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EXECUTIVE SUMMARY

ECONOMIC LETTER OF EAST AFRICA AND THE INDIAN OCEAN (EAIO)

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TELECOMMUNICATIONS IN THE EAOI

In concise...

Despite clear differences between countries, the East African and the Indian Ocean region has **witnessed significant progress in digital connectivity**. This has led to a significant positive socio-economic impact, driven by both infrastructural upgrades and groundbreaking innovations, chief among them, mobile money. Opportunities for French companies remain limited in core market segments such as equipment, where China is a major player, and in telecommunication operators, where incumbent players still dominate. Nevertheless, some segments have great potential for French expertise: deployment of submarine cables, autonomous power supply for telecommunications towers and cyber security.

In detail ...

A region characterized by growing connectivity and the, sometimes significant, regional and national disparities.

Achieving universal connectivity for every individual, business and government on the continent by 2030 is one of the African Union's objectives, **making the telecommunications sector a priority for the socio-economic development of the continent and the region**. Over the last ten years, **mobile penetration rates and internet access have grown significantly in the region**, with annual growth rates in the number of users ranging from **5 to 10%**, despite disparities between countries (mobile access rate of 40% in Madagascar versus 187% in the Seychelles). Also, it is important to note that there are conspicuous **differences between rural and urban areas** in these countries. In Uganda for instance, internet access is 70% in urban areas compared to 9% in rural areas.

This growth in the telecommunications sector was originally driven by the development of **infrastructure for a wider and faster connectivity**. The EAIO region, thanks in part to its extensive coastline, was gradually **connected to the rest of the world via undersea optical cables**, and is currently connected to various regions via eleven cables. Two other projects (2Africa, Africa-1) are expected to be operational by 2023. In addition to these maritime infrastructures, there are land-based infrastructures (fiber optics, mobile towers for 3G, 4G and now 5G). Many governments have made the **increase of mobile coverage** in their countries, as well as the deployment of **fiber optic networks, a development** priority by relying on private players, as evidenced by the *National Optic Fiber Backbone Infrastructure* project in Kenya and the *National Backbone Initiative* in Uganda.

The **telecommunications sector remains more or less monopolized, depending on the degree of liberalization of the domain**. The dominant positioning of some **historical operators** remains unchanged regardless of their status right now (public/private): *Ethio Telecom* in Ethiopia, *Safaricom* in Kenya or *Telma* in Madagascar. All the countries in the region have **telecommunication regulatory authorities**, which are more or less proactive in making the sector more competitive.

Despite a **rapid and clear reduction in the cost of access to mobile and internet technologies over the last decade**, the development of telecommunications is hampered in some countries by **insufficient or unsuitable infrastructure**, by limited access to electricity (11% in Burundi), and **prices that remain high, coupled with a high poverty rate that** prevents access to digital services even where these exist. Data prices vary by a factor of more than 10 depending on the country: very low in Somalia and Sudan, but much higher in the Indian Ocean Islands and also in Kenya (see data table).

Connectivity as a vector of innovation, with the iconic example of *mobile money*

The emergence of **mobile money services** coincided with the deployment of telecommunications infrastructure. Mobile operators in all countries have launched these services, with an ideal example being **Safaricom, a pioneer with the M-Pesa service in Kenya, whose** user rate has now reached 75.4%. The low transaction costs and ease of use of *mobile money* have contributed to its massive use, including in crises-ridden countries, and countries lagging behind in many other essential services, such as Somalia (where 73% of the population are active subscribers). The rapid development of these mobile payment services has led to significant progress in financial inclusion, and to the introduction of new financial services via mobile phones.

Countries where mobile penetration and/or access to electricity remains low (such as Burundi with 27.9% in 2021), *mobile money* is not as successful. Equally, deployment is slow in Sudan, due to regulation, while illiteracy and low rates of possession of identity documents constitute barriers to its deployment in South Sudan.

