

BULLETIN

Business Opportunities in the ITC sector: AFRICA

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Informe realizado por:

Anja Lotties

División Promoción de Inversiones y Diversificación

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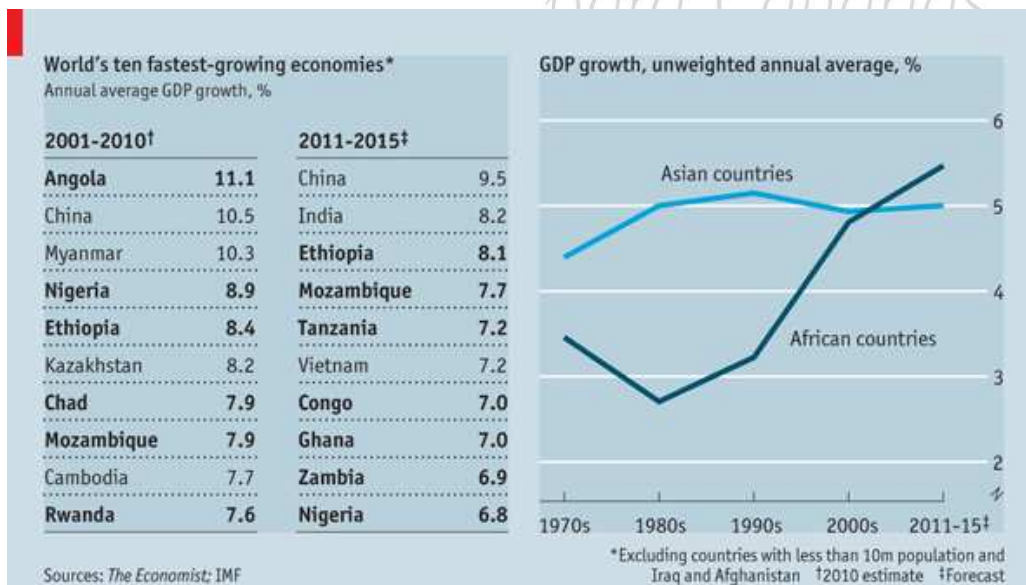
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Business Opportunities in the ITC sector: AFRICA

General Overview

The following report will focus on the information and communication technology sector in Africa as well as the opportunities the Canary Islands offer in order to face the markets' major challenges. Therefore, it will not only be pointed out status quo of the African information and communication technology sector today, but also the challenges as well as trends and tendencies the market obtains. Furthermore, the markets' general opportunities will be regarded, before applying them to the solutions offered by the Canary Islands.

According to an analysis by the Economist, the African continent belongs to the world's fastest-growing economic regions: its average economy is even forecasted to outpace its Asian counterpart over the next five years. An important driver of this growth is the African telecommunication sector, as with a compound annual growth rate of approximately 40%, Africa holds the world's fastest-growing telecommunication industry.



Source: http://www.economist.com/blogs/dailychart/2011/01/daily_chart

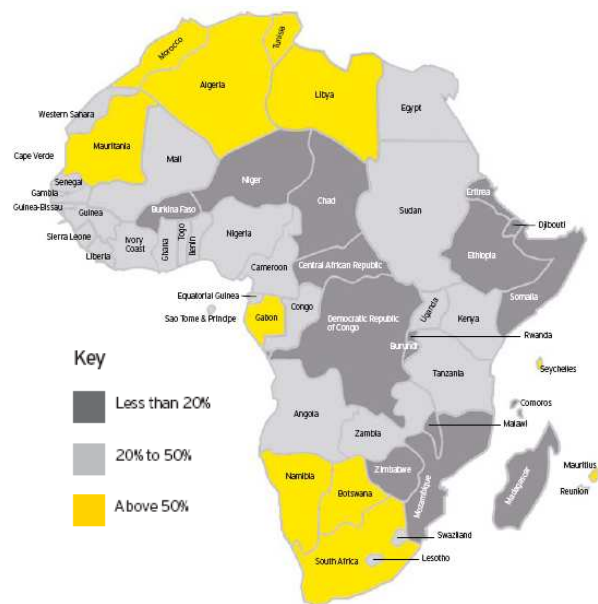
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The Mobile Market

Having experienced a growth rate of 49,3% between 2002 and 2007¹, within the African telecommunication industry, the mobile market plays a central role, also referring to Africa as the mobile continent. Currently, the African mobile market includes more than 400 million subscribers and has an average penetration of 37%² which is expected to rise up to 61% by 2012. Nevertheless, the penetration levels in Africa vary significantly: whereas only six countries (Libya, Tunisia, Algeria, Gabon, Seychelles, South Africa) reach a penetration level higher than 80%, 16 countries³ have a level inferior to 20% due to highly regulated or politically unstable markets. Although the latter countries feature the highest risks, they also offer the highest opportunities in terms of growing potential. Within the African mobile market, pre-paid mobile services are the most spread services, covering 96% of all users.

African Mobile Market Penetration



Source: Ernst&Young; Africa Connected: A telecommunication growth story

The West African mobile communication market in 2008 earned revenues of \$12 billion and is estimated to reach revenues of almost \$23 billion in 2015. Regarding the key African markets ranked by total mobile revenue in 2008 (see table below), South Africa (\$9,735 million) clearly leads the ranking, followed by

¹ Compared to Asia, with a mobile market growth rate of only 27,4% between 2002 and 2007.

