EQUINIX

Subsea Cables Only Go So Far

In connecting the unconnected

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Will New Subsea Systems Change Everything?

Our Abstract makes 4 assertions:

1) The availability and cost of international connectivity between Africa and the rest of the world will be transformed by the Equiano and 2Africa cable systems.

2) Despite the step-change brought by the new subsea systems for the coastal nations, The Atlantic Council notes that Africa remains the most expensive region in the world when it comes to "data" and to address this will require multi-party effort and multifaceted solutions.

3) This presentation reviews some challenges and disasters impacting internet services in various locations around the world in the hope that some lessons might be learned and common ownership for the solutions accepted...

4) Africa's Digital Economies are on their own journey – it doesn't have to retrace paths taken, or revisit mistakes made, elsewhere…

1) The availability and cost of international connectivity between Africa and the rest of the world will be transformed by the Equiano and 2Africa cable systems.

META

"....the **impact of 2Africa** would likely be an **increase of 0.42 to 0.58 percent in African GDP** within the first two to three years of going live."[1]

RTI

"We estimate 2Africa's downward pressure on prices to catalyze a **1.6%-2.2% increase in mobile penetration** [3]

2) Despite the step-change brought by the new subsea systems for the coastal nations, The Atlantic Council notes that Africa remains the most expensive region in the world when it comes to "data" and to address this will require multi-party effort and multifaceted solutions.
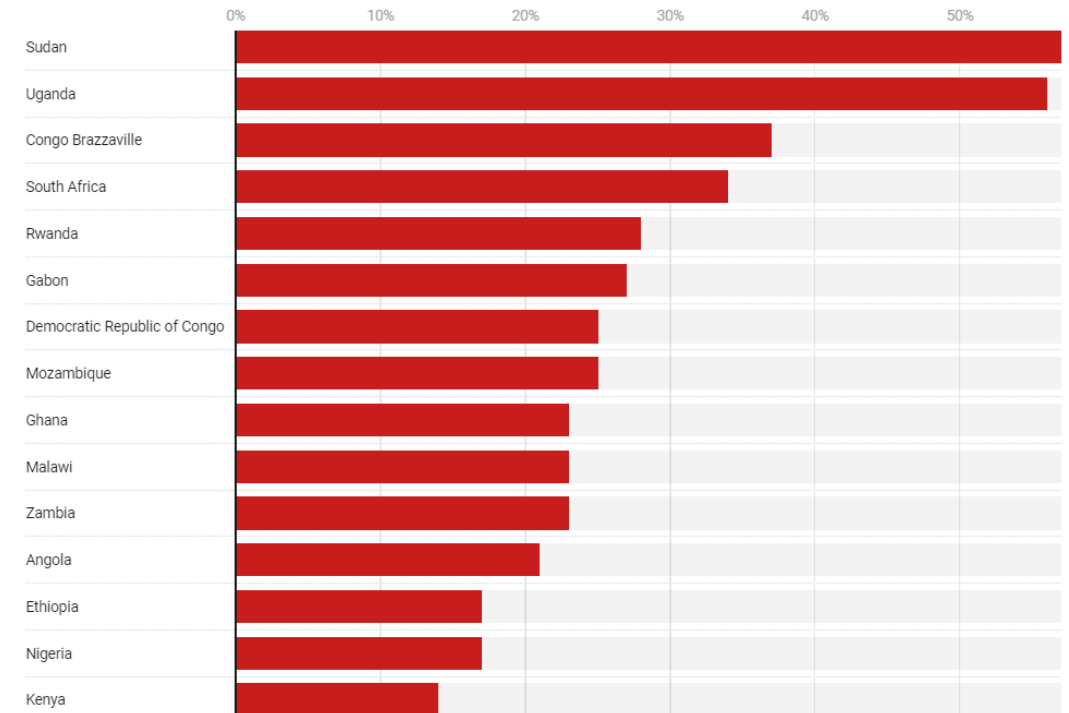
Mobile Access Affordability...

