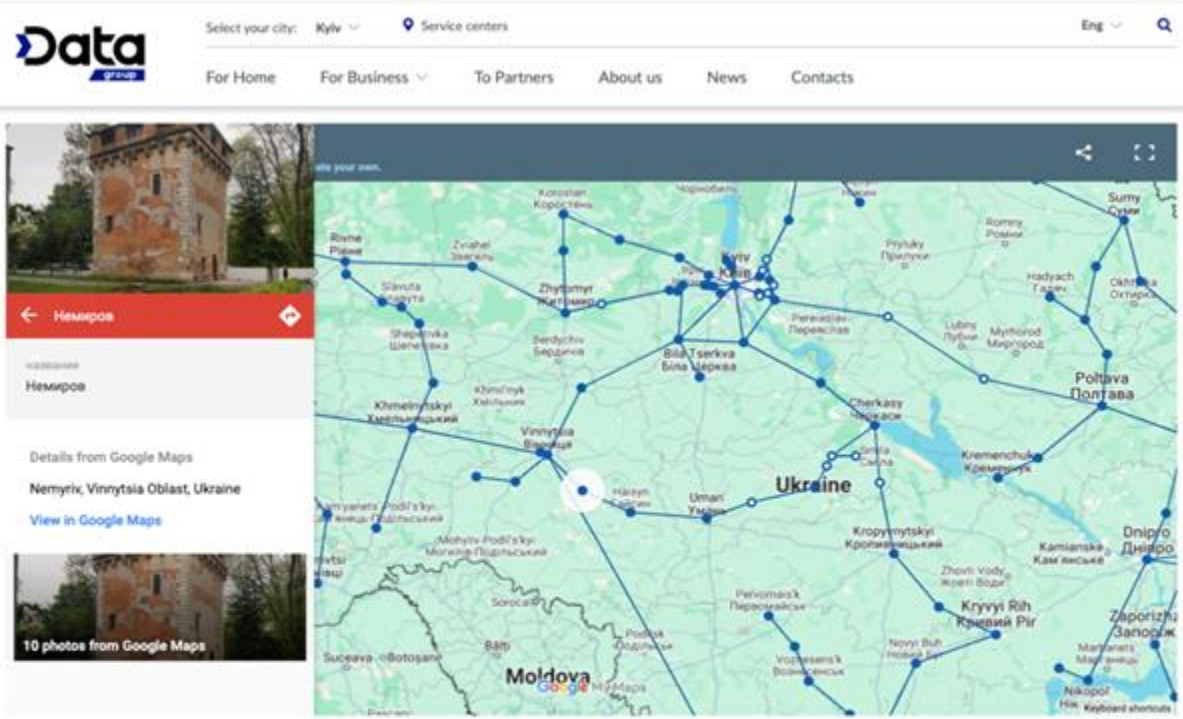
# Ukraine: Dataline




https://dataline.ua/en/map-of-ukraine/

© 2005-2025 Dataline LLC
03035, Kyiv, Solomenska sq. 2, of. 705
phone: +380 44 373-6800
Website is created by Abweb

# Ukraine: DataGroup

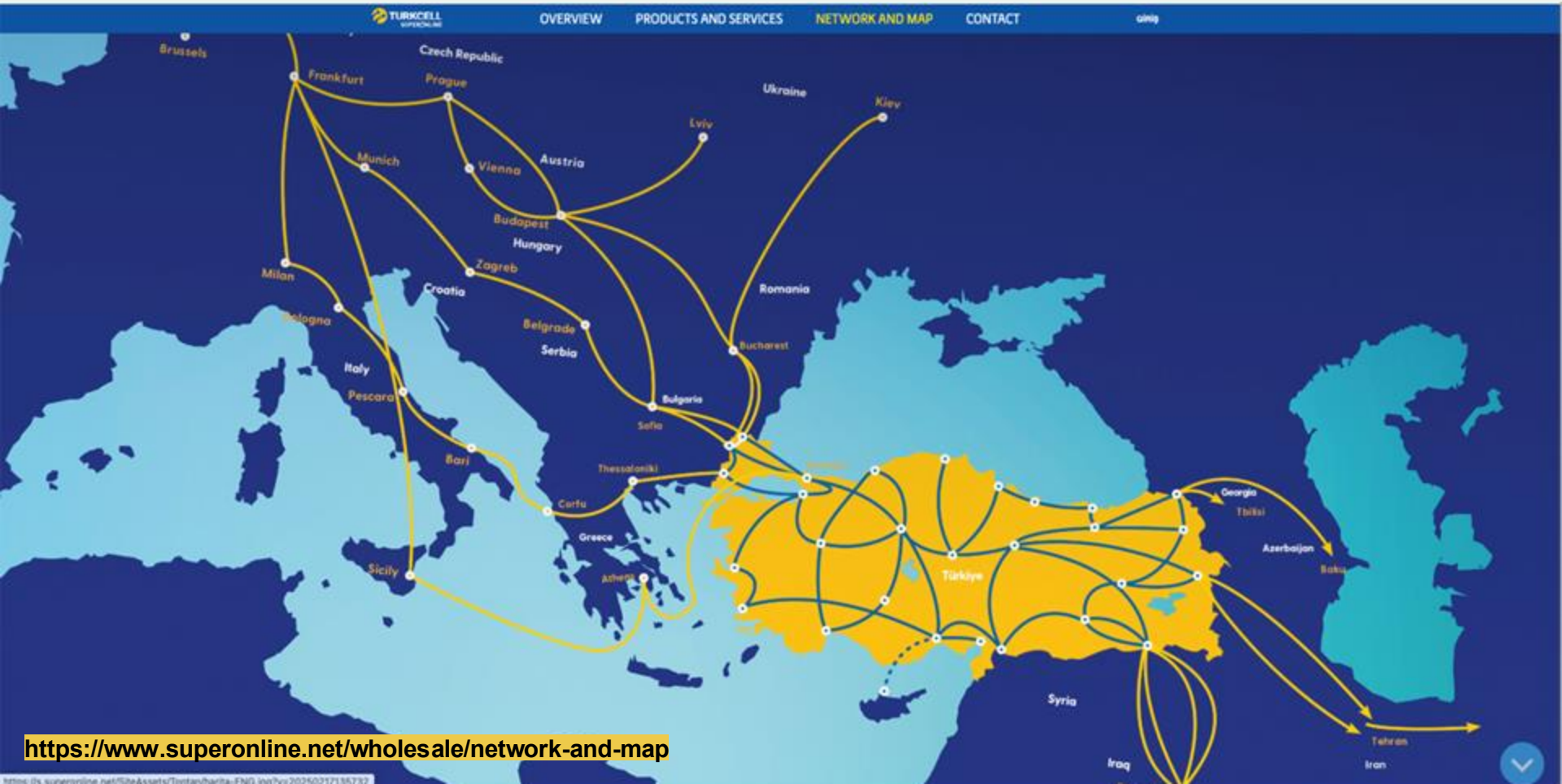



We grow and develop together with our customers more then 20 years of fruitful collaboration, we have studied the needs and wishes of all segments and become leaders in the market of telecommunication services in Ukraine. Today, we develop optimal solutions to improve the efficiency of business and comfort of our customers.

