The Telecoms Sector in Angola

The Road Ahead

A fast growing sector

Angola has been growing at an impressive pace in the last decade and telecommunications have been one of the sectors that benefited the most with the country's growth. The most visible face of this success is the mobile segment with more than 12 million customers in 2012, against just 140,000 ten years before. For the Angolan government the telecommunications sector is key for the country's growth, praised for its role in the socioeconomic development, and therefore should continue to be one of the authorities' key priorities in the coming years.

Weak fixed, strong mobile

While the mobile segment has been posting an impressive performance over the last years, the fixed line's performance has been roughly stagnant. A poor infrastructure, small network coverage and outdated services are the main reason behind the fixed line failure. Despite the authorities' efforts and commitment, the recovery of the fixed network will be a long process, leaving room for Internet Service Providers and mobile operators to continue growing.

Full commitment

In the "National Development Plan 2013-2017", the Angolan authorities define ambitious goals for the country and for the ICT sector, including investment projects that amount to US$ 1.6 billion for the sector. In the "Telecommunications Whitepaper", the Angolan authorities state their commitment with the sector, defining the strategy and guidelines to tackle its challenges. Additionally, Angola's ambition and commitment is made clear: become a leader and an ICT reference in Africa.

Time to act

The "Telecommunications Whitepaper" is an interesting document where most of the sector's challenges are correctly identified, but now it is time to act. Despite not being the most popular issue, we believe that regulation should be the first step. A strong and independent regulator is essential to provide the visibility and predictability necessary to attract investment. And all the remaining sector issues, like competition or network sharing for example, need a strong regulator entity that can define and supervise the compliance with its rules.

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EXECUTIVE SUMMARY

Over the past years Angola has become Sub-Saharan Africa's third largest economy and the telecommunications sector has been one of the rising stars in the country. The local authorities recognize the role of the Information and Communications Technology (ICT) sector for Angola's socioeconomic development and consider it crucial for its continuous development and growth. ICT played an important role to close the gap between urban centers and rural areas, to bring government services closer to the entire population and for international trade.

Authorities recognize the role of the ICT sector for Angola's development and growth

Like in most of its African peers, the mobile segment is the most popular way to be connected. In 2012, Angola had c. 12.5 million subscribers and recorded an impressive CAGR 2002-2012 of 56.7%. On the other hand, wireline services remain considerably underdeveloped and by 2012 there were no more than 169,905 connected lines, a penetration rate of just 0.89 lines per 100 inhabitants. However, the weak wireline creates an opportunity to other players besides mobile operators, like Internet Service Providers that through technologies like VSAT or WiMax position their products as substitutes of fixed broadband and voice.

In 2012 Angola had 12.5 million subscribers, a CAGR 2002-2012 of 56.7%

The underdevelopment of the fixed line network is mostly explained by years of civil war that have severely affected all Angolan infrastructures. Angolan authorities have made considerable investments in the fixed network, mainly in its backbone, but its geographic coverage remains weak to compete with the mobile network. Additionally, Angola Telecom, the incumbent operator, has been under a restructuring process and has not been able to fulfill the expectation that Angolan authorities had about the impact and return of those investments. To develop an adequate fixed infrastructure will take time and considerable investment.

The fixed network has been affected by years of civil war and to develop an adequate infrastructure will take time and considerable investment

The mobile market continues to grow quickly and we do not expect it to slow down in the short term. We believe the statistics are not showing us the whole picture about market penetration rate, because there is a considerable difference between the number of SIM cards and unique subscribers. And the mobile phone will continue to be Angolan's main way to be connected. The demand for broadband is also increasing and mobile broadband will be a major growth driver in the coming years. But the major challenge is to make both voice and broadband services affordable and available to everyone. This will probably require some changes in the competitive landscape. The mobile market is characterized by the dominance of Unitel, with around 72% market share, but further competition seems to be on its way. Representatives of Angolan authorities have made statements about the possibility of having new mobile licenses in the next couple of years. A new player, mainly if backed by high financial firepower, could boost market growth and, like it happened in other markets, drive prices down.

The mobile market should continue to grow at fast pace, supported by increasing penetration rate and mobile broadband popularity

The Pay-TV market has been disputed between Zap and DStv, both distributed by Direct to Home (DTH). In a market traditionally dominated by DStv, Zap has been able to change the game by assuring the exclusive rights of important sports content and producing local content especially for the Portuguese-speaking African countries, and is today the market leader in Angola. TV Cabo, the only Pay-TV operator with fixed infrastructure, has been able to stay away from competition given its focus 2-Play and 3-Play offers, but the scenario may change as rumors are that Zap might start deploying its own Fiber-to-the-Home (FTTH) network.