The average cost of one gigabyte (1GB) calculated and compared from over 5,000 mobile data plans in 233 countries.[14] (cable.co.uk)

Northern America	$4.98
Sub-Saharan Africa	$4.47
South America	$4.09
Oceania	$3.88
Near East	$3.65
Caribbean	$3.45
Western Europe	$2.72
CIS (Former USSR)	$2.05
Central America	$1.88
Baltics	$1.79
Eastern Europe	$1.67
Asia (Excl. Near East)	$1.47
Northern Africa	$1.05

SSA is home to some of the **least affordable** data plans worldwide

Young people in 15 African countries were asked if mobile data was hard to afford

Sudan, Uganda, Congo Brazzaville, South Africa, Rwanda, Gabon, Democratic Republic of Congo, Mozambique, Ghana, Malawi, Zambia, Angola, Ethiopia, Nigeria, Kenya

Sub-Saharan Africa has the world's most expensive* mobile data prices, widening the "digital divide" between the world's internet haves and have-nots.[15] (WEF)

*More accurately- "least affordable mobile data" - North America's data plans are more expensive.

" Africa Report

...Equiano...will help reduce international transport costs upstream of the national subsea gateways, but the issue is a **multifaceted problem that Google can't fix alone**."[4]

3) This presentation reviews some challenges and disasters impacting internet services in various locations around the world in the hope that some lessons might be learned and common ownership for the solutions accepted...

The submarine connectivity value chain

" **Google**

Significant investment and partnerships along the entire value chain can boost connectivity, increase internet penetration, reduce prices and improve quality of service for end users.

Source: **Equiano Subsea Cable:** Regional Economic Impact Assessment

" Equinix

Inflated pricing, at any point within the telecommunication networks supporting internet services, **affects the entire end-to-end value chain adversely**, resulting in a lack of affordable and adequate bandwidth, **ultimately decreasing end-consumer consumption**..."13

Some points and stakeholders along the

"Submarine Connectivity Value Chain"[2]

Cable Landing Station

Cross-border terrestrial fibre

Data Centre

Internet Exchange

Middle-mile infrastructure

Last-mile Mobile, Broadband, FWA

End-user & Devices

Govt. / Regulator / Licensing Authority

Infrastructure

Infrastructure

" The White House

....invest over **$350 million** and facilitate over **$450 million** in financing for Africa... access to **open, interoperable, reliable, and secure Internet.**"[5]

" Microsoft

These partnerships in..Cote d'Ivoire, Kenya, Nigeria, Tanzania, and Uganda mark significant progress in our commitment to extend **high-speed internet access to ....100 million in Africa**."[6]

Capacity

Capacity

Telmex Mexico

".... outages had afflicted **15 states across Mexico. Telmex** claims that the fiber optic cut...."[7]

Insufficient capacity or lack of diversity and competitive alternatives?

TIM Italy

"The issue was located around **international connectivity**, which TIM buys from **Sparkle**".[8]

Unfortunate accidents or inevitable consequences of commercial imperatives not aligning with end-user or national interests?

T-Mobile Netherlands

"...what **T-Mobile** had done was the equivalent of a no-deal Brexit".[9]

Routing & Peering Policy

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i3D.net

"Please, please, **peer across borders**; make it easy and **affordable to connect to an IXP** in a neighboring country!"[10]

MBC / Shahid

"there's a big difference between the **20 milliseconds** it should be taking....**and the actual 300 ms I was measuring**..." [11]

