



# Building Networks Through a Pandemic

Sylvie LaPerrière – Global Network Infrastructure

7 June 2022 – NANOG Conference

# Bienvenue à Montréal !

- Parlez-vous français? English? Frenglish?
- Born, raised, educated, in Montreal, (my) gateway to the world
- Starting point of my International telecommunications journey and NANOG
  - 1993 Teleglobe Canada
  - 1996 Launched AS6453
  - 2013 Cofounded QIX
- NANOG and me
  - 2003 first attended NANOG30 in Miami
  - 2007 presented at NANOG39 Taiwan Earthquake Fiber Cuts: a Service Provider View
  - 2009 Programme Committee
  - 2011 -2013 Board of Directors
  - How many Nanog: >40 (?)

## Pre-pandemic

High sense of purpose and meaning.

Nourished by getting to know new people and building together (joint purpose)



## During pandemic...

At home 24x7x 800 days

Loneliness, powerlessness

Screen fatigue

Feeling 'unconnected'

Every encounter is 'a meet'

Sense of purpose intact






# Google's network investments in Africa: the Equiano subsea cable

Sylvie LaPerrière – Global Network Infrastructure

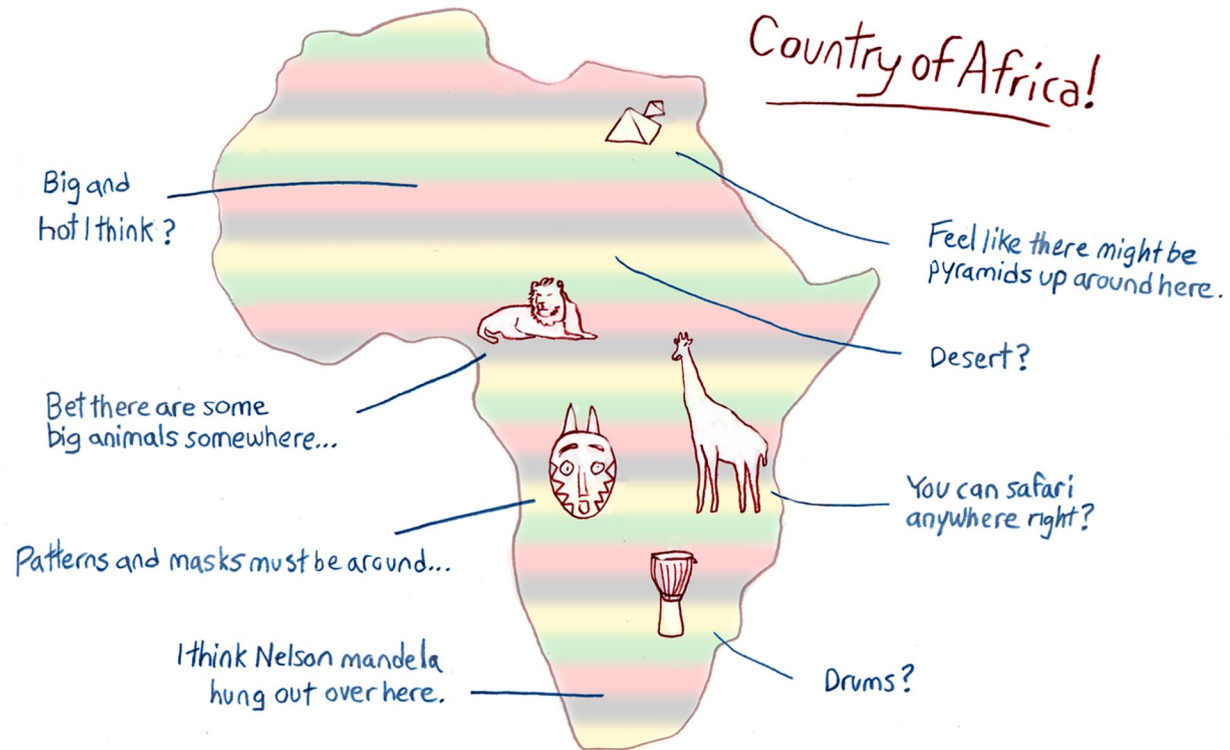
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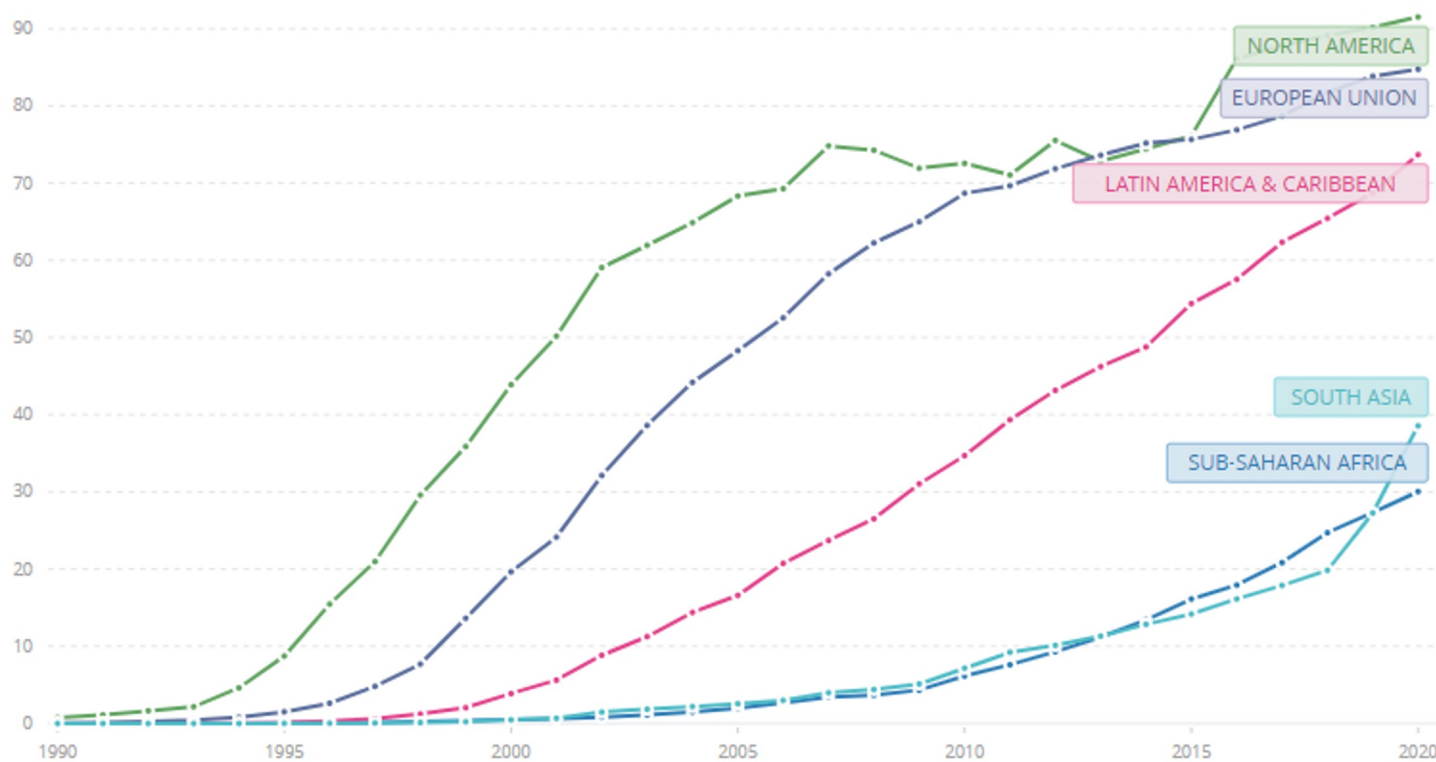
# Outline