Growing presence of Chinese players in the management of telecommunications infrastructure

In recent years, China has established itself as a major player in the telecommunications sector in Africa, mainly through the "Digital Silk Roads" implemented since 2015¹. Chinese companies such as *Huawei (via HMN Tech)* or *ZTE* are among the main suppliers of submarine optical cables that connect the EAIO region, following the example of *Gulf2Africa* or *PEACE*. China Mobile, a Chinese state-owned mobile and internet communications company, also has a stake in the future *2Africa* cable that will connect the entire continent.

In addition to marine infrastructure, Chinese players are particularly involved in the deployment of fiber optic networks and 5G technology. A partnership between the Kenyan company *Safaricom* and *Huawei* in 2021, for the deployment of fiber optics and 5G network on 200 pilot sites across the country,

¹ China's digital strategy towards Africa, the broad lines of which were defined at the Johannesburg FOCAC, is based on four main lines: i) promotion of Chinese ICT companies; ii) cooperation in ICT standardization; iii) promotion of China's model of surveillance and management of personal data; iv) promotion of Chinese soft power via the digitalization of television and radio services.

is an ideal example. *Huawei* also has a strong presence in Ethiopia and is positioning itself for 5G in Mauritius and the Seychelles.

Chinese involvement in the development of the telecommunications sector also takes the form of financial support in the form of loans, more or less concessional, and linked to contracts for Chinese companies. Since the mid-2000s, the *China Eximbank* has been offering loans to countries in the region to finance their telecommunications infrastructure projects: 110 million USD to Uganda between 2008 and 2016 for the *National Backbone Infrastructure Project*; 290 million USD to Tanzania to finance the three phases of the *National Fiber Optic Backbone*.

Recognized French expertise in submarine cable deployment. Opportunities in ancillary services

A number of French telecommunications companies are already active in the region. French input in this domain is particularly recognized in the submarine cable segment. *Tactis* is recognized for its specialty in carrying out feasibility studies, project set-up and fundraising for submarine cable projects. It has mainly been involved in the *LION* and *LION-2* projects. *Alcatel Submarine Network (ASN)*, which belongs to the Finnish group *Nokia* via its French subsidiary *Nokia Networks France* since 2016, is a world leader in the manufacture and installation of submarine cables. In particular, ASN has supplied many regional cable projects: *TEAMS*, *EASsy*, *LION* or *LION 2* (Table 1).

Attempts by foreign and especially French mobile operators to enter the market have proved difficult due to the monopolistic dominance of one or more incumbent players, and the sometimes limited degree of liberalization in the sector. Orange, which is positioned regionally and globally in submarine cable development and management, ventured into the mobile operator sector in Kenya. However, the company ceased operations in 2015 and sold its 70% stake in *Telkom Kenya*, due to insufficient profit as a result of *Safaricom*'s dominance in the market. Orange is nevertheless present in the Malagasy market (its local subsidiary is the second operator) and takes interest in the Ethiopian market.

However, there are opportunities in the ancillary service sectors for French companies providing equipment and/or services. The autonomous power supply of telecommunication sites (towers) is also a promising segment with several players active in the region, including the French company *Sagemcom*. The cybersecurity domain is also promising with a player like *Thalès* offering state-of-the-art expertise.

In sum...

Generally, the EAIO region has witnessed significant progress in so far as digital connectivity is concerned. The development of mobile money is a testament to the above fact. Even though opportunities for French companies remain limited in core market segments, domains such as cybersecurity hold great potential for French expertise.