The Pay-TV market is disputed between Zap and DStv, distributed through DTH, but Zap might start deploying its FTTH network

Despite the fast dynamic of the Angolan market there is still a lot to do. The biggest challenge is, in our opinion, regulation, and it should be the starting point. Angolan authorities have expressed their commitment with the sector's development, defined ambitious goals and the guidelines for the sector, but now is time to act. Regulation touches every other challenge that the sector faces: increase affordability, competition, attract investment, infrastructure legislation, digital dividend and so on. The visibility and predictability needed to attract investment can only be provided by a strong regulatory authority, and topics like infrastructure legislation are crucial to accelerate network expansion and to avoid wasting money.

Angolan authorities have defined ambitious goals for the sector, but now is time to act and regulation should be the starting point

We believe that the road ahead will be characterized by corporate action, like M&A, given the obvious complementarity between some of the players, not to mention shareholding relationships. As the sector evolves and the convergence trend begins to take shape, we think that the current shareholding relationships will be further explored to avoid duplicating investments, to gain time and to take advantage of possible synergies.

Complementarity between players could lead to some M&A activity

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ANGOLAN TELECOMMUNICATIONS SECTOR

The Angolan telecommunications sector has been growing at an impressive pace over the last 10 years, benefiting from the success of the mobile sector and the increasing popularity of broadband. On the other hand, wireline accesses have been presenting a stagnant performance, while Pay-TV operators praise the evolution of its Key Performance Indicators (KPI). The Angolan telecommunications sector is currently composed of three fixed operators, two mobile operators and three Pay-TV operators.

The mobile sector has been growing fast, while wireline registered a stagnant performance

TELECOMMUNICATION MAIN INDICATORS	Angola	Botswana	Mozambique	Namibia	South Africa	Tanzania	Zambia	Zimbabwe
Telephone								
Fixed telephone lines	552,870	160,488	88,140	171,249	4,031,000	176,367	82,542	301,650
Fixed telephone lines (per 100 people)	2.88	8.01	0.35	7.58	7.69	0.37	0.59	2.20
Mobile phones	12,465,078	3,081,726	9,133,480	2,146,833	68,394,000	27,219,283	10,524,676	12,613,935
Mobile cellular subscriptions (per 100 people)	64.98	153.79	36.24	95.02	130.56	56.96	74.78	91.91
Internet								
Internet users (per 100 people)	11.57	11.50	4.85	12.94	41.00	3.95	13.47	17.09
Fixed broadband subscribers	31,300	18,838	20,484	26,598	1,107,200	3,900	14,794	71,445
Fixed broadband subscribers (per 100 people)	0.15	0.94	0.08	1.18	2.11	0.01	0.11	0.52
Secure Internet servers	72	23	38	45	4,287	36	33	41
Secure Internet servers (per 1 million people)	3.46	11.48	1.51	19.92	82.01	0.75	2.34	2.99

Source: World Bank, Angolan Authorities and Eaglestone Securities.

According to the Angolan authorities there were 2.88 fixed lines and 64.98 mobile accesses per 100 inhabitants in 2012. Despite the low penetration of fixed broadband, just 0.15 accesses per 100 inhabitants, around 11.6% of the Angolan population already uses Internet on a regular basis.

Like in most of its African peers, the mobile segment benefits from the lack of affordability and coverage of the fixed network across the country. Even though by 1975 Angola had one of the best telecommunications networks in Africa, 30 years of civil war took their toll on the country's infrastructure. To reconstruct and modernize a fixed network is complex and requires considerable investments, thus creating a very favorable environment for mobile operators to step in.

Mobile segment benefits from the lack of affordability and coverage of the fixed network

In 2006 the Angolan government published for the first time the "Telecommunications Whitepaper" where it acknowledged the importance of the sector to support Angola's growth and development. This document stated the guidelines for the sector, its main challenges and how they should be tackled. In addition to this, in the "National Development Plan 2013-2017" Angolan authorities expect the number of fixed accesses and internet users to more than double until 2017.

Angolan National Development Plan 2013-2017 expects fixed accesses and internet users to more than double

Sub-Saharan Africa has been targeted by the ICT industry as one of the most appealing geographies in the world due to its demographic characteristics and, in particular, Angola seems to be one of the most attractive markets in Africa. With a fast growing economy and ICT seen as fundamental for the country's development, Angola arises as the land of opportunities for all the ICT ecosystem, from equipment vendors to application developers, not forgetting operators and, of course, end users.