- Why Africa?
  - The role of submarine cables in connectivity
  - What is Equiano?
  - Equiano's impacts
    - connectivity
    - the economy
- 

# Why Africa?

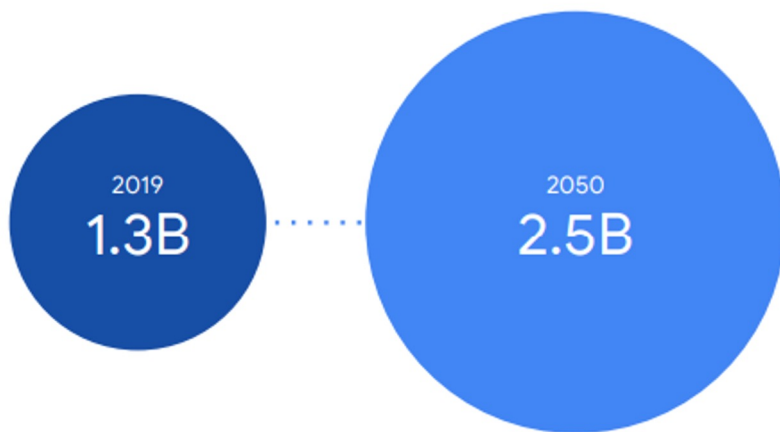


## Africa lags in internet penetration



Source: World Bank Open Data, Individuals using the Internet (% of population) - North America, European Union, Latin America & Caribbean, South Asia and Sub-Saharan Africa.

# Rapid population growth and urbanisation



**87% population growth in Africa  
between 2020 and 2050**



**45%**

Urban population expected to grow by 190 million people, leading to 45% of Africans living in a city by 2025



**79%**

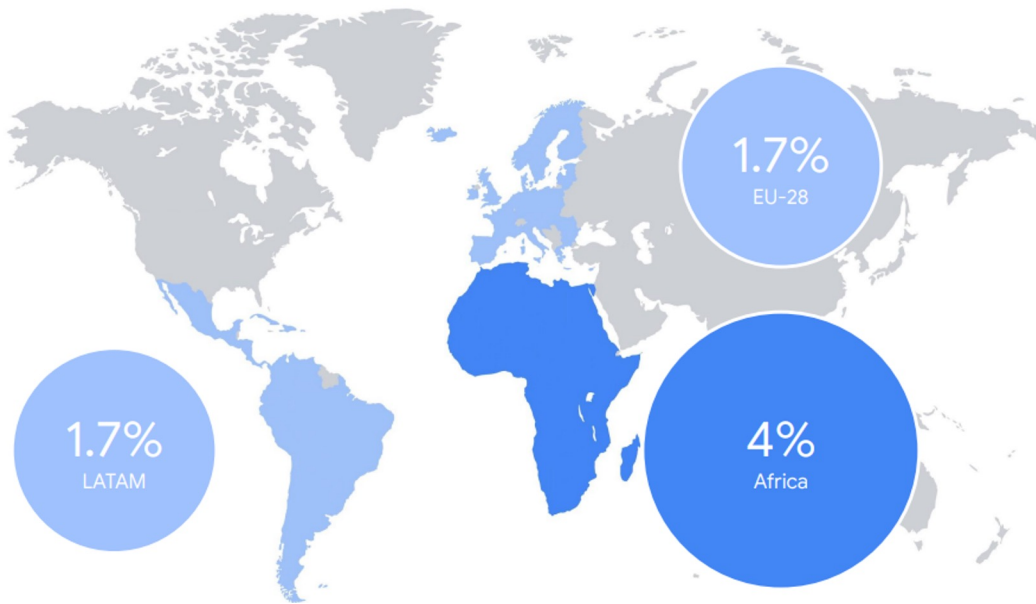
Consumers in large urban areas spend 79% more than the national average on goods and services

Source: IFC and Google, 2020, e-Conomy Africa 2020.



## Africa as an engine of growth

Africa's economy has significantly expanded over the past decade



**Key takeaway:** Gross domestic product (GDP) grew by 4% per year between 2010 and 2019, more than twice that of the EU-28 (1.7%) and Latin America (1.7%) over the same period.

Source: IFC and Google, 2020, e-Economy Africa 2020.

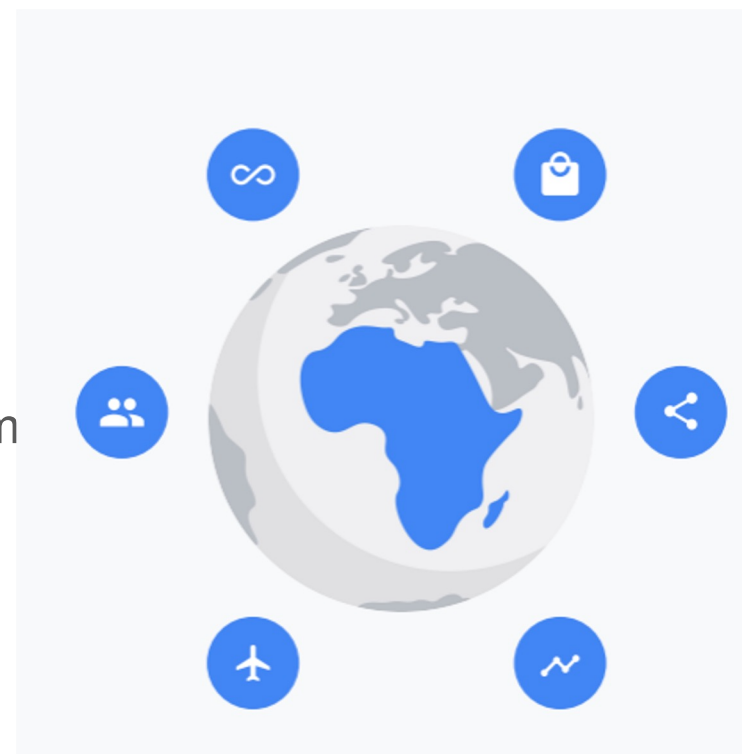
## Pro-innovator regulation

The African Continental Free Trade Area (AfCFTA)

- **Largest** free trade area by number of members
- **1.3 billion people**
- Combined GDP of **USD 3.4 trillion**

The AfCFTA enables Africa's regional economic com integrated and easier to access.