² Average penetration rates: Asia 53%, Europe 125%.

³ Burkina Faso, Burundi, Central African Republic, Chad, Comoros, Djibouti, Democratic Republic of Congo, Eritrea, Ethiopia, Madagascar, Malawi, Mozambique, Niger, Rwanda, Somalia, Zimbabwe

Nigeria (\$6,945 million) and Egypt (\$4,057 million) whereas Mauritius comes last with only \$151 million. Apart from the fact that there is a strong link between individual income and spending on telecom services in Africa, there also has to be noted that low penetration rates not necessarily go along with a low number of subscribers as the African countries vary significantly in terms of population.

Market	Total Mobile Revenue [\$ million]	Market	Total Mobile Revenue [\$ million]
South Africa	9,735	Cote d Ivoire	970
Nigeria	6,945	Tanzania	936
Egypt	4,057	DRC	878
Algeria	3,002	Cameroon	758
Morocco	2,812	Senegal	629
Tunisia	1,284	Uganda	541
Ghana	1,193	Botswana	230
Kenya	1,146	Mauritius	151

Source: Light Reading and Pyramid Research, March 2009

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The Fixed Line & Internet Market

Currently, the mobile phone penetration in Africa is ten times higher than the average fixed line penetration and this gap is expected to widen even more in the short and medium term. The highest fixed line penetration holds Egypt with 15%. Nevertheless, investments in fixed lines are increasing as "individual operators looking to access more cost-effective and reliable networks. These next generation networks also provide the foundation for delivering high-speed network access for businesses and consumers."⁴

Regarding the internet penetration, Africa features the lowest penetration level worldwide with just 5,4%, while only 12 countries are holding a rate of more than 1%⁵. Also, broadband adoption is low with the highest penetration in Egypt (8%). The main reason for the low penetration is the high cost of bandwidth in Africa⁶, mostly due to a lack of deregulation of its international gateways as well as "the reliance of many countries on satellite links for international connectivity".

All in all, in recent years there has been a significant increase in the number of licenses, mergers and acquisitions within the African telecommunication sector. In order to keep up with the increasing demand, significant investment in telecom infrastructure of about \$15 billion is made every year. Basically, there are two major groups of operators: on the one hand those who offer low-cost voice focused services and on the other hand value-added operators, trying to use innovation to maximize their market share. Above all, data and rural voice

⁴ Ernst & Young

⁵ In comparison, Asia only has five countries below the 1% penetration mark.

⁶ In Angola for instance, the cheapest broadband package costs 78% of the GNI per capita.

services are estimated to offer additional revenues of \$12 billion to \$15 billion by 2012.



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Challenges

The central challenges operators in Africa are confronted with are external factors including political uncertainty, heavy tax burdens⁷(for consumers and operators), need for market liberalization (licenses), technological and general infrastructure, an inconsistent regulatory environment, insufficient power supply and corruption.

Furthermore, the existence of fixed line monopolies which keep the prices high, the monopoly access to international gateways (e.g. cable landing points) as well as the difficulties of cross-country operations within Africa due to the high complexity of internal processes and systems, also constitute major challenges. Other aspects that limit the inter-continent and global connectivity are the high broadband prices and the poor enterprise service levels. From a human resource point of view, there is a significant lack of know-how reaching from technicians to the management.

Finally, high pricing remains a problem compared to the earning potential. For instance, 100 minutes of mobile use cost 77% of the GNI, compared to an international average of only 30% of the GNI.

⁷ VAT rates from 5% to 23% in Africa

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Trenes and Tendencias

Operators in Africa are keen on extending their "geographic footprint" by acquiring assets and licenses in order to profit from the economies of scale. The largest footprints in Africa's telecommunication sector hold MTN⁸ and Zain. Currently, the telecommunication market is still fragmented with 10 large operators and more than 80 smaller ones, offering a potential for cross-border and within territories consolidation. According to Ernst & Young, it already exists "broader consolidation as telecoms operators look to expand their operations into related technology areas. This includes buying into ISP⁹'s as well as IT companies."

In more mature markets, there are more broad-spectrum information and communication technology provider rather than simply telecommunication providers. The range of value added services offered include among others "sophisticated and successful mobile payment services" built up by mobile operators or the provision of content such as health information, music and videos for instance. Furthermore, GSM technologies (based on wideband W-CDMA) are likely to dominate the market. So far there are 14 networks¹⁰ but 63 million W-CDMA expected by 2012.

The big operators in Africa invest in infrastructure (including undersea cables) or networks in order to reach rural areas and increase the demand. As it can be seen from the table and image below, by the second quarter of 2012 there are supposed to exist various undersea cables.