Angola arises as the land of opportunities for all the ICT ecosystem

Even though opportunities exist, considerable challenges lie ahead. Improving the existing infrastructure and coverage requires substantial investments, while service affordability also needs to increase, which will probably require a higher degree of market liberalization and competition. But for all this to happen a favorable regulatory environment must be in place in order to assure transparency and visibility about return on investment. In addition to this, the right level of competition must be found.
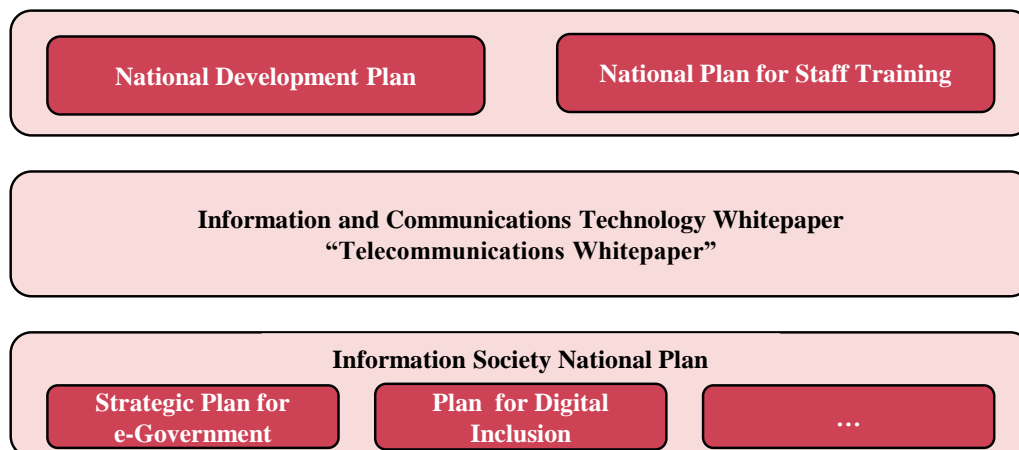
Considerable challenges lie ahead, like improving existing infrastructure, coverage and increase service affordability

The highest authority regarding ICT in Angola is the Ministry of Telecommunications and Information Technology, who is responsible for overall sector oversight. The Angolan Institute of Communications (INACOM), created in 1999, regulates and supervises the telecommunications sector in Angola.

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ANGOLAN POLICIES FOR ICT

Regarding Angolan policies for ICT there are two documents that are especially relevant: (i) the Telecommunications Whitepaper; and (ii) the Information Society National Plan. These documents define the guidelines to achieve the goals set in the "National Development Plan 2013-2017", which is part of the authorities' long-run development strategy "Angola 2025".

GUIDING DOCUMENTS FOR ICT BY SCOPE

| National Development Plan | National Plan for Staff Training |

Information and Communications Technology Whitepaper
"Telecommunications Whitepaper"

Information Society National Plan

| Strategic Plan for e-Government | Plan for Digital Inclusion | … |

Source: Angolan authorities (Information Society National Plan 2013-2017).

The "National Development Plan 2013-2017" defines the goals for the ICT sector, including priorities, medium-term goals for a set of indicators and the political measures that should be taken in order to successfully achieve those goals. It identifies the existence of 8 projects within ICT, implying a total investment of AOA 156 billion (US$ 1.6 billion). These projects aim to develop Next Generation Networks (NGN) throughout the country, universal access to telephony services, internet and digital broadcasting.

"National Development Plan 2013-2017" identifies 8 investment projects in ICT amounting to US$ 1.6 billion

INDICATORS	2012	2013	2014	2015	2016	2017
Fixed lines installed	552,870	562,870	571,313	579,883	588,581	597,450
Fixed lines connected	169,905	303,791	328,094	354,342	382,342	413,304
Fixed penetration rate (per 100 people)	0.89	1.54	1.61	1.69	1.77	1.86
Mobile subscribers	12,465,078	12,963,681	13,430,374	13,873,374	14,324,467	14,761,525
Mobile penetration rate (per 100 people)	64.98	65.61	65.99	66.18	66.35	66.41
Internet subscribers	2,220,000	2,700,000	3,240,000	3,888,000	4,665,600	5,598,720
Digital penetration rate (per 100 people)	11.57	13.66	15.92	18.55	21.61	25.18

Source: Angolan Authorities (National Development Plan 2013-2017).

The political measures that should be implemented in order to achieve the goals of the National Development Plan are divided into three programs: (i) Human resources' training; (ii) Reinforcement of the organizational structure of the State; and (iii) Contribution to the National Plan of Science, Technology and Innovation.