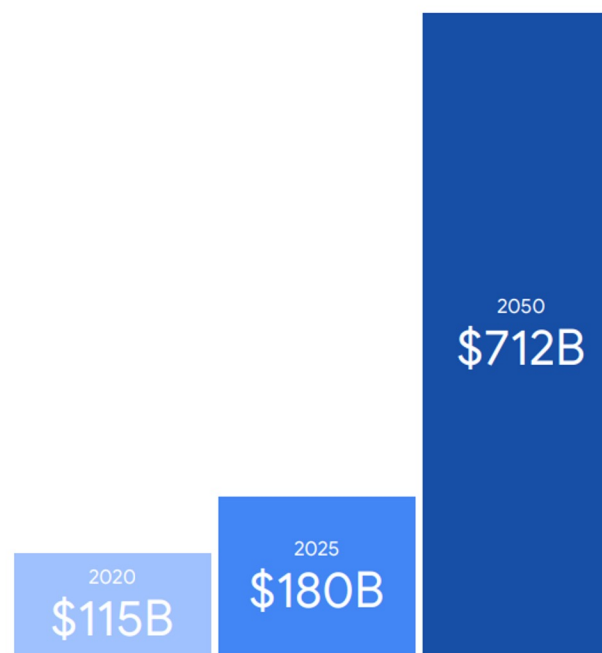
Source: World Bank, 2020, The African Continental Free Trade Area: Economic and Distributional Effects.



## The digital economy's potential

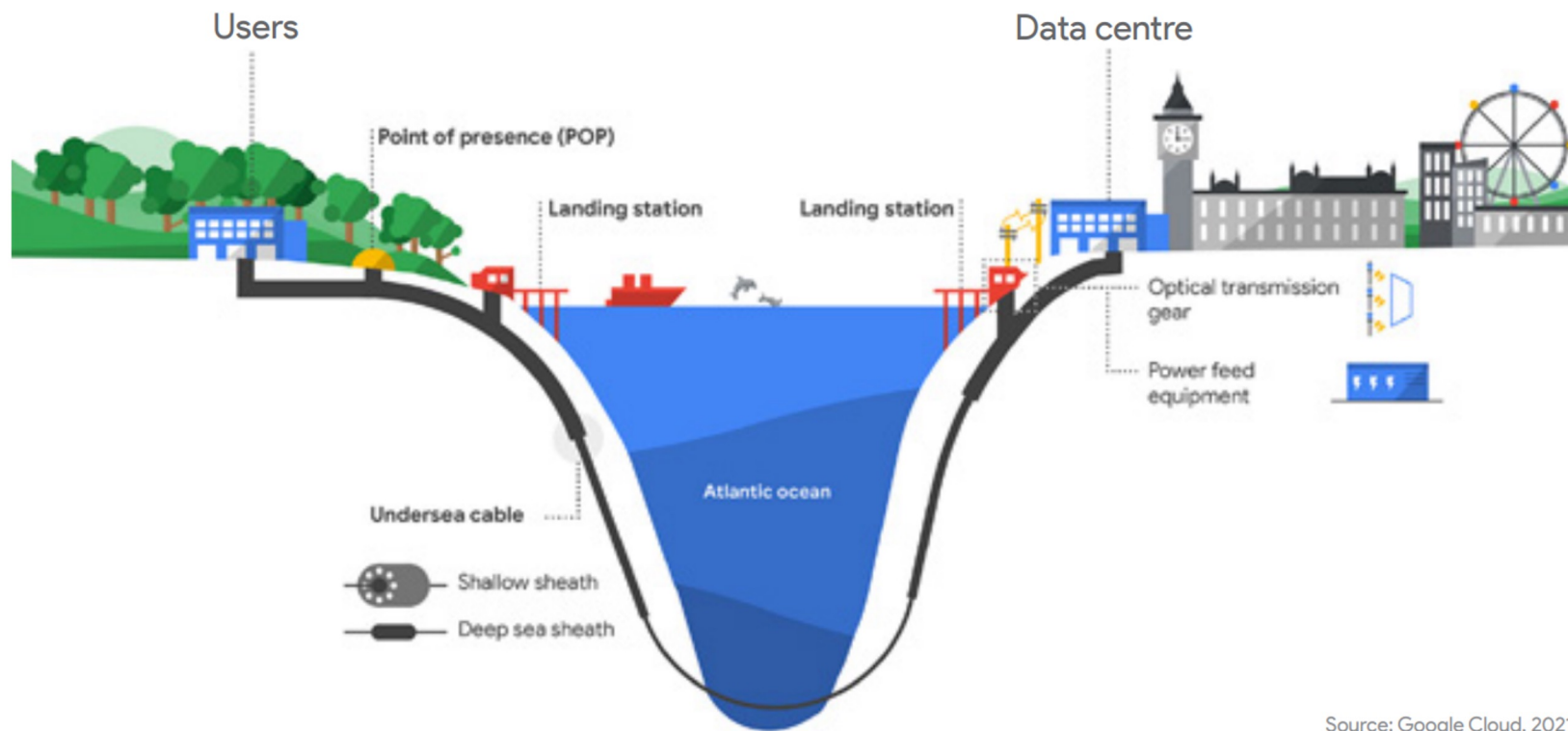
By 2025, the Internet economy has the potential to contribute \$180 billion to Africa's economy growing to \$712 billion by 2050

COVID-19 delayed economic growth both in Africa as well as the rest of the world. However, the resilience of the internet economy, coupled with private consumption, strong developer talent, public and private investment, investments in digital infrastructure, and new government policies and regulations will continue to drive this growth in Africa.



Source: IFC and Google, 2020, e-Conomy Africa 2020.

# The submarine connectivity value chain



Source: Google Cloud, 2021.