**https://www.datagroup.ua/en/c2c/karta-prisutnosti**

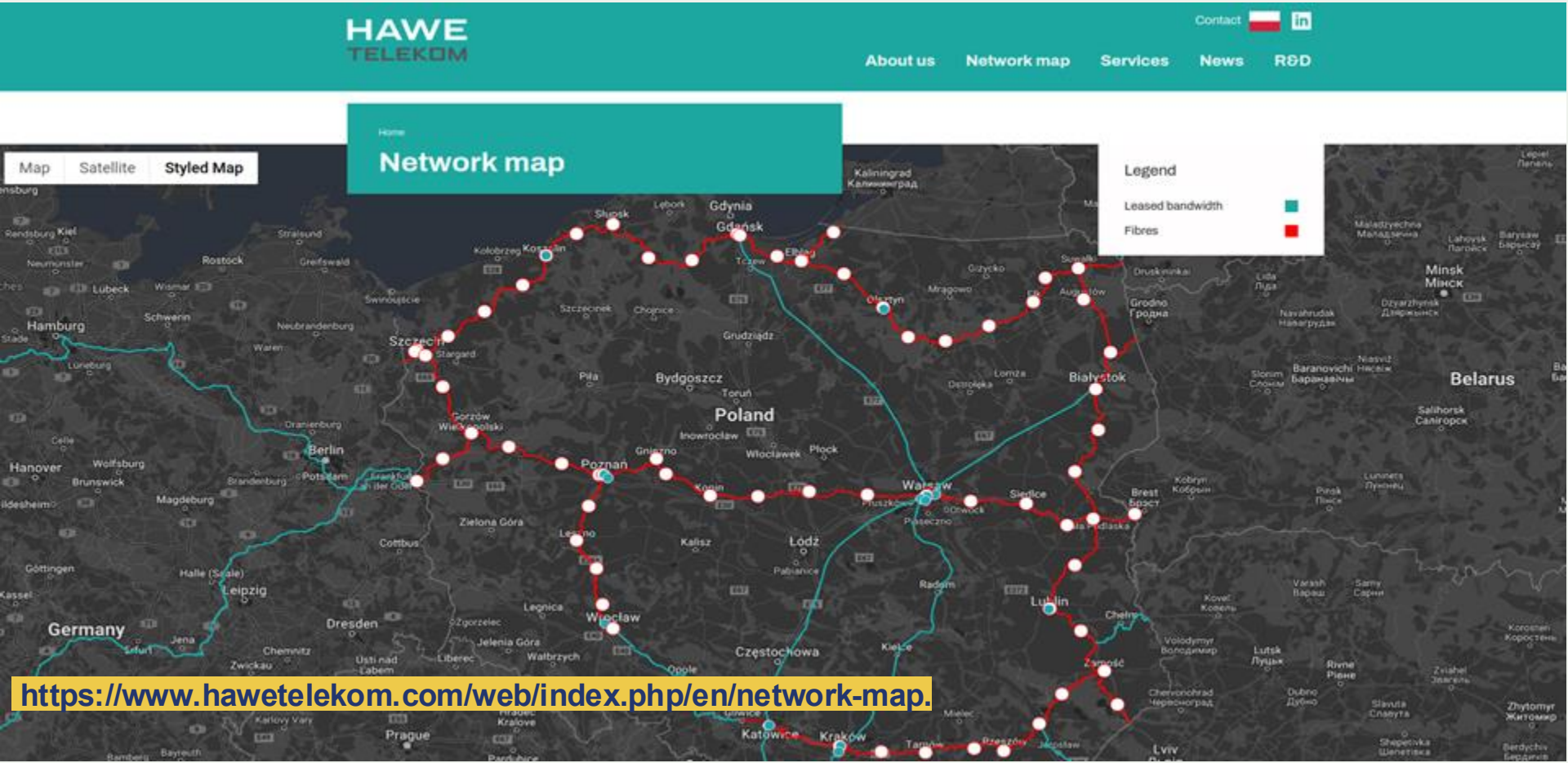
Write to us

# Turkey: Turkcell

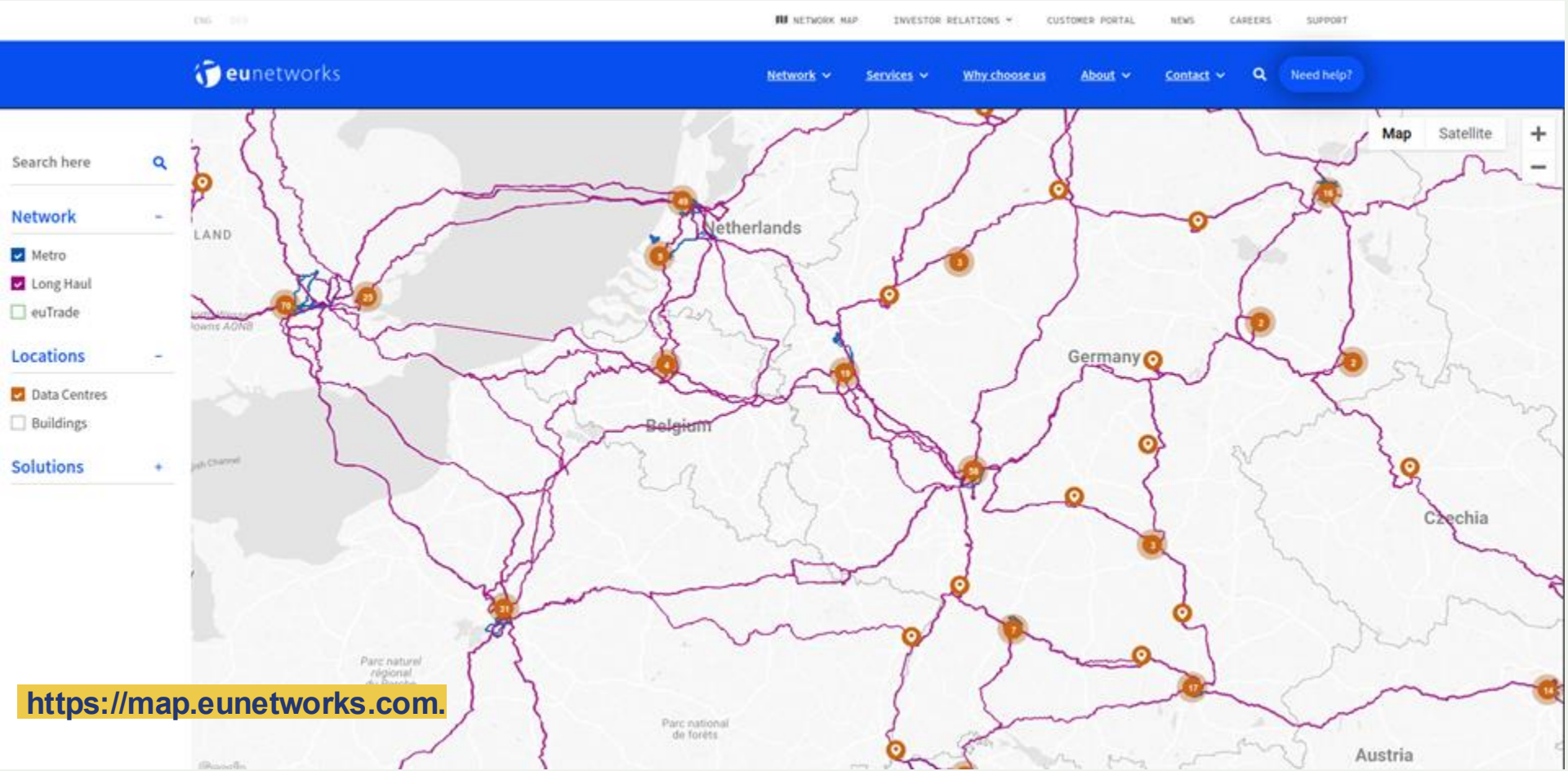