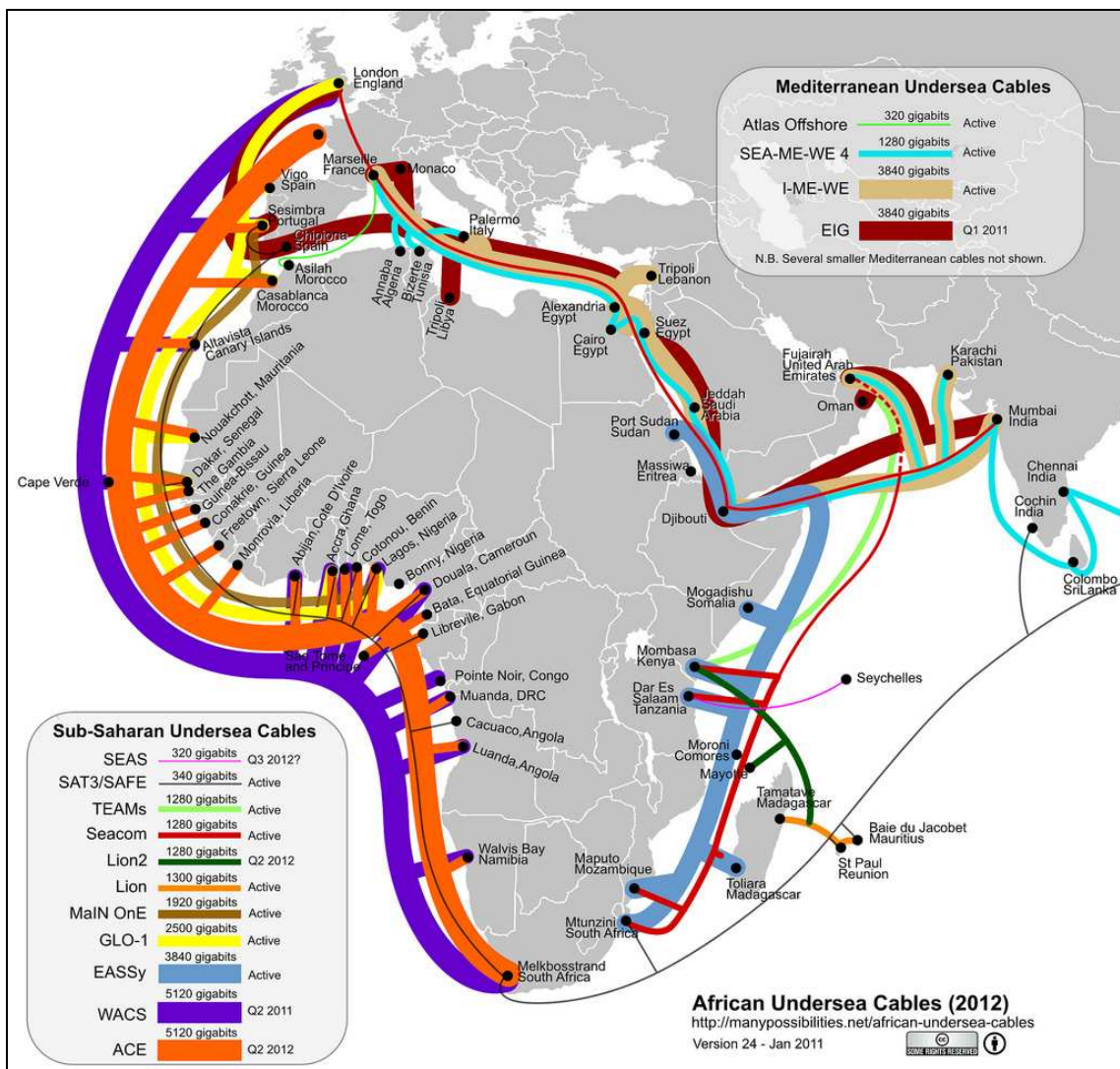
⁸ MTN = Minneapolis TV network

⁹ ISP = Internet service provider

¹⁰ Three of them in South Africa.

	Seacom	EASSy	TEAMs	WACS	MainOne	GLO1	ACE
Cost (millions of USD)	650	265	130	600	240	800	700
Length (km)	13,700	10,000	4,500	14,000	7,000	9,500	14,000
Capacity	1.28 Tb/s	3.84 Tb/s	1.28 Tb/s	5.12 Tb/s	1.92 Tb/s	2.5 Tb/s?	5.12 Tb/s
Completion	July 2009	July 2010	Sept 2009	Q3 2011	Q2 2010	Q3 2010	Q2 2012

Source: <http://manypossibilities.net/african-undersea-cables/>



Source: <http://manypossibilities.net/african-undersea-cables/>

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Business Opportunities in the ITC sector: AFRICA

Opportunities

Apart from the fact that there is a great potential of 3G technologies, the new submarine cable systems are seen as a significant revenue generator and above all as a catalyst for data services. Revenue growth opportunities are primarily seen in two areas: on the one hand in the coverage of under-serviced (mostly rural) areas as for example 70% of the Sub-Saharan population still live in rural areas, and on the other hand in the introduction of value-added services e.g. mobile banking, data services.

Furthermore, the emergence of true low-cost operators is seen as an investment opportunity although according to Ernst & Young "the new low cost operator will have to outsource extensively and leverage off relationships with its vendors in order to reduce costs". Finally, there is a potential in working towards unified licenses which allow service provider to offer both fixed and mobile services under one license.