# Africa's connectivity infrastructure challenges



**Data centres** are predominantly outside the continent



**Existing submarine cables** are ageing



**Edge locations** on the continent are not fully developed

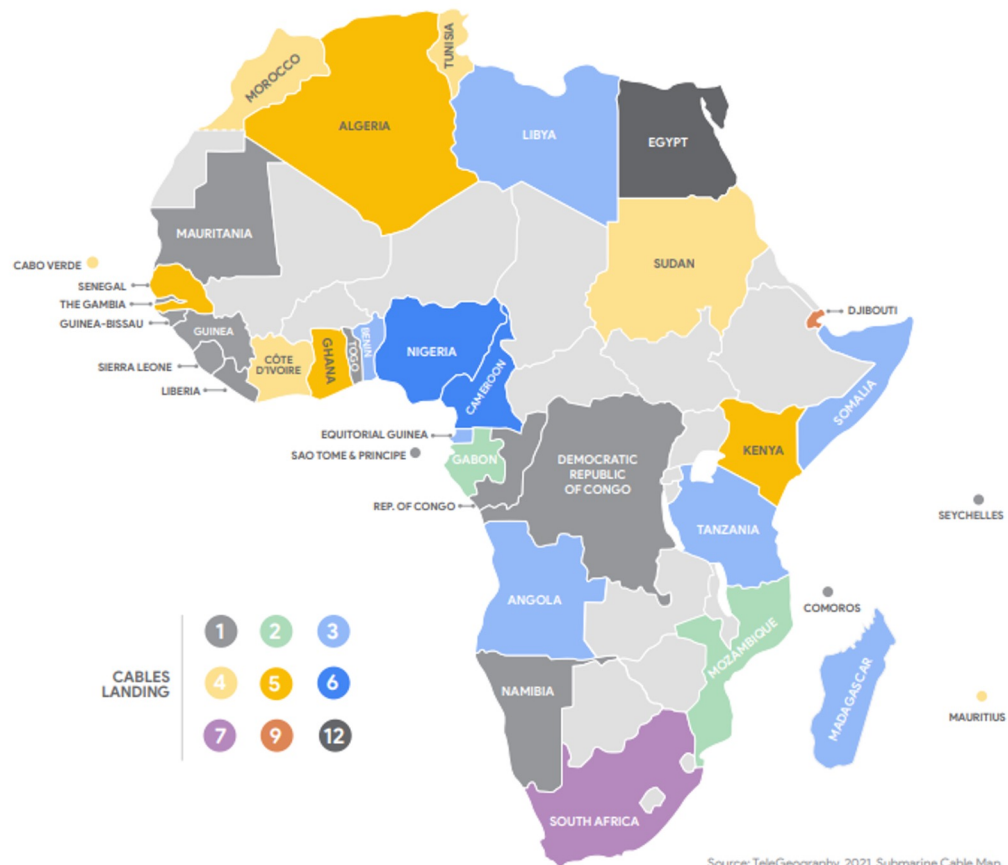
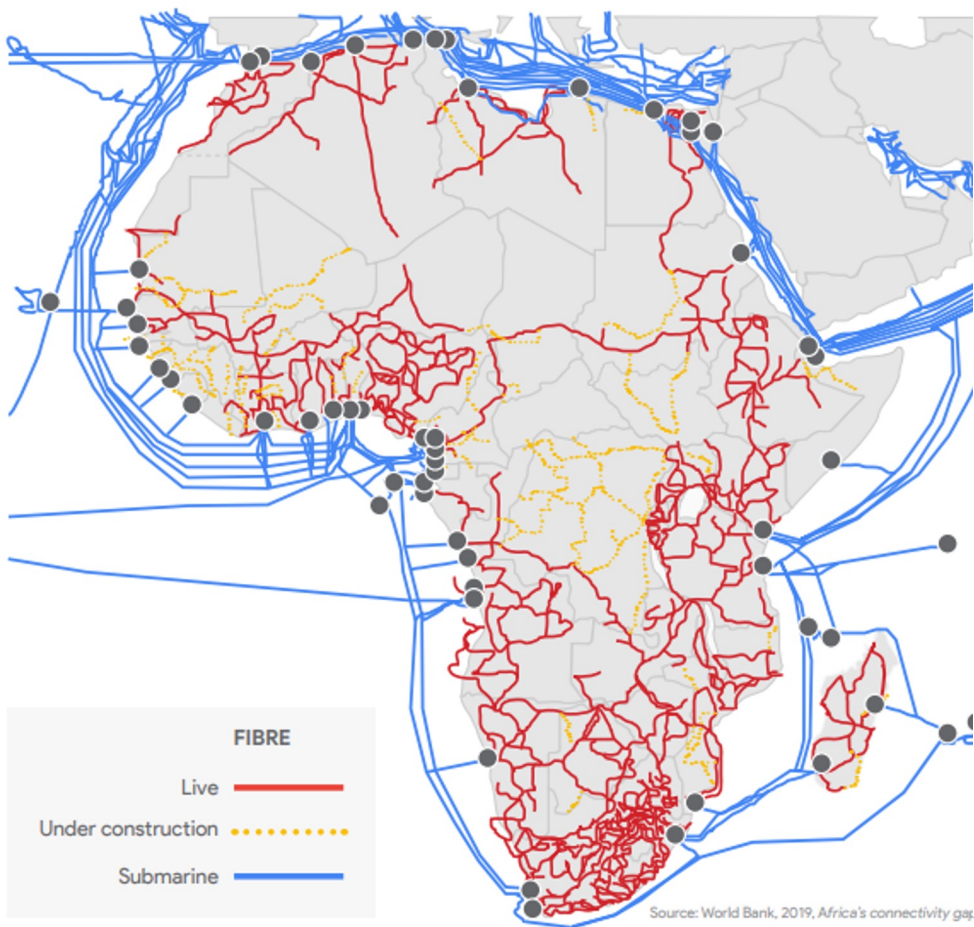