https://www.superonline.net/wholesale/network-and-map

# Poland: Hawe Telekom



# Europe:  EU Networks

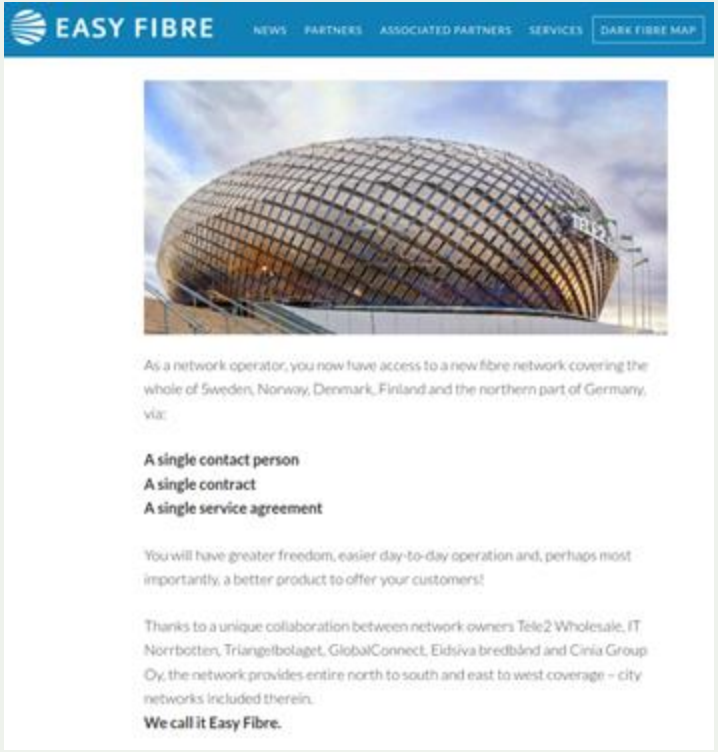



https://map.eunetworks.com.