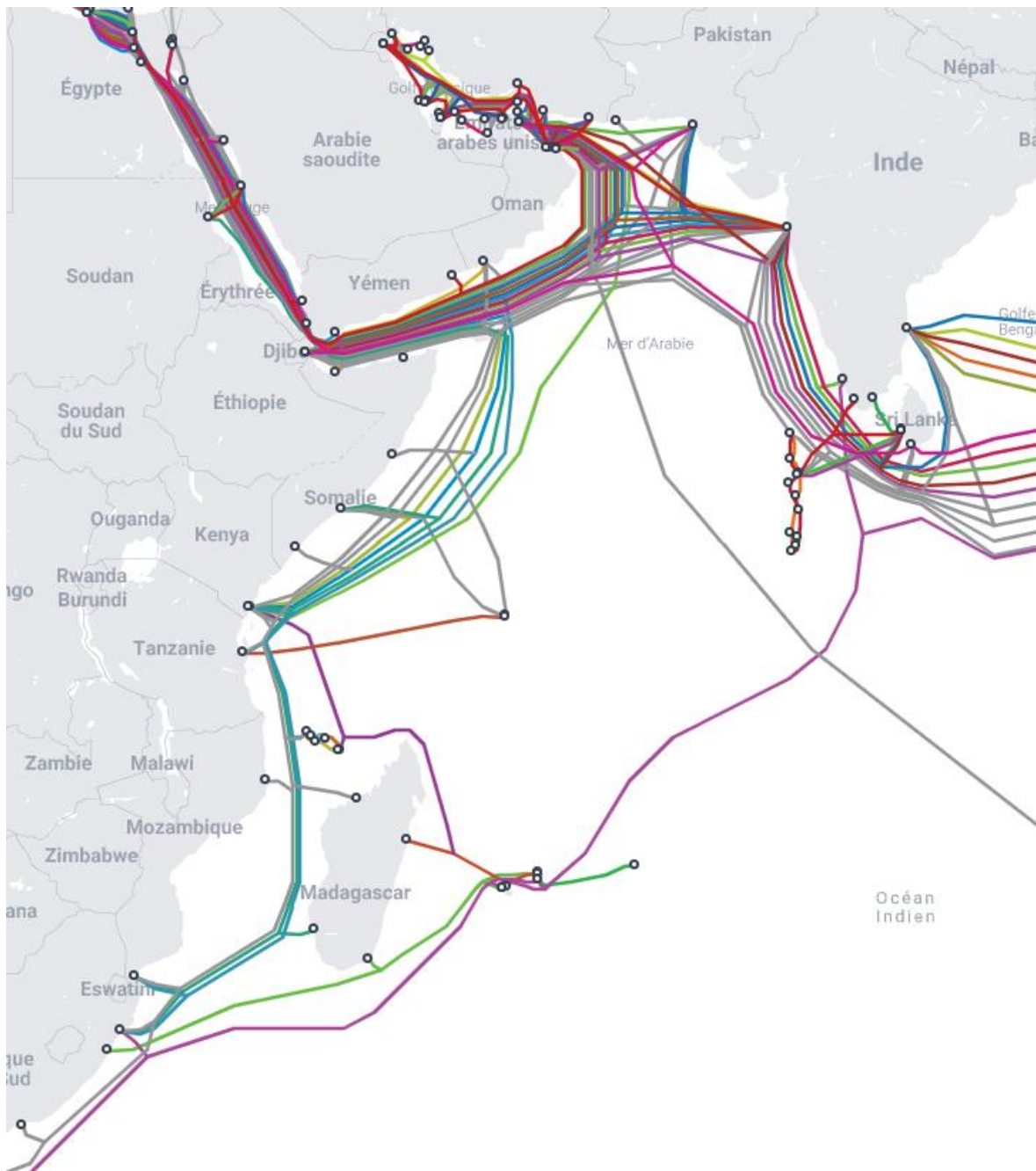


Figure 1 : Map of submarine cables
(Source : Submarine Cable Map, 2022)

Table 1: Characteristics of the main submarine cables connecting the EAIO region
(Source: Submarine Cable Map 2022)