**Middle-mile infrastructure** is underdeveloped

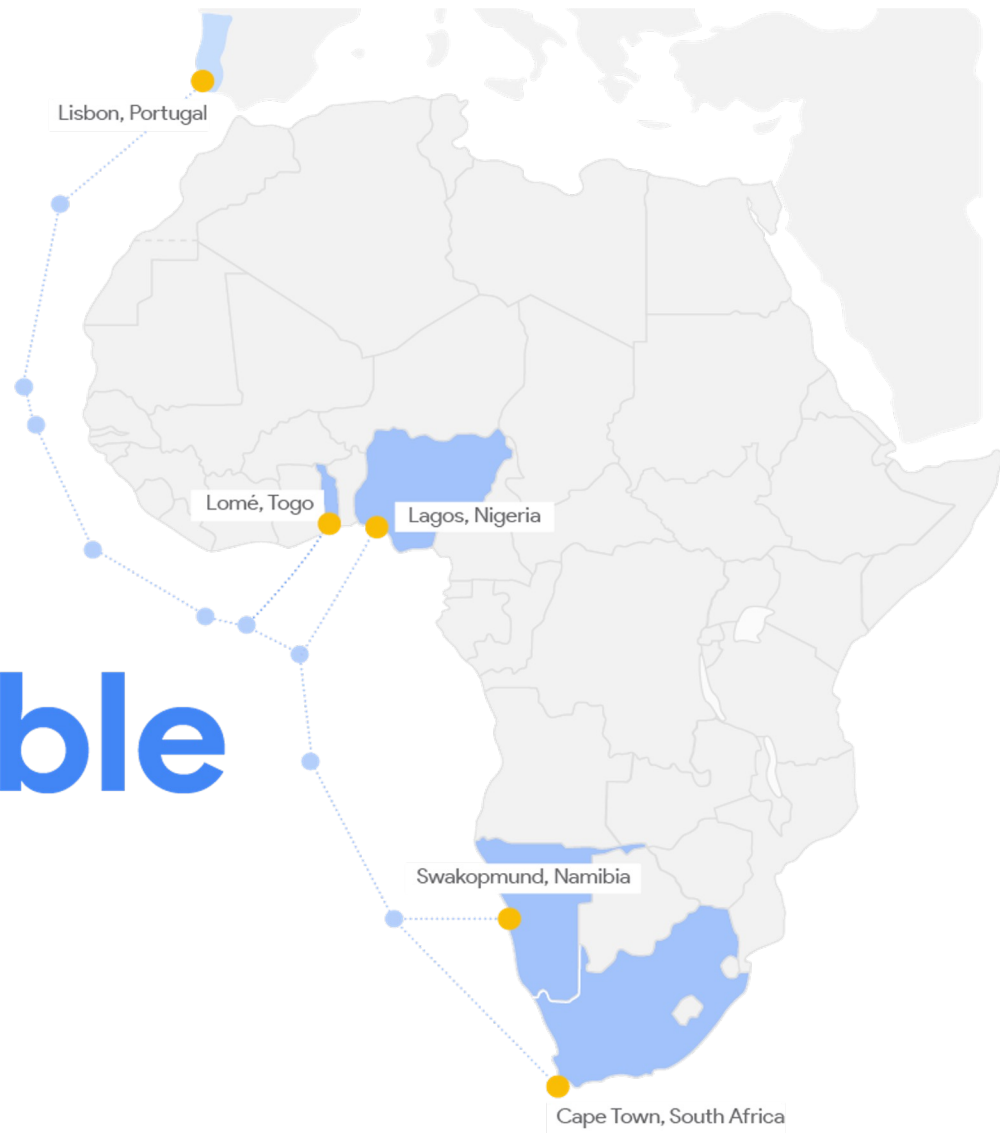


**Last-mile infrastructure** is not sufficiently dense

# Africa's fibre infrastructure



# Equiano Subsea Cable Route



# Equiano landing in Rupert's Bay (St. Helena) – August 2021

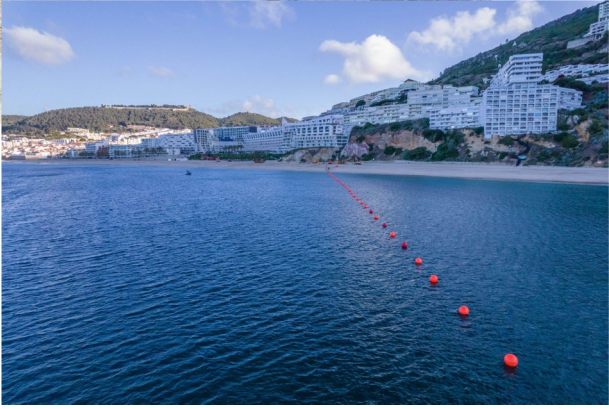




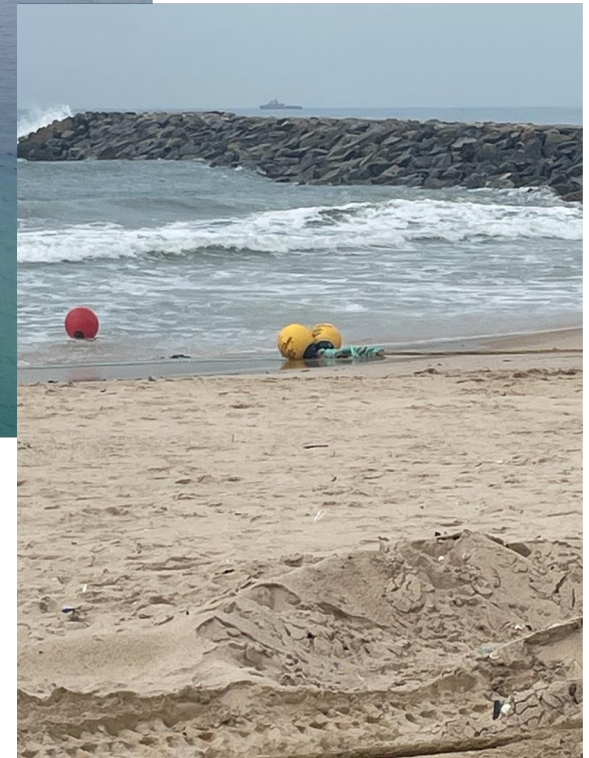
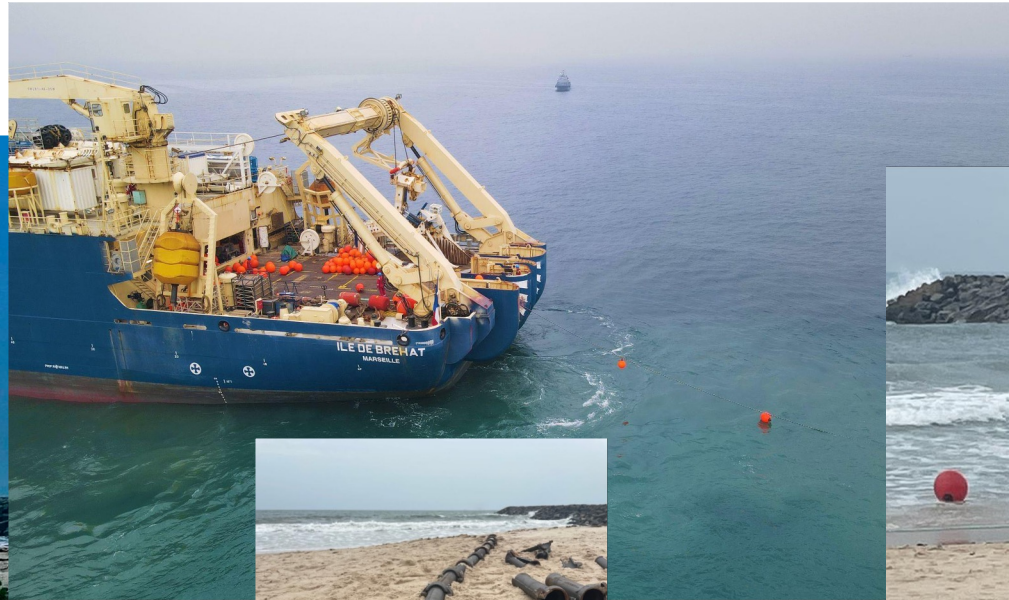
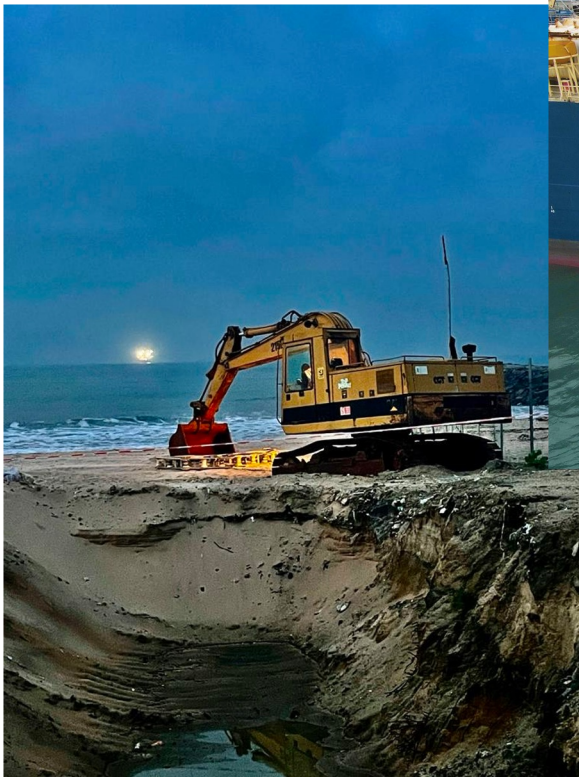
## Equiano landing in Lomé (Togo) – March 2022