# Brazil: Eletronet

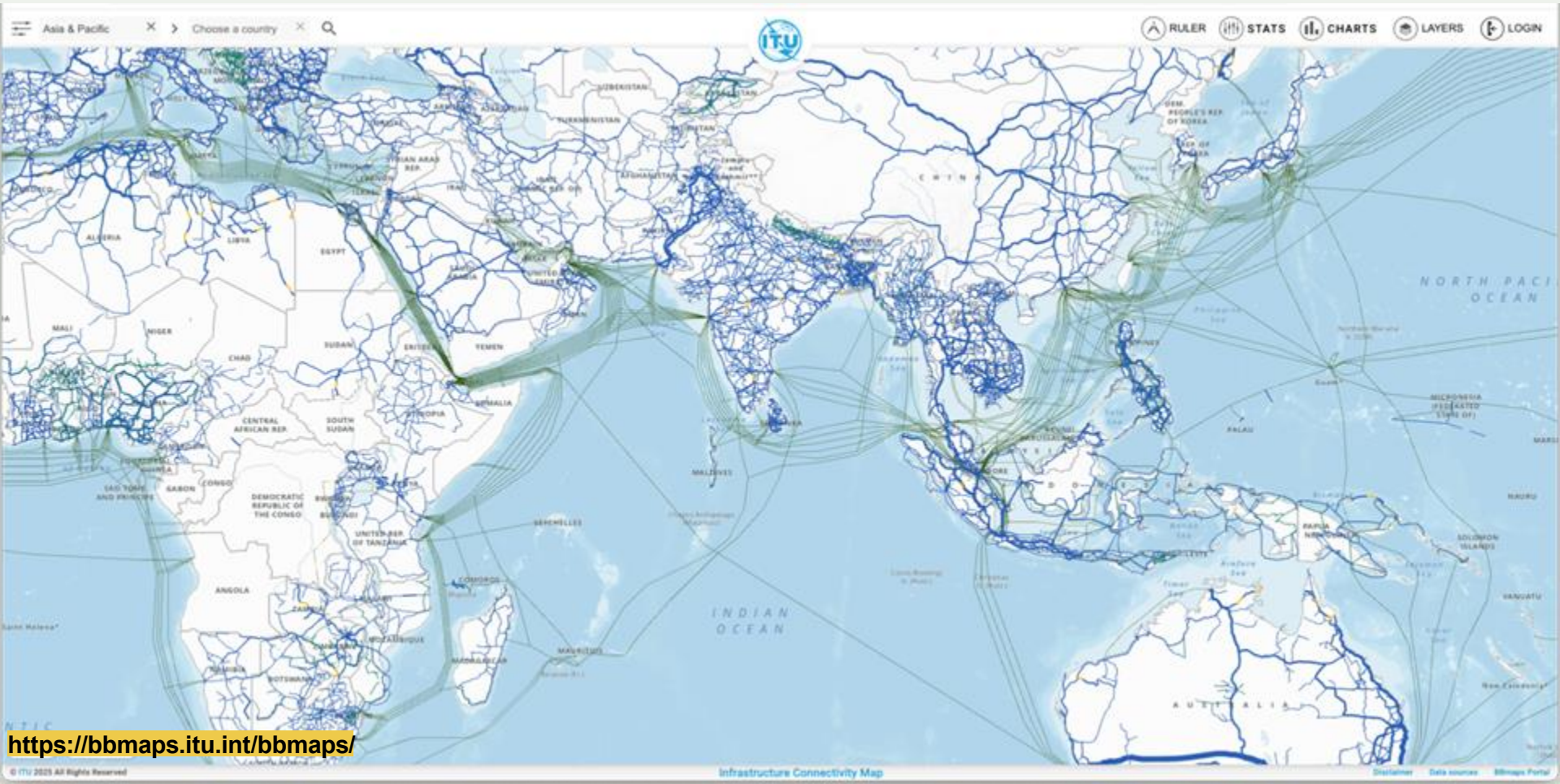

https://www.eletronet.com/rede/

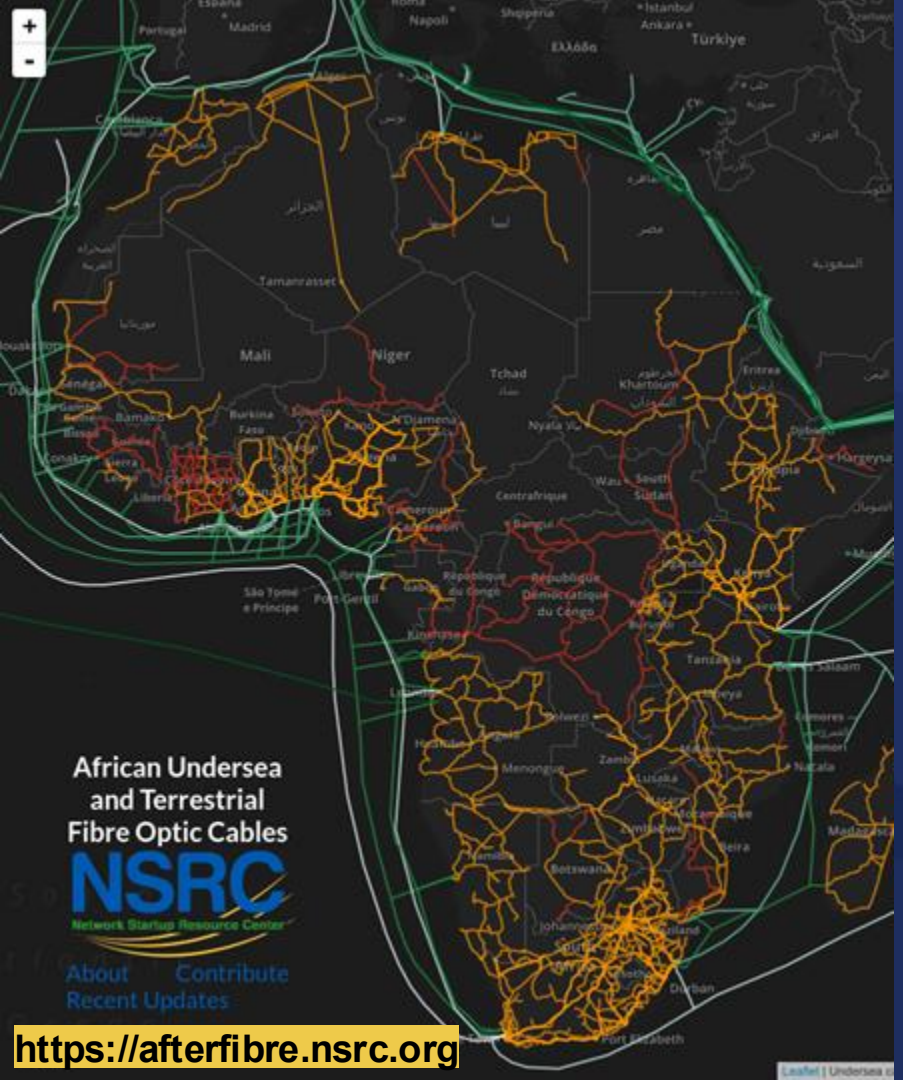
# Sweden:  Easy Fibre




http://easyfibre.se/dark-fibre-map/.

# ITU Infrastructure Connectivity Map






# Lessons from mapping fibre in Africa

- Map compiled via official maps (from some operators), shareholder reports, World Bank studies, and other 'informal' sources over 10 years
- Probably about 70% complete and many networks require updating

*"The Arrival of Fast Internet and Employment in Africa"*
2019, Hjort and Poulsen


https://www.aeaweb.org/articles?id=10.1257/aer.20161385

# 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 **Open Fibre Data Standard (OFDS)** is a standard for publishing data on terrestrial fibre optic broadband infrastructure.