Equinix EPF 2019

"**Geographic proximity** to end-users is important but ISP **routing and peering policies** are also key for user QoE" [12]
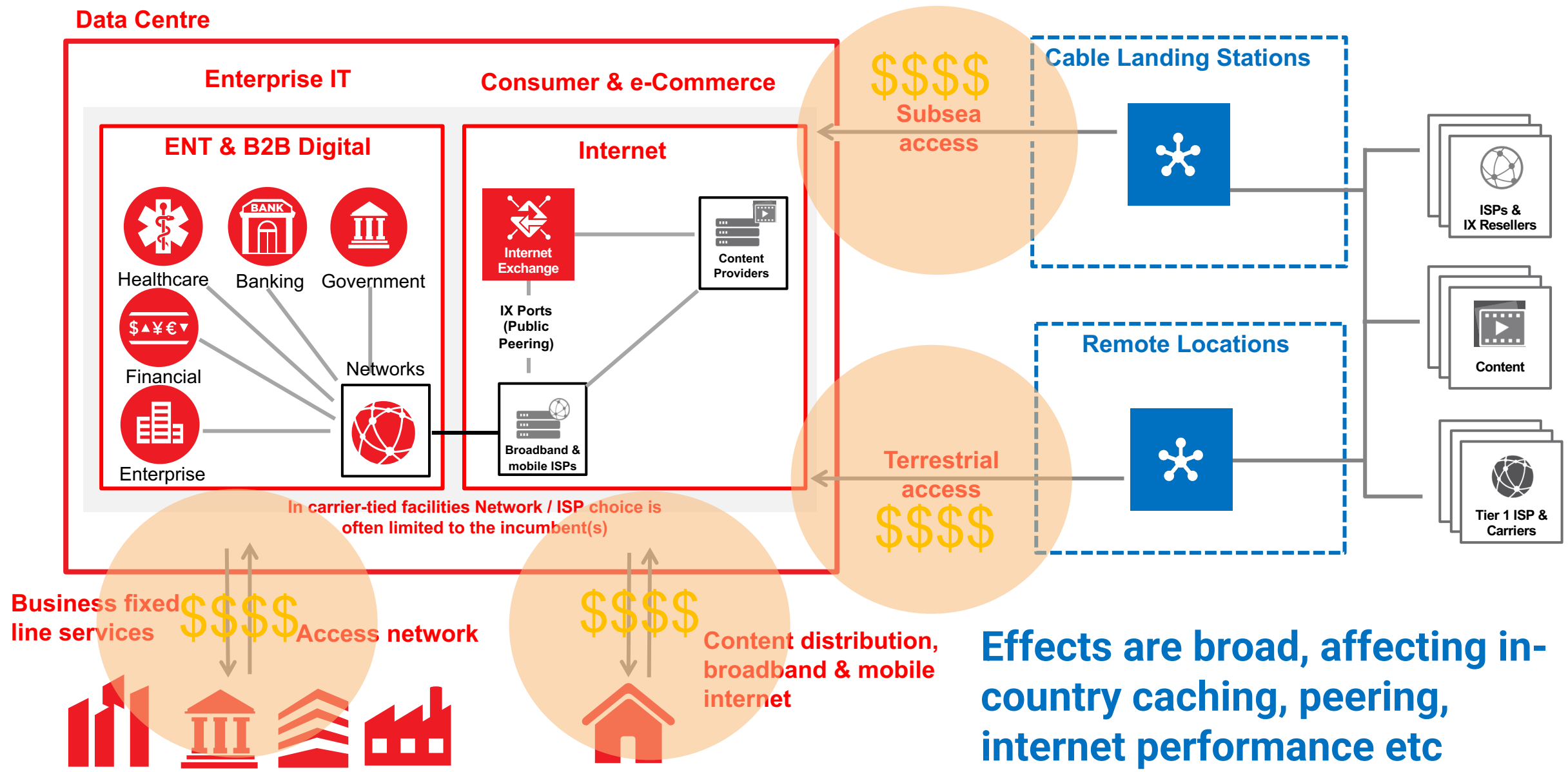
Affordability

Affordability

WEF

"The combination of **poor infrastructure and the control** that telecommunication operators have over consumer rates are rated by one charity as among the leading causes of Africa's high data costs."[15]

Effect of Pricing on the Connectivity Value Chain[13]