# Equiano landing in Lisbon (Portugal) – May 2022



# Equiano landing in Lagos (Nigeria) – 4 June 2022



## Why did Google invest in Equiano?



Ageing cable infrastructure



Growing demand for data



Better performance

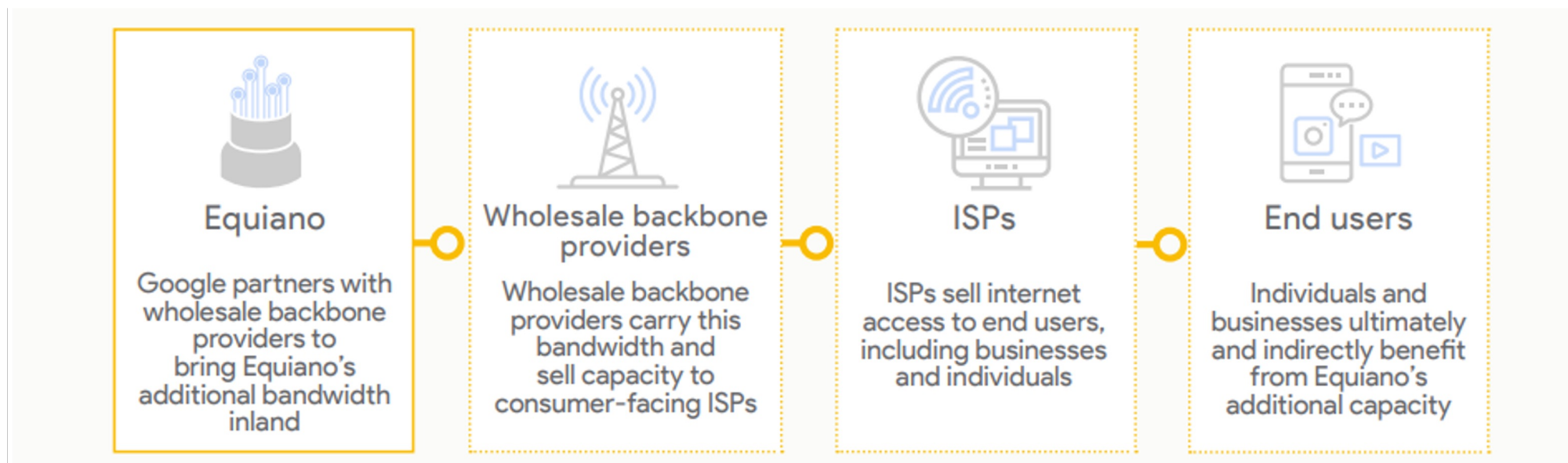


Redundancy

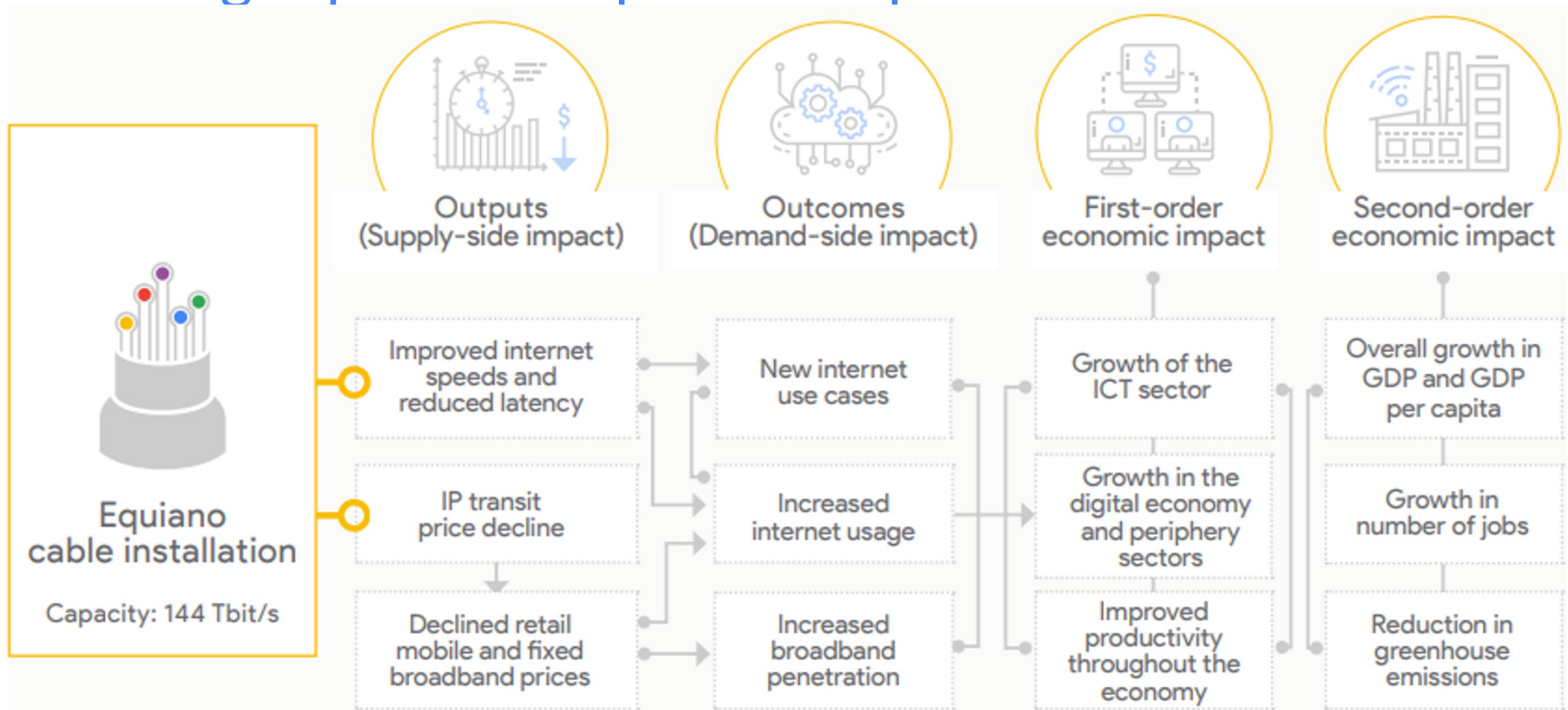


Creating diverse and scalable paths to reach more users

## A project built on partnerships

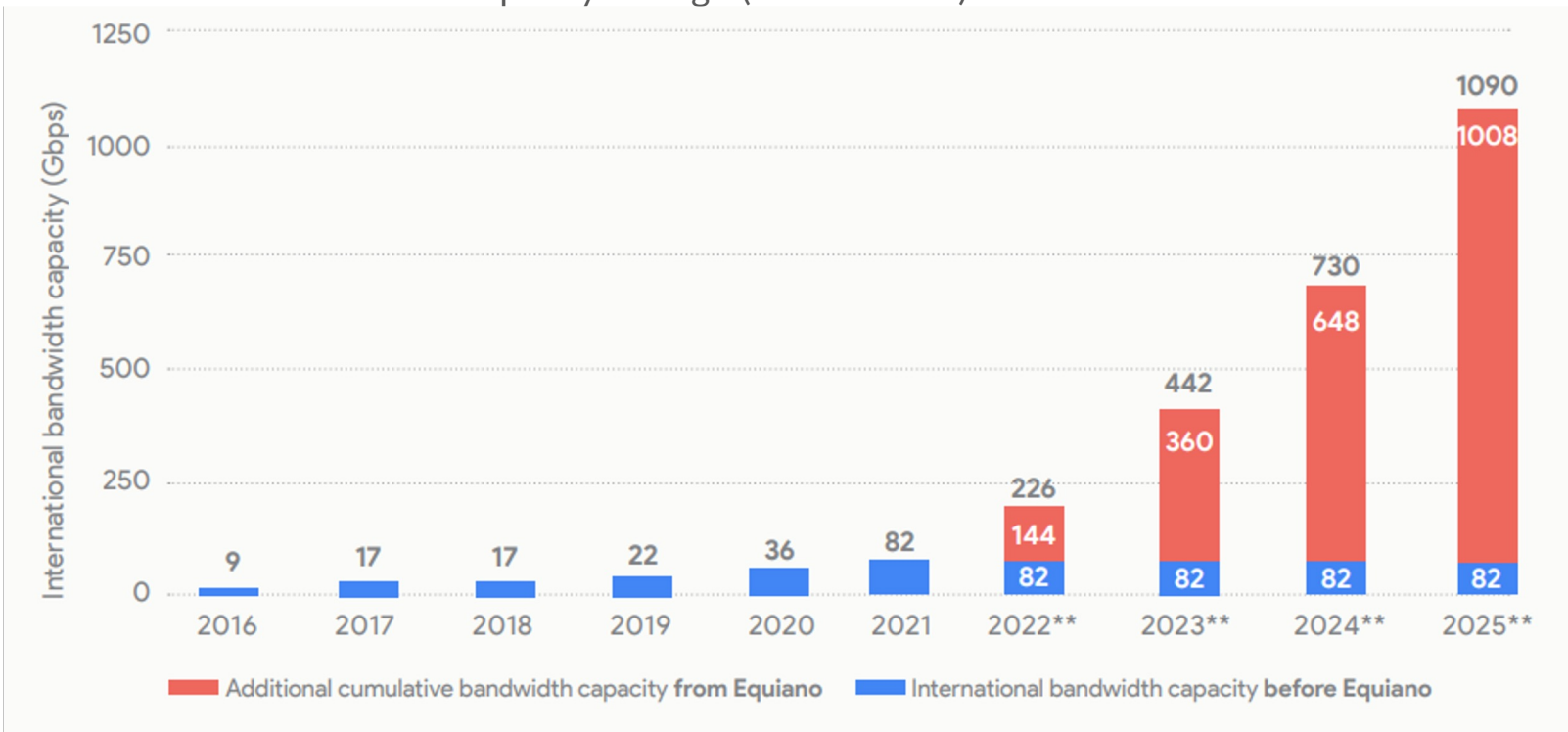


# Measuring Equiano's expected impact



# Equiano's impact on connectivity – international bandwidth

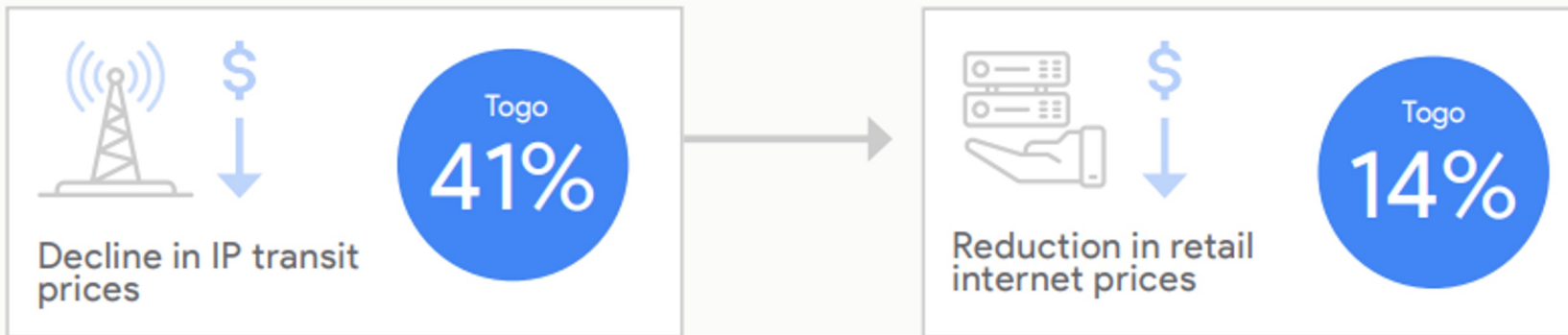