# Open Data Services

We worked with the Open Data Services (ODS) who were contracted by the World Bank to provide technical support in the development of the standard. ODS are international experts in data standards

- International **Aid Transparency** Initiative (IATI)
  https://iatistandard.org/en/iati-standard/
- Open **Contracting** Data Standard
  https://standard.open-contracting.org/
- **Beneficial Ownership** Data Standard
  https://standard.openownership.org/


open data services

https://opendataservices.coop/

# Benefits to Governments and Regulators

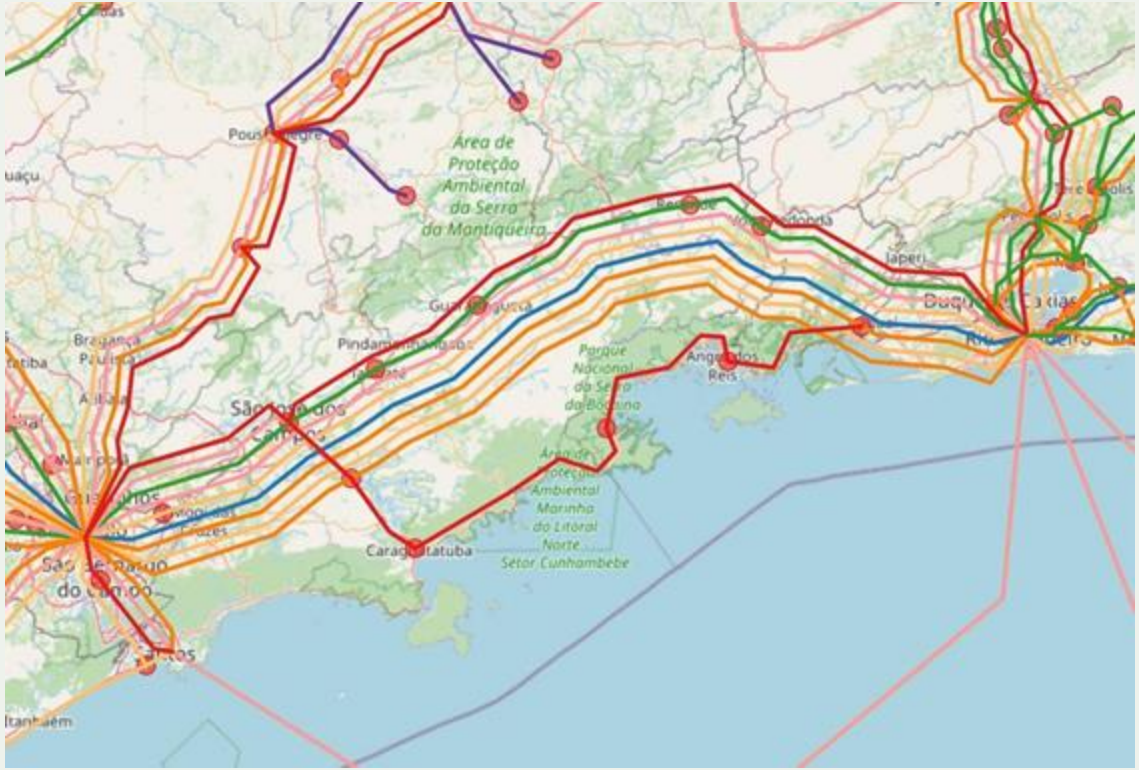
- More effective network investments by accurately targeting the unserved.
- Improved coordination across infrastructure sectors e.g. road, electricity, rail, oil & gas.
- Reduction of physical network interruption and destruction.
- Opportunity for national and regional benchmarking


https://www.bbc.com/news/science-environment-65174512

# Benefits to Governments and Regulators

- Understanding the true extent of national fibre infrastructure
- Benefits to cyber security. Redundancy is key to network resilience.

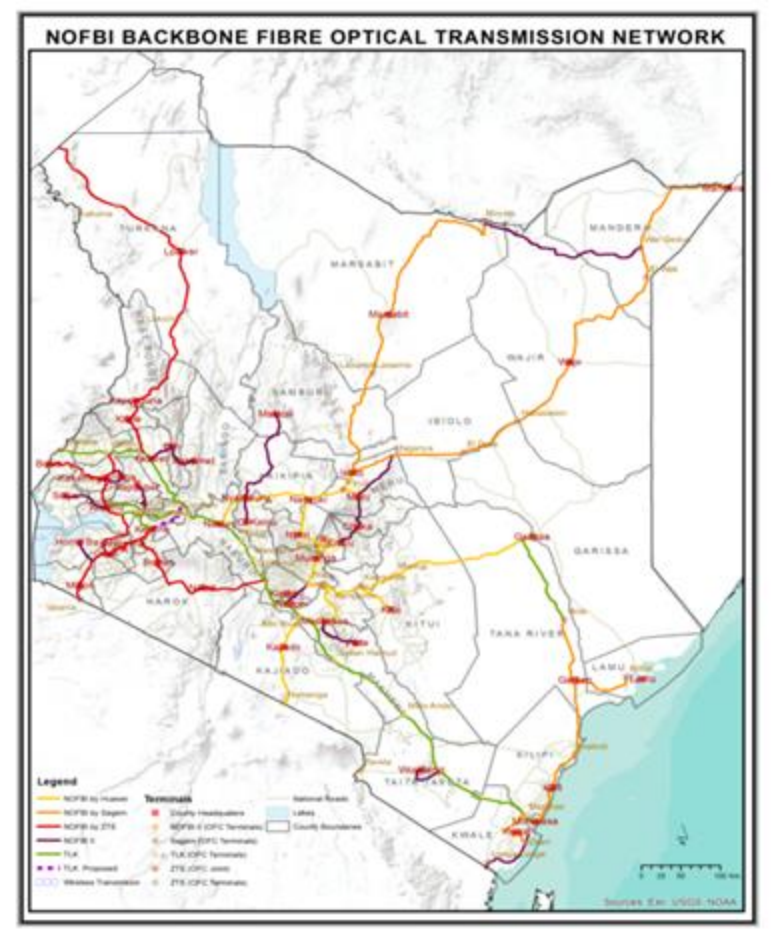
*Resilience has less to do with failsafe networks than networks that are safe when they fail.*