TELECOMMUNICATIONS WHITE PAPER

The Telecommunications White Paper defines the guidelines for the development of the ICT sector in Angola, reflecting the political strategy of the government. In this document the government recognizes that ICT played a crucial role in the performance of Angola's development indicators during the past decade and its importance to: (i) social development; (ii) fight poverty and social exclusion; and (iii) the modernization and progress of Angola.

Telecommunications White Paper defines the guidelines for the development of the ICT sector in Angola

According to the document the ICT development comprehends three stages:

  (i) **Reform:** Mostly related with infrastructure reconstruction and defining a strategy for ICT development;

  (ii) **Development:** Focused on the development of NGN, universal access and digital broadcasting. Increasing competition and market liberalization are also deemed as fundamental, as well as the development of other basic infrastructures like electricity, road and rail network together with ICT;

  (iii) **Leadership:** Consolidation of the investments done in the previous stages, by developing new services and functionalities. Angola aims to be leader and a reference in terms of ICT in Africa.

The first stage, from 2001 to 2010, focused on the deployment of a telecommunications network (through fiber, satellite and radio waves) to connect the country, mainly all provincial capitals. Total investments on this stage amounted to $US 1.2 billion.

The second stage aims to generalize the population's access to telecommunications, ICT services and expand the network's coverage to all municipalities. This stage, which began in 2011 and is expected to end by 2015, will imply a total investment of around US$ 1.9 billion. The current version of the Telecommunications Whitepaper, published in 2011, is focused on the development stage. By 2014, a new version should be published addressing the third and last stage of the ICT development.
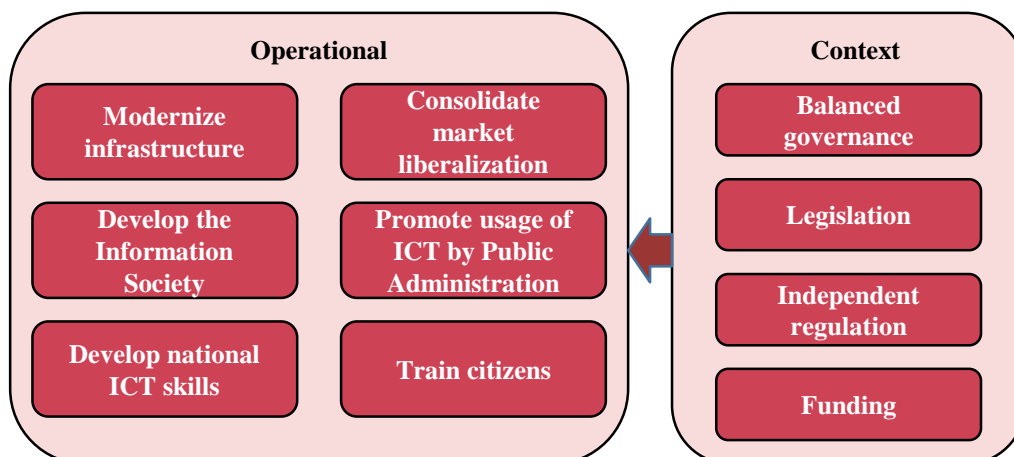
Between 2011 and 2015 Authorities expect to invest US$ 1.9 billion in the ICT sector

According to the Telecommunications White Paper, Angolan authorities have 13 political and operational goals for ICT:

  (i) Assure the existence of an infrastructure of excellence;
  (ii) Universal access to all population;
  (iii) Develop the basic network so that every municipality will have access to NGN;
  (iv) Train citizens with necessary skills to fully benefit from ICT;
  (v) Modernize public administration;
  (vi) Consolidate the liberalization of all market segments;
  (vii) Balance the weight of the State in the ICT sector;
  (viii) Create incentives for private entities to enter in the ICT sector;
  (ix) Build an ICT cluster;
  (x) Create a legislative framework favorable to overcome new challenges;
  (xi) Assure the necessary financing conditions to new projects;
  (xii) Reinforce citizen participation in Angola's political, social and economic development;
  (xiii) Affirming Angola in the world.

The government defined a set of lines of action, split between context and operational, where it will act to achieve its goals.