International bandwidth capacity in Togo (2016 - 2025)



Sources: TeleGeography, 2021, Global bandwidth services | Genesis Analytics, 2022, team analysis  
Note: \*\*Equiano impact analysis period

# Equiano's impact on connectivity – affordability

Equiano's impact on retail internet prices in Togo (2021 - 2025)

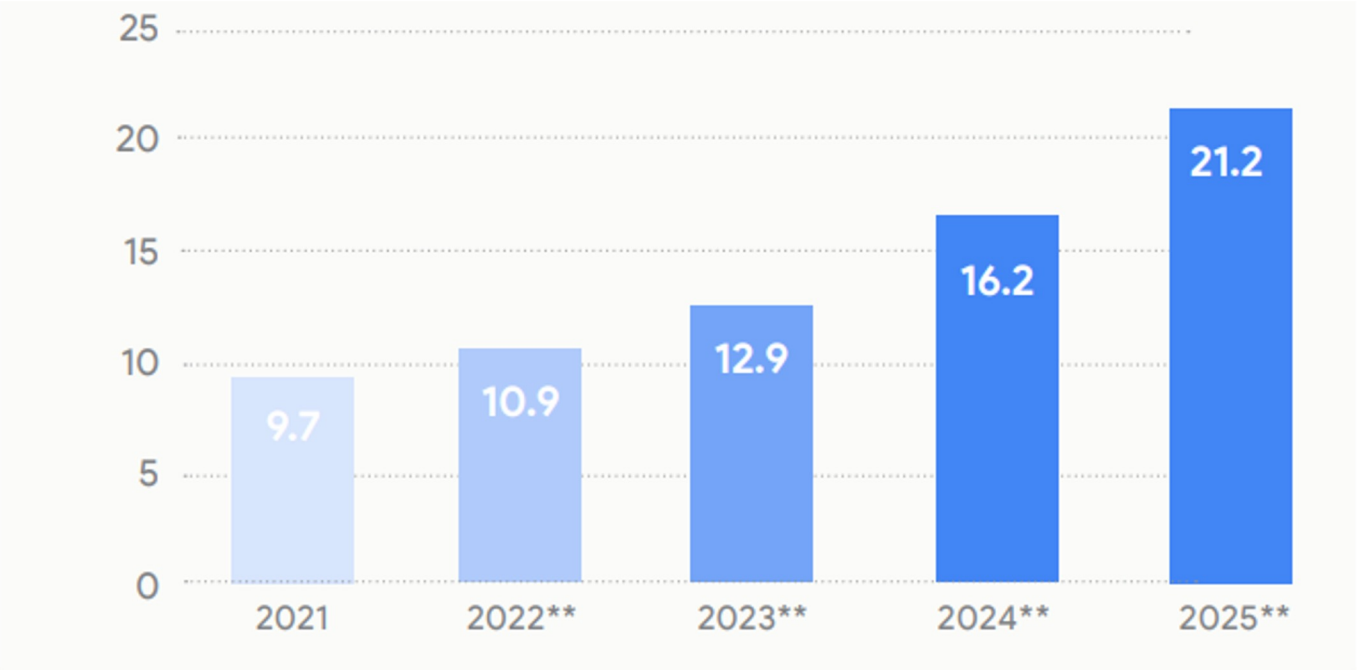


Source: Africa Practice and Genesis Analytics, 2022, Equiano Subsea Cable: Togo Economic Impact Assessment.