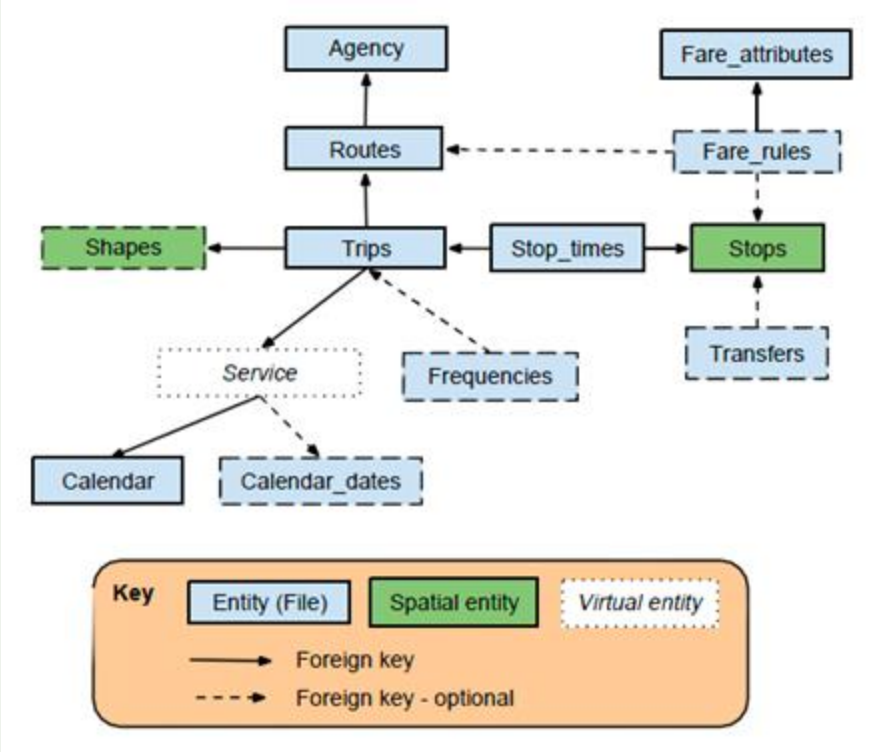

Map of fibre networks from Sao Paulo to Rio de Janeiro

# Benefits to Operators

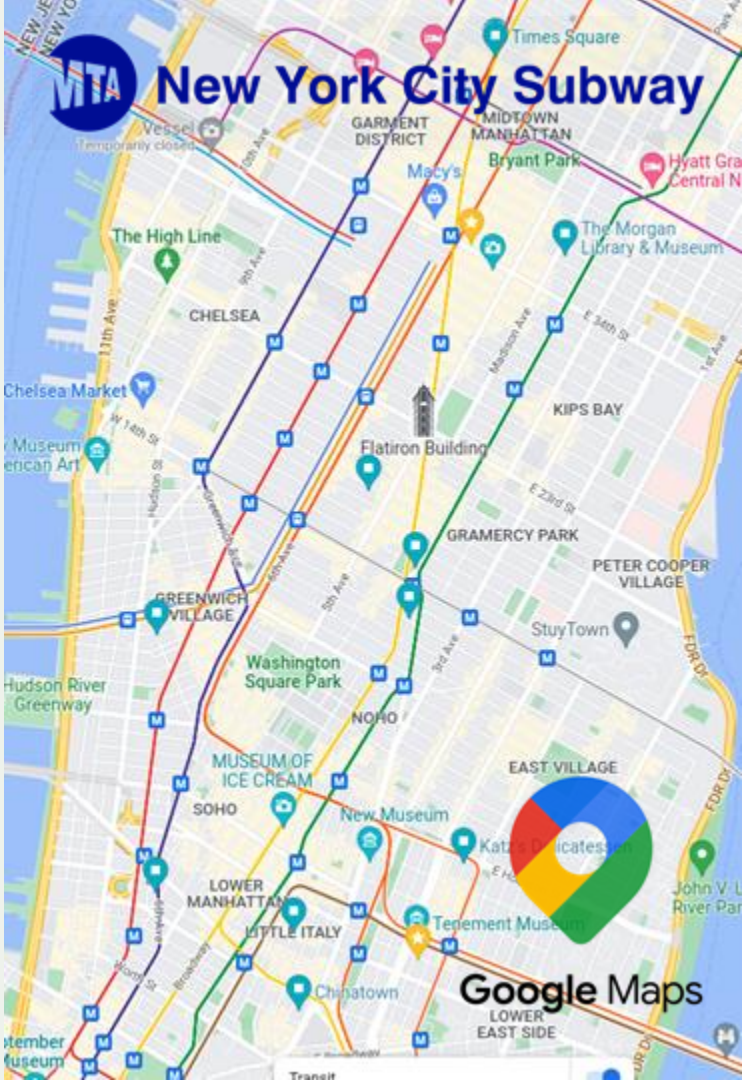
- Opportunities for small ISPs, rural operators in particular.
- More strategic information for investors
- Levelling the playing field in terms of information sharing and building trust
- Better evidence of the socio-economic impact of their networks
- Better network analysis tools