Key factors to success¹¹

- ✚ Practice cost efficiency while still investing in infrastructure
- ✚ Optimize performance, cut costs, prevent revenue leakage, increase operational efficiency in order to maintain profit margins
- ✚ Fast growing operators (undertaking consolidations, acquisitions, outsourcing non-core activities, etc) must avoid internal control failures / organizational breakdown
- ✚ Share of facilities (e.g. infrastructure) as the market reach saturation

¹¹ Ernst & Young

- Look for alternative energy solutions

Development of the ICT operating environment in Africa

	Current State		Future State
Customer	<ul style="list-style-type: none"> Cost sensitive Immature customer base Little loyalty to network Predominantly pre-paid 	▶	<ul style="list-style-type: none"> Mature, demanding customers Performance sensitive Increased brand loyalty Consuming both voice and data services Larger post paid base
Proposition	<ul style="list-style-type: none"> Availability of airtime Delivery of low-cost voice services Cross border roaming services Embryonic value added services 	▶	<ul style="list-style-type: none"> Value-added services Converged offering Sophisticated customer retention strategies Enterprise services
Network	<ul style="list-style-type: none"> Voice focused Coverage is competitive differentiator 	▶	<ul style="list-style-type: none"> Fixed and wireless networks Data and voice play complementary roles Quality of service seen as competitive differentiator
Ownership	<ul style="list-style-type: none"> State and private Diverse set of small and large operators 	▶	<ul style="list-style-type: none"> Almost entirely private with some state shareholding Market dominated by large operators
People	<ul style="list-style-type: none"> Talent scarce in technical and management fields 	▶	<ul style="list-style-type: none"> Long-term staff retained, training a key focus

Source: Ernst & Young

para Canarias

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Business Opportunities in the ITC sector: AFRICA

The Canary Islands:
An ideal platform for ITC businesses
in Africa

Thanks to their superb geographical location as well as their significant commercial and institutional links with West Africa, the Canary Islands represent an attractive commercial and business platform for the transfer of services and technology between the continents, making it possible for an investor to handle strategic projects in West Africa, while enjoying the legal and political security as well as a stable economic framework that having a business base in Europe involves. Furthermore, apart from the most competitive legal fiscal regimen in Europe (4% corporate tax), and European standard quality of life at just 100km of the African coast, the Canary Islands are a logistic hub of this part of the Atlantic ocean and a perfect technological and market test base.



Logistics

Canary Islands - as Europe's southern frontier - outstand in the logistic map of Africa, not only for its quality and reliability (most of the petroleum platform are coming to the region to be repaired), its infrastructures (LAS PALMAS PORT: TOTAL BERTHING LINE: 2,507 metres and DRAFT: From 11 to 18 meters), but also for its political security that allows us to assure that events as the ones in Abidjan (Côte d'Ivoire) will not take place in the Islands.

The connections to Africa include 38 weekly flights to:

- Casablanca (Morocco)
- Nouakchott (Mauritania)
- Dakar (Senegal)
- Praia (Cape Verde)
- Cape Town (South Africa)

The sea connections with Africa include destinations such as:

Angola, Benin, Cape Verde, Cameroon, Congo, Cote d'Ivoire, Gabon, Gambia, Ghana, Guinea Bissau, Guinea Conakry, Liberia, Mauritania, Morocco, Nigeria, Senegal, Sierra Leona, South Africa, and Togo.



Source: PROEXCA

So far, there are 22 hotlines with weekly frequency with Western Africa and the vessels of greater carriage arrive to the Canary Islands to create a stream of minor ships that can operate in African ports. (Feeder)

Furthermore, the Office for the Follow-up of the European policies in the regions, which guides the EU policies in Africa, will be installed in Las Palmas.¹²

ITC sector

Especially for the establishment and development of any activity related with the information technologies and communications sector, the Canarian Archipelago is a superb location, as is shown by the extensive satellite cover (some 50 satellites serve the Islands) and fibre-optic underwater-cable connections.

A number of international telecommunications companies operate in the Islands with a high degree of deregulation and with the most advanced technologies in transmission of information. Regarding mobile telephones, there is currently total cover with the GSM system. Likewise, the UMTS multimedia technology networks are implanted and ADSL technology is deployed for high-speed connections to the internet.

As regards fixed networks, the growth in ADSL services and of fibre optic lines is the result of the modernization that the Archipelago has undergone over the last few years. The high-speed connections through the Internet by means of broad-band systems offer great security and standards that are in consonance with those in Spain and Europe.