Cables	Capacity (Tbits/s)	Commissionning	Linked areas	Consortiums	Suppliers
Saudi Arabia Sudan 1 (SAS-1)	-	2003	Soudan, Arabie Saoudite	Saudi Telecom, Sudan Telecom Company, The Arab Investment Company	ASN
FLAG Alcatel-Lucent Optical Network (FALCON)	2,6	2006	Egypte, Soudan, Yemen, Oman, EAU, Arabie Saoudite, Koweït, Qatar, Iran, Irak, Inde, Sri Lanka, Maldives	Global Cloud eXchange	ASN
East African Marine System (TEAMS)	5,2	2009	Kenya, Emirats Arabes Unis	Etisalat (15%) TEAMS (Kenya) 85%, détenu par le gouvernement, Safaricom, Telkom Kenya, Liquid Telecom, Jamii Telecom, Wanachi Group, Access Kenya Group, BCS Group	ASN
SEACOM/Tat TGN-Eurasia	4,2	2009	Inde, côte est-africaine (Kenya, Tanzanie, Djibouti, Afrique du Sud), Arabie Saoudite, Egypte	SEACOM, Tata Communications	Subcom
Lower Indian Ocean Network (LION)	-	2009	Madagascar, Réunion, Maurice	Mauritius Telecom, Orange, Orange Madagascar	ASN
East Africa Submarine Cable System (EASy)	11,8	2010	Afrique du Sud, Mozambique, Madagascar, Tanzanie, Kenya, Somalie, Djibouti, Comores, Soudan	Airtel, BT, Botswana Fibre Networks, Comores Telecom, Djibouti Telecom, Etisalat UAE, Liquid Telecom, MTN, Mauritius Telecom, Orange, Saudi Telecom, Sudan Telecom Company, Tanzania Telecommunication Corporation, Telkom Kenya, Telkom South Africa, Telma (Telecom Malagasy), Vodacom DRC, WIOCC, Zambia Telecom	ASN
Saudi Arabia Sudan 2 (SAS-2)	-	2011	Soudan, Arabie Saoudite	Saudi Telecom, Sudan Telecom Company	
Lower Indian Ocean Network 2 (LION-2)	-	2012	Kenya, Mayotte, LION	Emtel, Mauritius Telecom, Orange, Orange Madagascar, Société Réunionnaise du Radiotéléphone, Telkom Kenya	ASN
Seychelles to East Africa System (SEAS)	-	2012	Tanzanie, Seychelles	Seychelles Cable System Company	ASN
Gulf2Africa	-	2017	Oman, Somalie	Golis Telecommunications, Omantel, Telesom	HMN Tech (anciennement Huawei Marine Networks)
Djibouti Africa Regional Network (DARE 1)	36	2021	Djibouti, Somalie, Kenya	Djibouti Telecom, Hormuud Telecom Somalia, Somtel International, Telkom Kenya	Subcom
PEACE	-	2022	Singapour, Pakistan, Afrique de l'Est, Europe	Peace Cable International Network Co. Ltd. (filiale du groupe chinois Hentong Group)	HMN Tech
2Africa	180	2023/2024	Ensemble du continent africain	China Mobile, MTN Group, Meta, Orange, Saudi Telecom, Telecom Egypt, Vodafone, WIOCC	ASN
Africa-1	-	2023	Pakistan, EAU, Afrique de l'Est, Europe	Etisalat UAE, G42, Mobily, Pakistan Telecommunications Company, Telecom Egypt	ASN

Summary of regional data

Country	Mobile penetration rate (%)	Internet access (%)	Cost 1GB of internet data (USD)	Share of the population using mobile money (%)
<i>Burundi</i>	55,8	5,2	2,1	27,9
<i>Comores</i>	54,4 (67% in the letter)	20,0*	3,2	7,7
<i>Djibouti</i>	43,9	59,0	1,1	-
<i>Eritrea</i>	87,0*	1,3	-	-
<i>Ethiopia</i>	44,0	25,0	1,7	14,8
<i>Kenya</i>	114,2	22,6	2,3	89,1
<i>Madagascar</i>	40,6	15,0	5,1	25,0*
<i>Mauritius</i>	150,4	64,9	0,8	-
<i>Uganda</i>	60,5	70 (urban areas) 9 (rural areas)	1,6	73,8
<i>Rwanda</i>	82,0	26,0	1,2	60,0*
<i>Seychelles</i>	186,6	79,0	8,6	-
<i>Somalia</i>	51,0	38,7*	0,6	73
<i>Sudan</i>	80,3	25,4	0,3	-
<i>South Sudan</i>	20,1	8,0*	-	-
<i>Tanzania</i>	85,7	20,0	0,8	-

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