DEVELOPMENT LINES OF ACTION

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┌──────────────────────────────────────┐     ┌─────────────────────────────┐
│            Operational                 │     │          Context             │
│  ┌──────────────┐ ┌──────────────┐    │     │  ┌───────────────────────┐  │
│  │  Modernize   │ │ Consolidate  │    │     │  │     Balanced          │  │
│  │infrastructure│ │   market     │    │     │  │    governance         │  │
│  │              │ │liberalization│    │     │  └───────────────────────┘  │
│  └──────────────┘ └──────────────┘    │     │  ┌───────────────────────┐  │
│  ┌──────────────┐ ┌──────────────┐    │◄────│  │    Legislation        │  │
│  │ Develop the  │ │ Promote usage│    │     │  └───────────────────────┘  │
│  │ Information   │ │ of ICT by    │    │     │  ┌───────────────────────┐  │
│  │  Society     │ │   Public     │    │     │  │    Independent        │  │
│  │              │ │Administration│    │     │  │    regulation         │  │
│  └──────────────┘ └──────────────┘    │     │  └───────────────────────┘  │
│  ┌──────────────┐ ┌──────────────┐    │     │  ┌───────────────────────┐  │
│  │Develop national│ │             │    │     │  │     Funding           │  │
│  │  ICT skills  │ │ Train citizens│   │     │  └───────────────────────┘  │
│  └──────────────┘ └──────────────┘    │     │                             │
└──────────────────────────────────────┘     └─────────────────────────────┘
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Source: Angolan authorities (Telecommunications White Paper).

The government believes that it should start to rebalance its role in the ICT sector by gradually reducing its role as an economic agent, and focusing in promoting the development of the sector. Furthermore, the roles and competences of the Ministry of Telecommunications and Information Technologies and of the National Regulatory Authority (NRA) should be well defined, with clear boundaries, to avoid overlapping and to assure the independence of the NRA.

Government wants to reduce its role as an economic agent

Legislation must be updated not only to take into account the reality of ICT nowadays, but also to promote the continuous development of the sector. The new legislative framework should promote the integration of ICT in the remaining infrastructures, infrastructure sharing (ducts, towers, etc), NGN, and eliminate any double-taxation issue that could disincentive investments in the sector.

Legislation must be adopted o reflect sector's reality and promote its development

Legislation regarding the country's basic network should also be less restrictive in order to allow its usage by other economic agents at equivalent economic and technical conditions, interconnecting all operators. The objective is to coordinate the investments in the national, metropolitan and international access networks to ramp up network development and coverage.

The NRA should have the necessary means and powers to supervise the market and ensure that its decisions and all regulations are met. The NRA will have power over operators' prices to assure that no operator takes advantage of dominant positions, adopts anti competition behaviors and does not discriminate users. The NRA should also set interconnection prices and minimum levels of Quality of Service (QoS), taking into account the development stage of the market.

Regulator should have the means and powers to supervise the market

Due to ICT importance for Angola, the government shall continue to invest in the sector and will also create mechanisms to attract private investment. The creation of tax benefits to consumers, mainly for low income population, to acquire equipment and even for tariffs will be studied by the government. The fund for the telecommunications' development, in which every operator has to contribute with a percentage of its revenues, will also be used to promote the deployment of networks in rural areas.

Government will continue to invest in the sector and attract private investment

Universal Access in Angola shall be pursued mainly through mobile telephony, due to the country's geographic and socioeconomic characteristics. The short-term objective is to have coverage in all municipalities' centers and a national penetration of at least 75% by 2015. Regarding Internet, the short-term objective is to connect all municipalities' centers, high schools, universities and hospitals until 2015. Imposition of coverage obligation to the country's main operators will also be considered, which may be compensated through the fund for telecommunications' development.

Universal Access through mobile telephony and coverage obligations might be considered

To increase market liberalization the government believes that further competition is necessary as well as a stronger incumbent operator. The document gives the current situation of the mobile market as an example of the need of more competition. The current Herfindahl-Hirschman Index (HHI) of the mobile market stands at 0.56, while the authorities' objective is to have a HHI below 0.4, thus recognizing the need to license a third operator for the mobile market.

Telecommunications Whitepaper recognizes the need to license a third mobile operator

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To promote competition the incumbent shall start to provide its services to other operators (mainly access to the country's basic network) and roaming between networks will be allowed in areas where one of the networks has poor coverage.

The licensing process will be simplified and convergent licensing will be favored, taking into account the new NGN reality and the government is also receptive to licensing Mobile Virtual Network Operators (MVNOs).

Government is receptive to MVNOs

The restructuring of the incumbent operator, Angola Telecom, is considered fundamental to grant the return and alignment with the government's investment and strategy, mainly to start providing services to other operators. Profits should primarily be reinvested in the expansion and modernization of its infrastructures. Reflecting the authorities' vision of the sector, the incumbent operator's license shall allow it to operate across all segments in the same conditions as its competitors.