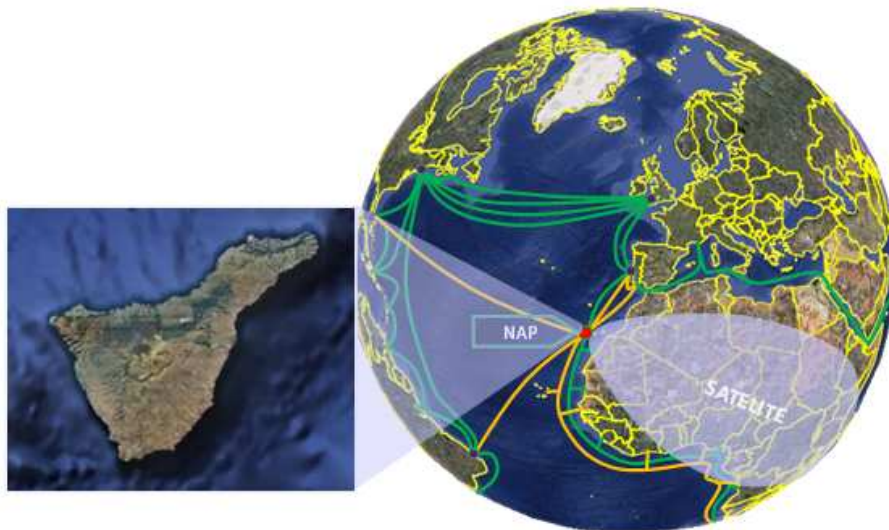
There are now ten underwater cables connecting the Islands with the Iberian Peninsula and countries such as South Africa, Portugal and Italy, as well as with regions of South-East Asia

¹² Source Las Palmas Port

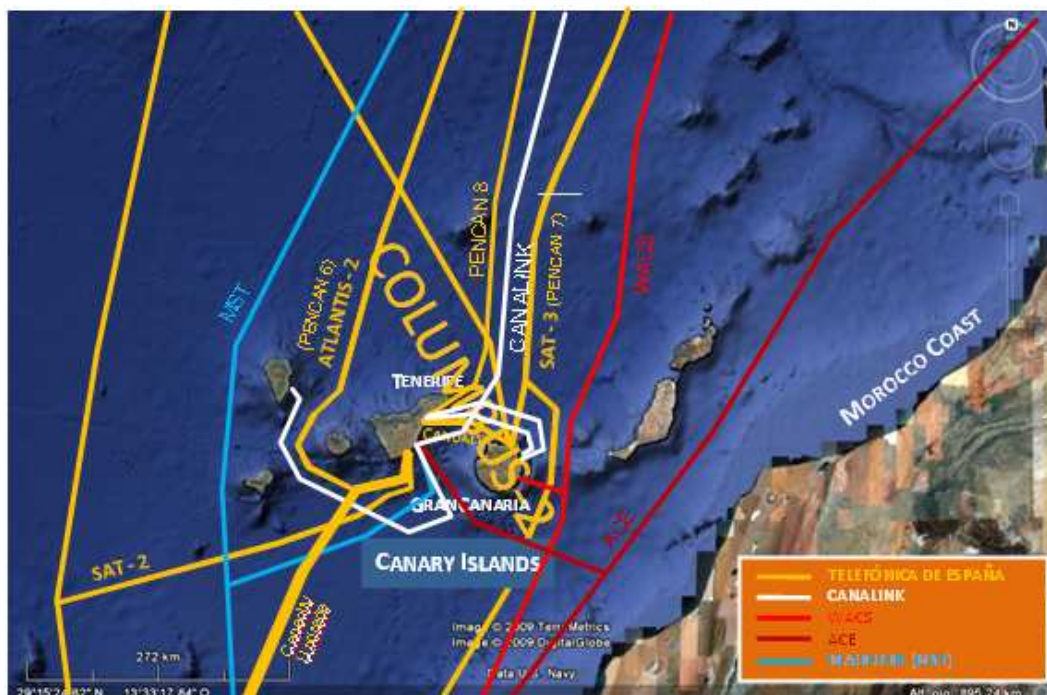
and America. Furthermore, at the 1st of March 2011, the start up of a new fibre-optic underwater cable, called Pencan 8, took place, which will increase the reliability and power of the existing cables with its capacity of 4,000 Gigabytes.

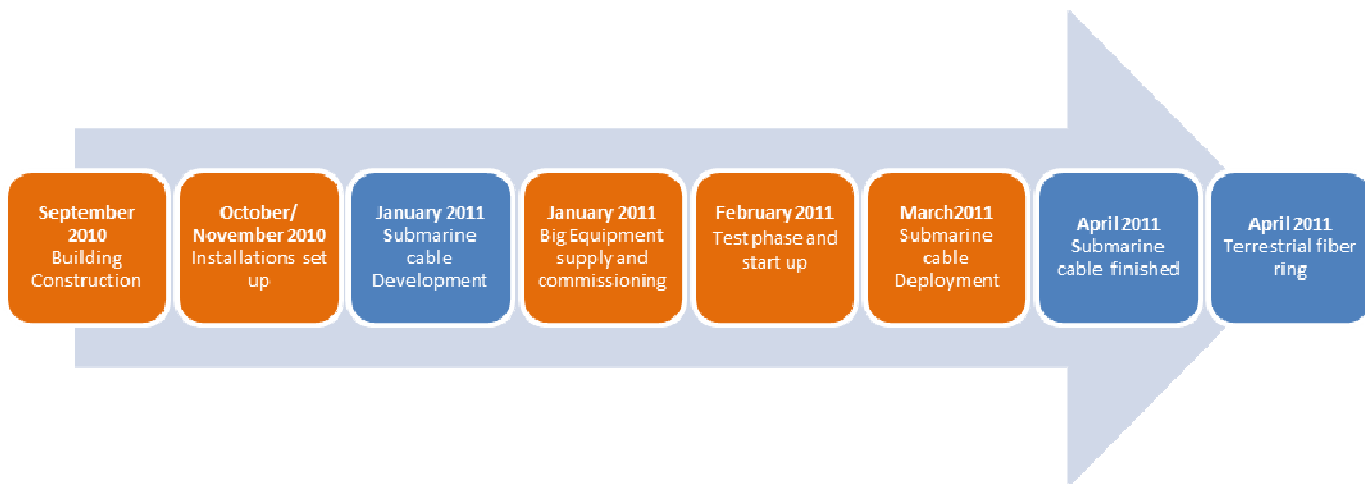
The underwater cable network will also give support to the NAPWACI (Network Access Point of Western Africa and the Canary Islands) Data Centre, an essential element of ALIX, which will be located in Granadilla de Abona (Tenerife), which will make the Canary Islands a reliable point of connectivity with great availability with West Africa. The planned infrastructure is of high quality and solidity in its network design, and responds to the technical needs and services demanded by telecommunications operators installed in the national territory and necessary in any case to effectively eliminate the digital divide which exists between the Canaries and the other European regions. In conclusion, the data centre D-ALiX, being the main part of the Alix project, offers a major opportunity for the ICT sector and brings together 1) submarine connectivity, 2) terrestrial fibre deployment, and 3) a world class data centre. D-ALiX offers neutral services to local and international companies with a high degree of reliability and technical guarantees, being built according to the existing quality norms.