# Open Data Standard Example

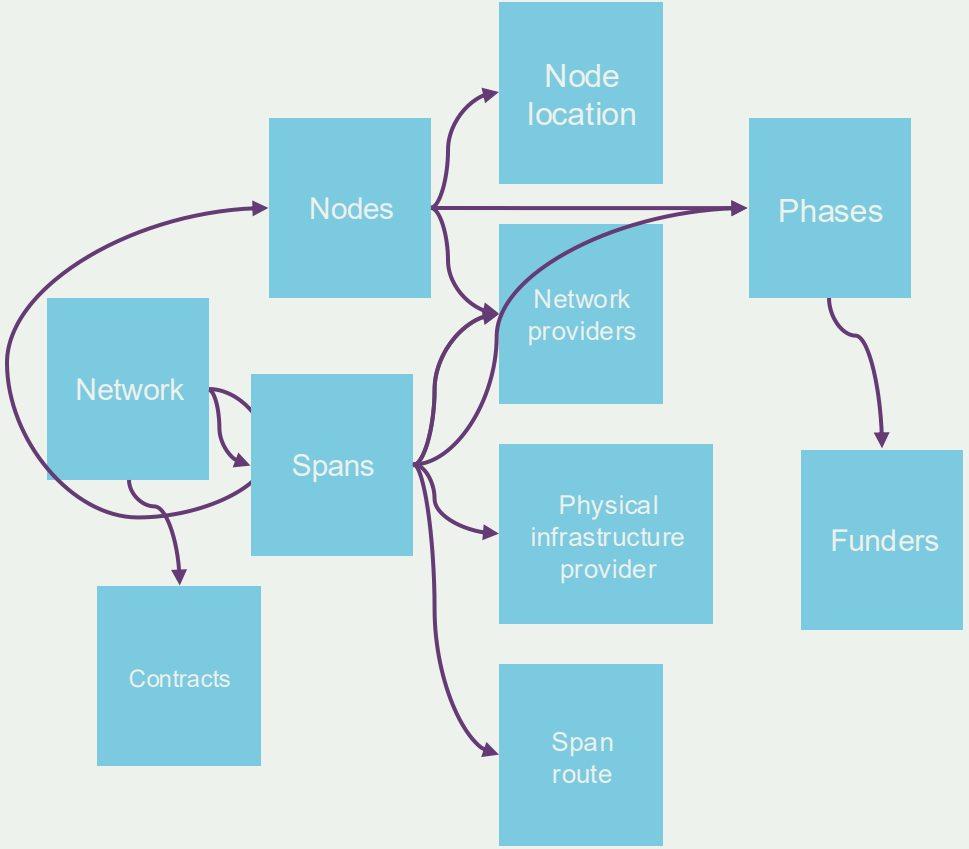



General Transit Feed Specification



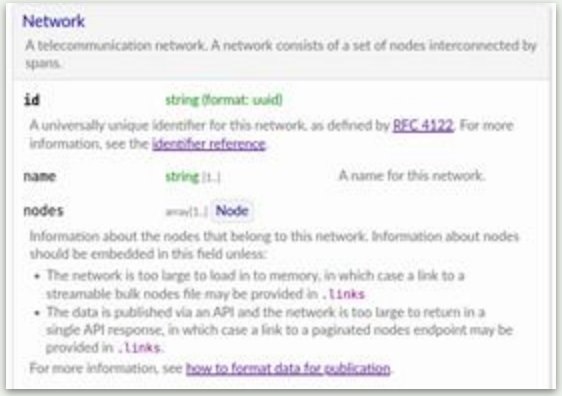
# Open Fibre Data Standard

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

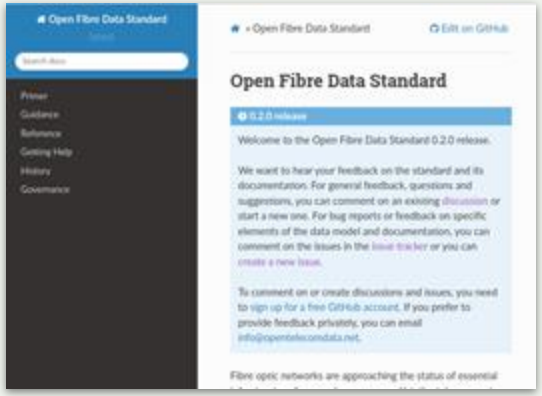


# Components

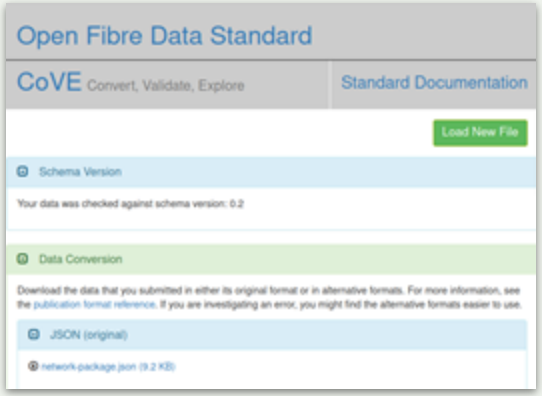
| Schema and codelists | Documentation | Open source tools |
|---|---|---|
| Define the structure and format of OFDS data, the meaning of each field, and the rules that must be followed to publish OFDS data. | A primer, guidance and reference documentation covering how to publish and use OFDS data. | Software tools for converting, validating and exploring OFDS data. CoVE (Convert, Validate, Explore) |




https://open-fibre-data-standard.readthedocs.io/en/latest/reference/schema.html



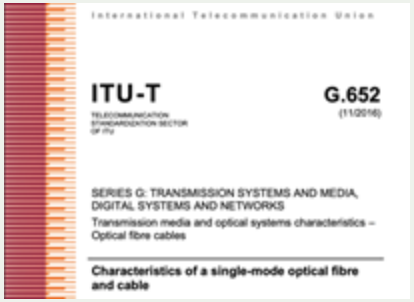

https://open-fibre-data-standard.readthedocs.io/en/latest/

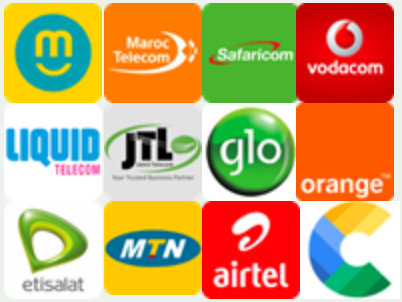



https://ofds.cove.opendataservices.coop/

# Categories of Data

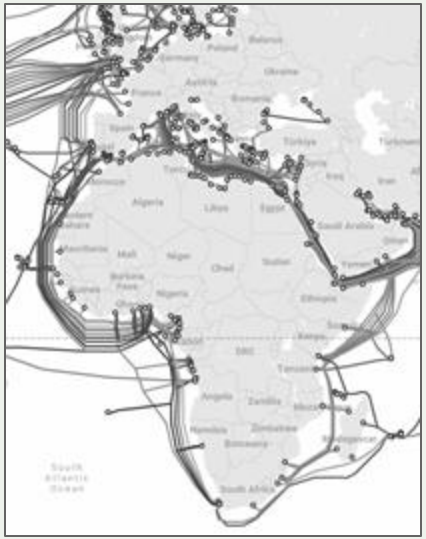
| Location data | Technical data | Administrative data |
|---|---|---|
| The route of fibre cables, the coordinates of PoPs, towers and IXPs. | Capacity, ITU fibre standards, power availability. | The organisations that own and operate infrastructure, the status of infrastructure, dark fibre availability. |