Restructuring of the incumbent operator is a priority and its profits should be reinvested in the expansion of is infrastructures

Taking into account the intention to increase market liberalization, the incumbent operator will, at the right time, become a public limited-liability company. For now the government believes that it still has to hold a majority stake in the incumbent, since the market is still not mature enough. However, the government accepts that private investors may hold minority stakes if that benefits the incumbent's management practices.

Government accepts that private investors may hold minority stakes in the incumbent

With the goal of being a reference in Africa in terms of ICT usage the government will: (i) develop ICT training programs for Angolan citizens; and (ii) provide training to all civil servants. The government will also modernize the Public Administration's systems and networks and promote e-government services and population interaction with these services.

The government is aware that to support Angola's growth it is of key importance to attract players of the ICT industry, so that they develop new services, foster innovation and entrepreneurship. With this purpose, a technological cluster shall be developed and the Angolan government will create incentives to companies that invest and bring know-how to Angola.

Government wants to attract players of the ICT industry

INFORMATION SOCIETY NATIONAL PLAN 2013-2017

In this document, Angolan authorities recognize the strong evolution of the ICT sector since its last version in 2005, although significant weaknesses remain, mainly in terms of infrastructure, human resources, services and contents. The Information Society National Plan stresses the need to address those weaknesses given the ICT's importance for the country's growth and development. To highlight the importance of ITC, the document quotes the World Bank: "for each extra 10 percentage points of internet and broadband penetration rate, the economy grows an extra 0.77 pp and 1.3 pp, respectively".

Information Society National Plan highlights the importance of ICT of country's development

After the significant investments made in infrastructures, it is now necessary to make the benefits arising from those investments available to the disadvantageous population. Supported by ICT, there is the need to develop the Angolan economy through new services, skills, access to information and knowledge.

To achieve its goals, four critical factors are identified:

  (i)   Political sponsorship;
  (ii) Attracting investment and financing;
  (iii) Alignment between the political objectives and execution capacity; and
  (iv) Communication and mobilization to the ICT.

SECTOR DESCRIPTION

WIRELINE

The wireline segment in Angola is the one where most action is required and also the one where it seems more difficult to act. Years of civil war have severely affected Angolan infrastructures and although considerable investments have been made to reconstruct the country's fixed network, its geographic coverage remains weak to be considered an alternative and to compete with mobile operators.

Fixed network coverage is weak due to years of civil war

According to the Angolan National Development Plan, between 2009 and 2012 the number of installed lined has increased 22.2% per year, to 553,000 lines, and the number of connected lines increased 8.1%, to 169,905 or a penetration rate of just 0.89. Angolan authorities aim to have 413,000 connected lines by 2017 and a penetration rate of 1.86, which means a CAGR 2012-2017 of 19.5%.

In 2012 there were 170,000 connected lines

INSTALLED AND CONNECTED LINES IN ANGOLA
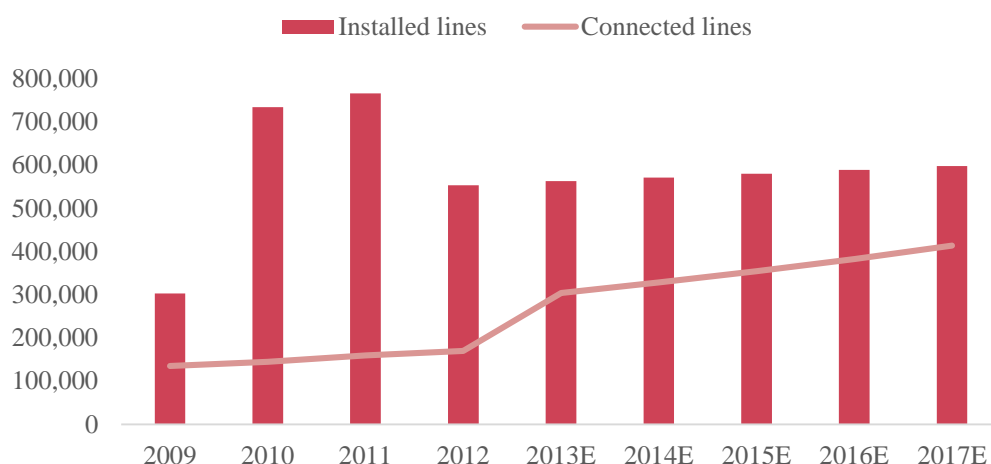
Source: Angolan authorities (National Development Plan).