ALiX Location



Submarine Connectivity



Timeline: ALiX

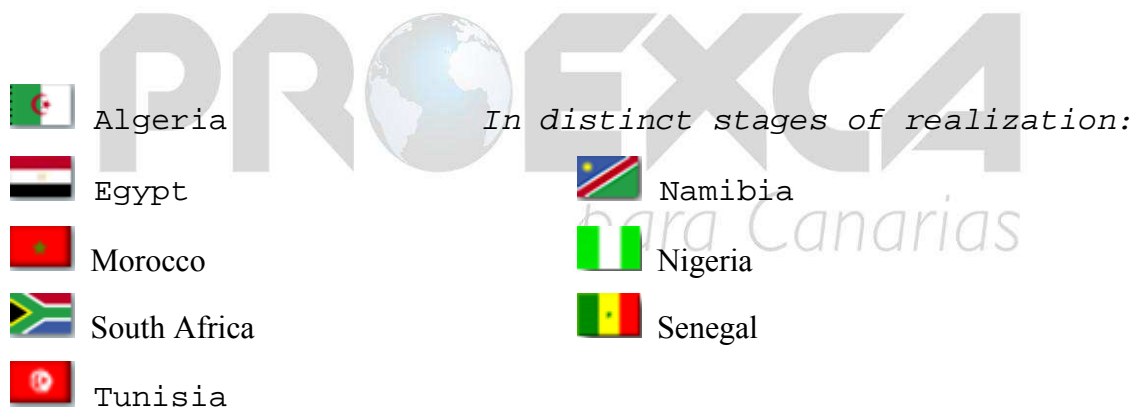
Furthermore, there are two ICT cluster in the Canary Islands. On the one hand, the *Canarias Excelencia Tecnológica* which is a cluster of ICT companies dedicated to the promotion and diffusion of the Information and Communications Technologies inside and outside the Canary Islands. The cluster enjoys close relationships to institutions, company associations, as well as investigation centres, not only regionally but also at a national and international level, always reaching for technological development via excellence and innovation.

On the other hand, the *ICT Cluster Insignia Empresarial*, which comprises 19 ICT companies, follows to implement the internationalization process of businesses identifying opportunities through plans and cooperation programs and development aid. On this line, they are working to look for business opportunities in West Africa. Also the cluster promotes partnerships between *Insignia Empresarial* memberships, other companies and external actors at regional, national and international level. According to this, recently the cluster has signed an agreement with the Tenerife Insular Council in order to

facilitate the allocation of their associates within the NAP infrastructure.

General Fiscal Advantages

The Canary Islands offer the most competitive legal fiscal regimen in Europe, including unbeatable tax advantages thanks to a Fiscal and Economic Regime (REF) that is totally differentiated and fully recognised by the European Commission which means that the Canary Islands are not a tax haven. What is more, the Islands benefit from all the double taxation treaties and agreements signed by Spain with several African states, including