Effects are broad, affecting in-country caching, peering, internet performance etc
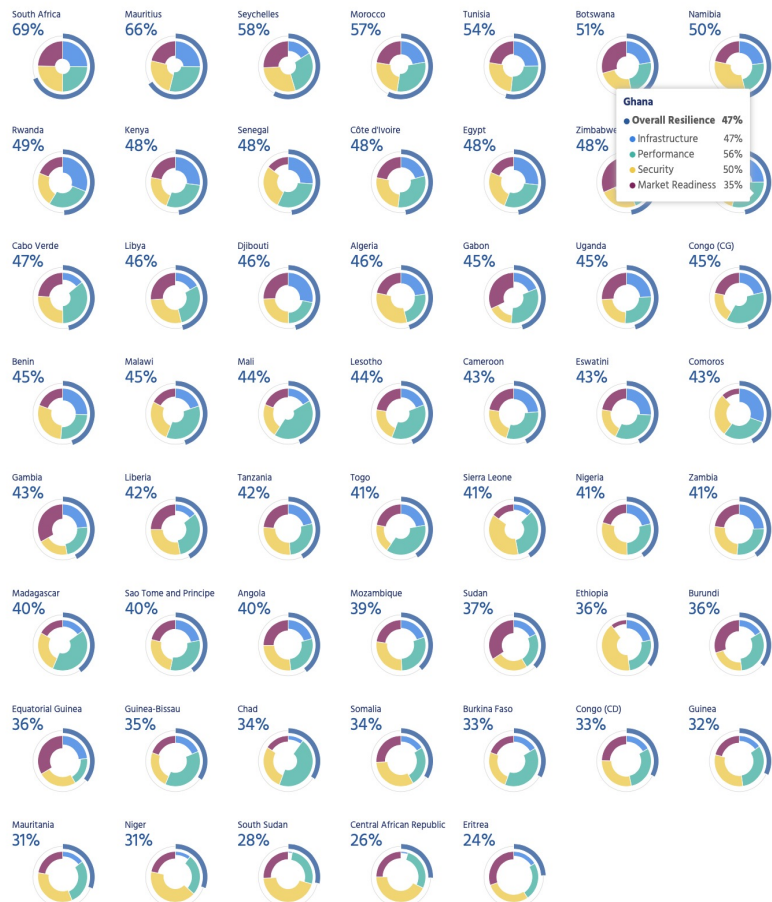
Effects:

- **Less local content caching**
- Limited IX and private peering
- **Suboptimal routing**
- Poor internet performance and availability
- **Lower internet resilience**

ISOC Internet Resilience Measurement

MIR A:
Measuring Internet Resilience in Africa[16]

Overall Resilience

Country	%
South Africa	69%
Mauritius	66%
Seychelles	58%
Morocco	57%
Tunisia	54%
Botswana	51%
Namibia	50%
Rwanda	49%
Kenya	48%
Senegal	48%
Côte d'Ivoire	48%
Egypt	48%
Zimbabwe	48%
Cabo Verde	47%
Libya	46%
Djibouti	46%
Algeria	46%
Gabon	45%
Uganda	45%
Congo (CG)	45%
Benin	45%
Malawi	45%
Mali	44%
Lesotho	44%
Cameroon	43%
Eswatini	43%
Comoros	43%
Gambia	43%
Liberia	42%
Tanzania	42%
Togo	41%
Sierra Leone	41%
Nigeria	41%
Zambia	41%
Madagascar	40%
Sao Tome and Principe	40%
Angola	40%
Mozambique	39%
Sudan	37%
Ethiopia	36%
Burundi	36%
Equatorial Guinea	36%
Guinea-Bissau	35%
Chad	34%
Somalia	34%
Burkina Faso	33%
Congo (CD)	33%
Guinea	32%
Mauritania	31%
Niger	31%
South Sudan	28%
Central African Republic	26%
Eritrea	24%

Ghana

Overall Resilience	47%
Infrastructure	47%
Performance	56%
Security	50%
Market Readiness	35%

The Resilience Index[17] reveals, at macro-level, the **aggregated effect of multiple influences** on national internet adoption and penetration.

The multiple influences we reviewed today are not News

In Summary….

4. Africa's Digital Economies are on their own journey – it doesn't have to retrace paths taken, or revisit mistakes made, elsewhere…

Discussion

Q1: Should there be:
A Telecommunications and Regulatory Environments Best Practices Playbook to inform **ALL stakeholders** in the connectivity value chain on **common attributes** of **successful Digital Economies?**

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