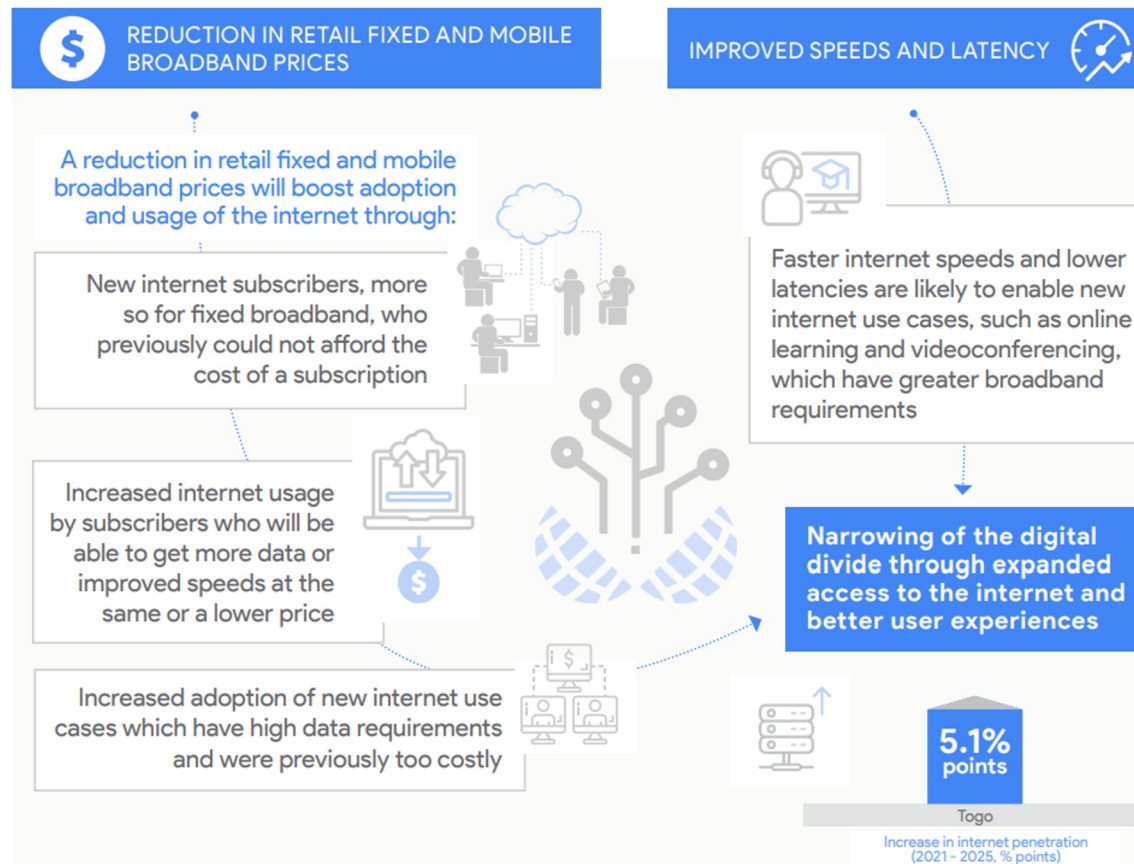
# Equiano's impact on connectivity – speeds

Equiano's impact on average internet speeds in Togo (2021 - 2025)



Source: Ookla, 2022, Global Index | Genesis Analytics, 2022, team analysis  
Note: \*\*Equiano impact analysis period

# Equiano's impact on connectivity – internet penetration



Source: Africa Practice and Genesis Analytics, 2022, Equiano Subsea Cable: Togo Economic Impact Assessment.

# Equiano's impact on the economy and job creation

2022 - 2025



Between 2022 and 2025, average year-on-year real growth to be higher by:

0.5% points

BY 2025



By 2025, real GDP expected to be higher than it otherwise would have been by:

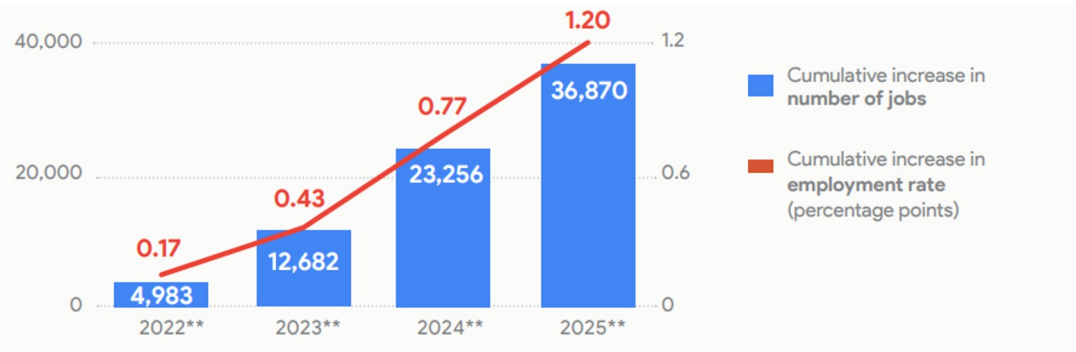
USD 193 million

BY 2025



Additional total economic output due to Equiano amounting to:

USD 351 million




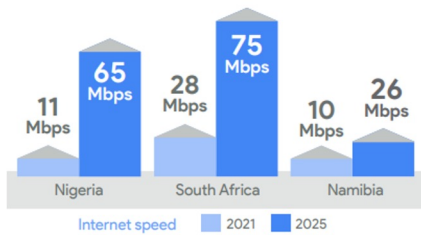
Source: Genesis Analytics, 2022, team analysis  
Notes: \*\*Equiano impact analysis period


Source: Africa Practice and Genesis Analytics, 2022, Equiano Subsea Cable: Togo Economic Impact Assessment.

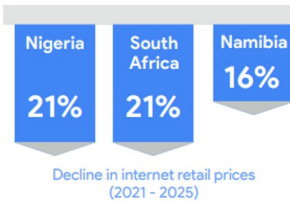
# Equiano's impacts elsewhere on the continent

## A boost for connectivity

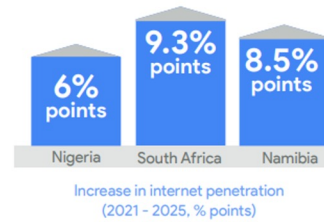
 Average internet speeds are set to rise following Equiano's landing



 Equiano will also result in major price reductions for consumers, improving affordability of access



 Improved speeds and affordability will result in greater internet penetration



## A catalyst for growth, job creation and sustainability

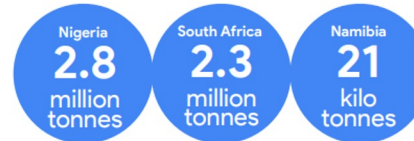
 By 2025, real GDP expected to be higher than it otherwise would have been by:



 Equiano will boost job creation (2022 - 2025)



 Tonnes of CO<sub>2</sub> emissions to be saved (2022 - 2025)



Source: Africa Practice and Genesis Analytics, 2021, Equiano Subsea Cable: Regional Economic Impact Assessment.



Equiano Video 1m40s

[Learn about the Equiano submarine cable](#)





## Takeaways to the NANOG community - (all non technical)

- You get what you give, pay it forward
    - NANOG provided work and volunteer opportunities to have an impact
    - A community of caring colleagues, some are friends for life
    - Get involved
  - My challenge to you - nurture your connections
    - Connect15
    - Reachout5
  - Go for impact
  - Go for meaning
  - Thank you and take care of yourself and each other
- 