The wireline segment in Angola has 3 players: (i) Angola Telecom; (ii) MSTelcom; and (iii) Startel.

First, Angola Telecom is the incumbent operator, 100% owned by the Angolan State, and is the vehicle used by the government to make investments in the fixed network infrastructure. Angola Telecom has the biggest fiber backbone and the network with largest capillarity in Angola. However, its infrastructure has been severely affected by technical problems due to the lack of adequate auxiliary infrastructures, qualified resources, very slow and bureaucratic processes and poor bookkeeping.

Angola Telecom, the incumbent operator, is the vehicle used for investments in the fixed network

Angola Telecom has been under restructuring process in the past years, with collaboration of Dtcom GMBH. In this context, it expects to complete the operational turnaround in the coming years and return to profits by 2015, for the first time in eight years. In a first stage, the restructuring process has been focused on adapting and improving its internal processes, recruitment and training.

After dealing with its internal problems the company should start focusing more on operations and in recovering the lost time. Despite the lack of information about Angola Telecom's strategy, we believe the company will have to start a selective roll-out of FTTH and upgrade of the old copper network to improve its products to be able to compete with mobile and data operators. It is also known, through Mr. James Wilde (Angola Telecom's Chief Strategy Officer) in a February 17 interview, that the company wants to assure a mobile license and that it needs "a mobile license to survive". We believe that assuring a mobile license is a logical move and would make the company stronger by using the mobile operation to complement the fixed offer and offset its low geographic coverage.

Angola Telecom should start to upgrade its network and having a mobile license is seen as fundamental

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As part of the restructuring process, and in line with the Telecommunications White Paper, we believe that a strategic partner from the telecommunication industry could be an interesting option, bringing fresh capital and know-how to the company.

Second, MSTelcom, former Mercury Telecom, started to operate in 1996 as telecommunications provider for its parent company, Sonangol. In 1999 the company started operating as an Internet Service Provider (ISP), and in 2003 INACOM licensed MSTelcom as fixed telecommunications provider. MSTelcom has also been growing through acquisitions. It acquired Nexus in 2005 and ACS in 2006, and it holds 51% of NetOne. MSTelcom operates through VSAT, microwaves, ADSL and FTTx. In 2011, MSTelcom recorded a net income of US$ 155 million.

Third, Startel is a fixed telecommunications provider launched in 2009, mainly focused on the corporate segment, operating through WiMAX, microwaves, VSAT and FTTH (delivered through other operators' infrastructures).

Wireline services are concentrated in the most populated urban areas and there is still a long way to go until these services are available nationwide. In fact, there are two challenges for the development of an adequate wireline offer: (i) the investment needed; and (ii) the technology leapfrogging.

Wireline services concentrated in urban centers

In terms of investments, we believe that in the short term they should focus more on the political and economic centers of Angola, targeting the enterprise and corporate segments, as it is fundamental to have a stable and powerful telecommunications network that supports the economic development of the country. In the medium term, operators should leverage their expansion on the network already deployed and start to address more carefully the residential and retail segments, taking advantage of economies of scale to increase network capillarity. Only in the very long term it is realistic to think about nationwide coverage. Meanwhile, mobile technology should be used to assure population connectivity in rural areas.

Investments will focus on political and economic centers, only in the long term the fixed line might have nationwide coverage

The second challenge is related with the weak fixed infrastructure, demand for state-of-the-art technology and competition from modern mobile operators. Technology leapfrogging refers to the adoption of modern technologies without adoption of prior or intermediate technologies, providing the opportunity to achieve economic growth through advanced and less costly technologies. However, it also poses considerable risks. In particular, bad implementation of modern technologies, which implies major breakthroughs, is likely to end up as an expensive failure with very high payback periods if its deployment is not carefully planned and evaluated. As it is harder to assess the demand for these new technologies, operators also tend to postpone investments.

As the Angolan economy grows, the demand for more modern infrastructures will increase, boosted by consumers' higher disposable income and by the enterprise and corporate segments, who will demand the most modern and developed technological solutions. At the end of the day, and taking into account the modern mobile networks, it is our opinion that technology leapfrogging is necessary because intermediate technologies would have very complicated and fragile business cases since their adoption would probably be very weak. Having said that, the challenge will be to make those modern networks and technologies available for everyone in the long term. The Angolan authorities' role and stance will be crucial to achieve that goal.