MAIN FISCAL ADVANTAGES OF INVESTING IN THE CANARY ISLANDS

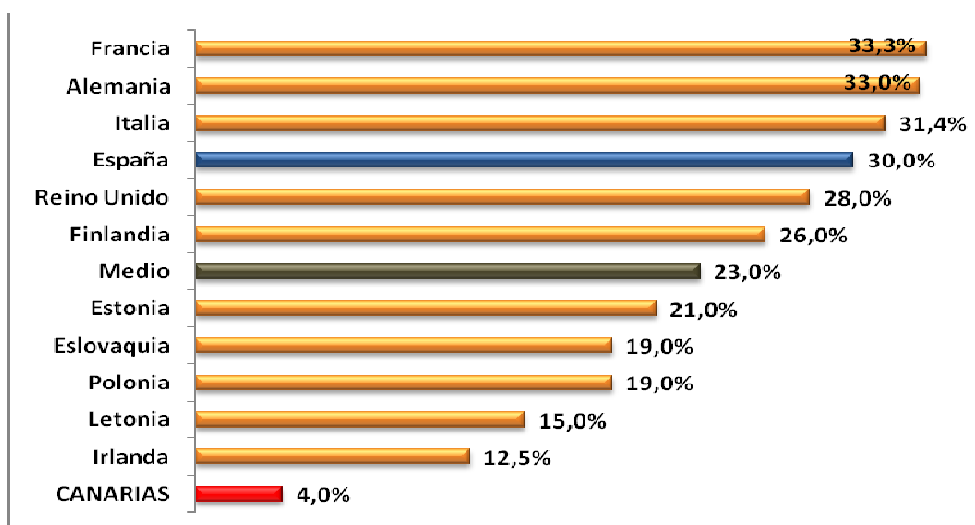
- ✓ The Fiscal and Economic Regime (REF) is an integral part of Spanish legislation and is fully authorised by the EU. The Canary Islands ARE NOT A TAX HAVEN. The legal framework of the Islands offers a total guarantee to your investment.
- ✓ The Reserve for Investments in the Canary Islands (RIC) permits a reduction of up to 90% in the non-distributed profits from the tax base of Corporation Tax.

- ✓ In the Canary Islands Special Zone (ZEC) tax is paid at a rate of 4% on Corporation Tax, against 30% under the General Regime.
- ✓ A reduced fiscal load: The general rate of Canarian VAT is (IGIC) 5%. Certain goods and services are exempt from this tax (telecommunications, investment goods...).
- ✓ Exemption from Capital Transfer Tax and Stamp Duty for the incorporation and capital increase and purchase of capital goods by the company.
- ✓ Up to 50% fiscal allowance for the profit obtained from the sale of the corporeal goods produced in the Canaries.
- ✓ Two tax-free zones from the total of five that exist in Spain. The companies installed in the Canarian tax-free areas can also take advantage of the full range of benefits offered by the REF.

7. THE CANARY ISLANDS

- ✓ Subsidies and grants of various kinds, which include the main economic sectors: Regional Economic Incentives, Plan for the Consolidation and Competitiveness of SMEs, subsidies for the incorporation of companies in the Islands, modernisation and trade, technological innovation and industrial development among others.
- ✓ Tax deductions for investments made in sectors of interest.

Tax Rates for Corporation Tax 2009



Source: PROEXCA

All in all, not only from an infrastructural but also from a fiscal point of view, the Canary Islands open up new international gateways to Africa and significantly facilitate the continents' connectivity as well as the access to new markets.



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Selected Markets

8. SELECTED MARKETS

Due to their geographic proximity, the long lasting relationship and cooperation with the Canary Islands as well as the obtained experience, the following five African telecommunication markets

will be regarded in more detail: Cape Verde, Ghana, Guinea, Mauritania and Senegal.

Republic of Cape Verde

General

Area	4.033 km ²
Population	499.796
Capital	Praia
Official Language	Portuguese
Time zone	GTM - 1
Currency	Cape Verdean escudo (1€ = 110,26 CVE)

Economy

GDP (ppp)	1.592, 33 million US\$
Primary sector	9,20%
Industry sector	16,50%
Service sector	74,30%
GDP growth	5,0%
GDP per capita	3192 \$
Inflation	4%
FDI	120 million US\$

TIC

Mobile phone penetration	70%; 349.473 lines
Fixed line penetration	14%; 71.000 lines ¹³ (monopoly: CVTelecom)
Internet penetration	29.5 %; 150,000 users ¹⁴
Principal operators	Cymovel (Cytelecom Group), T+
Trends and market niches	Software consumption & applications for mobile phones are nearly inexistent Mobile phone Internet service is very expensive Many "smart phone" users Roaming service is very important (tourists, emigration) but very expensive and little transparent ADSL increasing
Comments	Opportunities: new services and "bundling" of services, that is, the combination of various services

Republic of Ghana

General

Area	238.533 km ²
Population	24.339.838
Capital	Accra
Official Language	English
Time zone	GMT
Currency	CEDI (1 € = 1,92 cedis)

¹³ <http://externo.casafrica.es/aeo/PDF/Spanish/CaqboVerdeSP.pdf>

¹⁴ <http://www.internetworldstats.com/stats1.htm>

Economy

GDP (ppp)	16.653 million US\$
Primary sector	33,50%
Industry sector	25,30%
Service sector	41,20%
GDP growth	4,5%
GDP per capita	713 US \$
Inflation	19,60%
FDI	1.685 million US\$

TIC

Mobile phone penetration	16.651.168 million lines
Fixed line penetration	267.400 main lines in use
Internet penetration	1.297 million users
Principal operators	There are six large telecommunication companies: MTN (Mobile Telecommunications Network) VODAFONE GHANA TIGO ZAIN KASAPA TELECOM LTD GLO MOBILE GHANA LIMITED ¹⁵
Trends and market niches	Competition among multiple mobile-cellular providers has spurred growth with a subscribership of more than 60 per 100 persons and rising ¹⁶
Comments	It's a sub sector growing by trend and

¹⁵

http://www.proexca.es/Estudios_de_Mercado/Ghana/Informe_Telecomunicaciones_en_Ghana.pdf