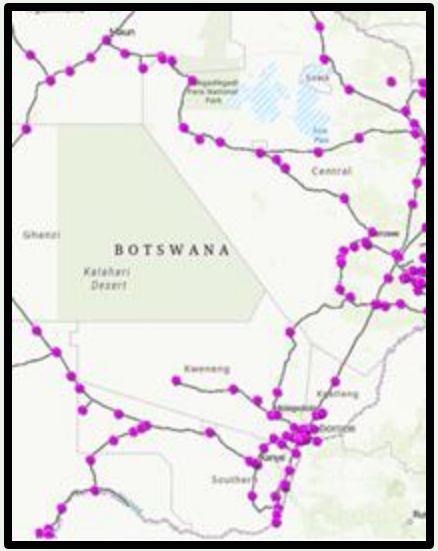



# Reach

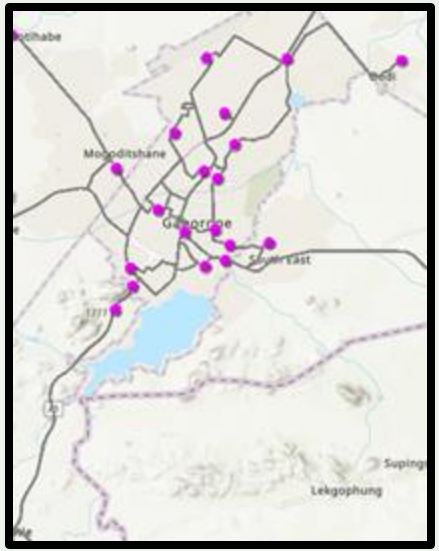
The initial focus of OFDS lies in describing **national and middle mile** networks but will ultimately encompass **last mile** networks.



Undersea




National

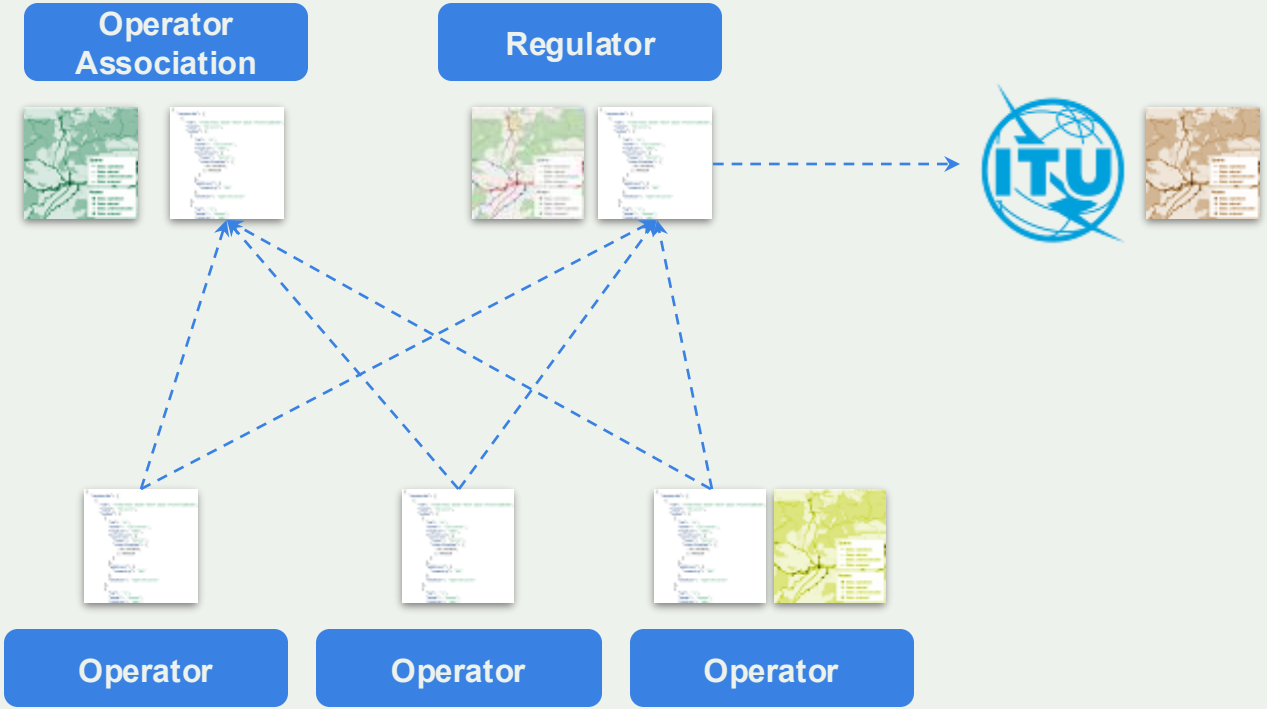



Middle mile

Last mile

Sources: submarinecablemap.com, BoFiNet GIS portal

# Data sharing possibilities




Different organisations may combine Open Fibre Data with various data sources to serve their individual missions.

# Workshops

- Working with partners to promote the development of a global initiative to support the standard
- Next steps are to develop transparent, democratic governance mechanisms for OFDS and fundraise for its support globally.

## Join us!

## National Workshops

| | Kenya | Ghana |
|---|---|---|
| Regulator | COMMUNICATIONS AUTHORITY OF KENYA | NATIONAL COMMUNICATIONS AUTHORITY<br>Communications for Development |
| Operator Association | tespok | GHANA CHAMBER OF TELECOMMUNICATIONS<br>M-Powering People • SIMpacting Lives |

## Regional Workshops

HUMAN RESOURCES DEVELOPMENT FOR AFRICA
AFRALTI

# Further Reading

**Articles**

World Bank - Making it Possible for the World to Log On

Internet Society - A Standard to Increase Availability, Accessibility of Terrestrial Fiber Infrastructure Data

Internet Society - Mapping Terrestrial Fibre Optic Networks is Essential for Measuring Internet Resilience

Open Data Services Cooperative - Open Fibre Data Standard: opening up fibre optic broadband infrastructure

Mozilla - Open Fibre Data Standard: Understanding the True Extent of the Internet

The State of Open Data - Telecommunications and the State of Open Data

**Canonical sources**

Documentation
https://open-fibre-data-standard.readthedocs.io/en/latest/reference/schema.html

Repository for the standard
https://github.com/Open-Telecoms-Data/open-fibre-data-standard

# Get involved!

Please get in touch if you are interested in:

- Learning more about OFDS
- Hosting an OFDS workshop
- Participating in standard development and governance

Speaker name
lname@isoc.org

**Thank you!**