¹⁶ <https://www.cia.gov/library/publications/the-world-factbook/geos/gh.html>

one of the sub sectors which lately has significantly contributed to a major increase of the Ghanaian economy.¹⁷

Ecuatorial Guinea

General

Area	28.051 km ²
Population	650.702
Capital	Malabo
Official Language	Spanish 67,6% (official), other 32,4% (includes French (official), Fang, Bubi)
Time zone	WAT (UTC+1)
Currency	Central African CFA franc (1€ = 655,957 CFA)

Economy¹⁸

GDP (ppp)	\$24,66 billion
Primary sector	2,2%
Industry sector	93,9%
Service sector	3,8%
GDP growth	2%
GDP per capita	\$37.900
Inflation	8.2%
FDI	\$1,636 billion

¹⁷ http://www.proexca.es/Estudios_de_Mercado/Ghana/Informe_Telecomunicaciones_en_Ghana.pdf

¹⁸ <https://www.cia.gov/library/publications/the-world-factbook/geos/ek.html>

TIC

Mobile phone penetration	360.000 líneas activas; cobertura: un 90% de la población
Fixed line penetration	13.000 líneas activas; cobertura: un 66% de la población
Internet penetration	14.400 users
Principal operators	Getesa-Orange (97% market share; offers mobile phone and fixed line services), Hits Telecom (3% market share; only offers mobile phone services)
Trends and market niches	The mobile phone market plays the biggest role while the fixed line network coverage is very limited (rather concentrated in Malabo and Bata. So far, Getesa is the only company providing fixed line services (although Hits received the license to implement a fixed line service, the company decided to focus on the development of the mobile phone services.
Comments	<p>Opportunities:</p> <ul style="list-style-type: none"> El sector de communication via radio Introduction of new internet networks/ systems (e.g. Wap, GPS) Applications and software for mobile phones Submarine cable <p>Entry barriers: lack of infrastructure & technicians; disorganized structure of the TIC sector; relatively small</p>

	market size; high taxes; various regulations
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Islamic Republic of Mauritania

General

Area	1.030.700 km ²
Population	3.129.000
Capital	Nuakchot
Official Language	Arabic
Time zone	GMT
Currency	(1 euro = 341,81 MRO)

Economy

GDP (ppp)	2.858,12 million US\$
Primary sector	12,54%
Industry sector	46,74%
Service sector	40,72%
GDP growth	4,6%
GDP per capita	\$975
Inflation	-2,56%
FDI	338 million US\$

TIC

Mobile phone penetration	2.182 million lines
Fixed line penetration	74,500 main lines in use
Internet	75,000 users

penetration	
Principal operators	Mauritel, the national telecommunications company, was privatized in 2001 but remains the monopoly provider of fixed-line services; fixed-line teledensity 2 per 100 persons; mobile-cellular network coverage extends mainly to urban areas with a teledensity of 70 per 100 persons; mostly cable and open-wire lines; a domestic satellite telecommunications system links Nouakchott with regional capitals ¹⁹
Trends and market niches	Limited system of cable and open-wire lines, minor microwave radio relay links, and radiotelephone communications stations; mobile-cellular services expanding rapidly ²⁰
Comments	Prepaid mobile phone services are popular because most people don't have bank accounts, and on the other hand because of the general nomadic culture. Mauritel Mobiles is appreciated because of its easy access to phone calls and cheap prepaid cards. The satellite network is insufficiently developed with the only operator being Mauritel.

¹⁹ <https://www.cia.gov/library/publications/the-world-factbook/geos/mr.html>

²⁰ <https://www.cia.gov/library/publications/the-world-factbook/geos/mr.html>

Republic of Senegal

General

Area	196.720 km ²
Population	12.530.000
Capital	Dakar
Official Language	French
Time zone	GMT
Currency	Franc CFA (1 € = 665,96 FCFA)

Economy

GDP (ppp)	13.273,42 million US\$
Primary sector	13,80%
Industry sector	23,30%
Service sector	62,90%
GDP growth	3,4%
GDP per capita	1.087 US\$
Inflation	1,10%
FDI	208 million US\$

TIC

Mobile phone penetration	6.902 million lines
Fixed line penetration	278,800 main lines in use
Internet penetration	1.818 million users
Principal operators	Two operators with global licences for the exploitation of the telecommunication network called SONATEL and SUDATEL, as well as a

	<p>third one called Sentel GSM with a licence for the exploitation of the mobile phone network.</p>
Trends and market niches	<p>Above-average urban system with a fiber-optic network; nearly two-thirds of all fixed-line connections are in Dakar where a call-center industry is emerging; expansion of fixed-line services in rural areas needed; mobile-cellular service is expanding rapidly.²¹</p>
Comments	<p>Sector TIC is increasing rapidly and an important source to create employment and added value. The mobile market is a significant engine of growth in Senegal.</p> <p>Opportunities:</p> <ul style="list-style-type: none"> Investment in internet and fixed line services Cyber cafés Other / new telecom services <p>→ the government offers fiscal and social help for the implementation of new companies in the TIC sector (including those companies with the ambition to export services)</p>

²¹ <https://www.cia.gov/library/publications/the-world-factbook/geos/sg.html>