Demand for modern infrastructures will increase, boosted by the country's economic growth, making technology leapfrogging necessary

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INTERNET SERVICE PROVIDERS

While traditional fixed operators struggle to develop their business and increase their footprint, Internet Service Providers (ISPs), or data operators, find very favorable conditions in countries like Angola. ISPs take advantage of wireless technologies like WiMax, VSAT or LTE and they are seen as natural substitutes of fixed broadband in areas outside fixed operators' coverage.

Weak fixed operators create favorable conditions to ISPs

With the success and increasing popularity of over-the-top (OTT) applications the opportunity for data providers becomes even bigger, having the chance to be almost perfect substitutes of wireline operators by offering the same services. Examples of OTT successful applications goes from Voice over IP (VoIP) applications like Skype to simple messaging applications like WhatsApp or Viber and not forgetting the innumerous open source applications available. The future seems to be all about OTT applications such that data providers become able to offer the same services that a traditional fixed line provides.

OTT applications allow data providers to offer the same services as fixed line operators

In this context, it should be no surprise that data providers in Angola appear to be successful business cases, and are so optimistic about the future. The most prominent example is Net One, which seems to enjoy a considerable brand awareness and is one of the most popular providers of broadband in Angola. Other data providers exist in Angola, like Multitel, but do not seem to focus on the residential segment like Net One.

NetOne is the most prominent example of success with considerable brand awareness

Despite the successful momentum that these operators are living, we see some threats over their business cases. Even though WiMax is almost a perfect substitute of wireline accesses, mainly in countries where the telecommunications infrastructure is underdeveloped, the threat comes from the mobile players and the LTE technology.

Mobile operators using LTE seem a threat to data operators using WiMax

Even with the earlier appearance of WiMax, original WiMax (802.16a) specifications were approved in 2003 and mobility factor (802.16e) came in 2006, and powerful backers like Intel, the future of this technology now seems very uncertain as it failed to capitalize its advantages over LTE. On the other hand, LTE standard was only finalized in December 2008, but benefited from the view of being the natural evolution of previous mobile technologies due to easier spectrum re-farming potential and upgrade.

Nevertheless, probably one of the most important aspects for the success of LTE was its adoption by Verizon Wireless. Clearwire was the first operator to deploy WiMax, joined by Sprint in 2007, but the deployment was done very slowly and its coverage was relatively poor. Verizon Wireless was, at the same time, facing speed issues with its 3G network, when it decided to embrace LTE and to make a massive rollout and 16 months after its launch, in December 2010, two thirds of the American population were already covered by Verizon Wireless' LTE network. Together with these events most of the wireless industry big names (AT&T, Vodafone, T-Mobile, among others) endorsed LTE, providing important economies of scale for LTE and ruining them for WiMax. Given this, most smartphone equipment manufacturers have chosen to adopt LTE and Sprint announced there won't be any new WiMax build-out or phone releases and it already started deploying LTE. Today it seems clear that the world is heading towards LTE, which is expected to grow fast while WiMax should grow marginally and almost exclusively in developing markets.

LTE was the technology adopted by industry big names and the world is heading towards LTE, while WiMax should grow marginally

Operators like Net One or Multitel, using WiMax, now have to choose if they want to stick with the current technology or embrace LTE. WiMax already supports additional broadband wireless technologies, making a gradual migration to LTE easier. This may have advantages from the CAPEX standpoint, but we believe these operators will prefer to totally migrate to LTE, without further investments in WiMax. Switching to LTE also means to gain access to a wider array of terminals, including the most popular like the iPhone or the iPad, having the possibility to provide voice without dependence of OTT applications and to operate in lower bands that have larger coverage radius.

Nevertheless, even if these operators decide to switch to LTE, we believe that they should keep their focus in being an alternative to the traditional fixed infrastructure and stay away from the mobile business. By focusing in this specific segment, they can develop their network and products in a way that they will have a competitive advantage to users that specifically want fixed broadband and voice services. Otherwise, these operators would have to carry on massive investments to have a good geographic coverage and they would enter in open war with mobile operators, mainly Unitel that has a much bigger network and higher financial firepower.

Data operators should focus on being an alternative to fixed players, avoiding a war with mobile operators

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All in all, we believe data operators have room to continue developing their business cases in Angola, because there is a growing demand for connectivity and services that the fixed infrastructure is not able to supply and it will take years before it will be able to do so. By placing themselves as a substitute to the fixed network, they are able to stay under the radar of mobile operators and avoid an open war between them. However, it would be interesting to understand the long term expectations of these operators. In some years, fixed line operators should have much higher coverage and should try to reconquer this market, while mobile operators should start to focus more on data as voice services enter in their maturity stage. By then, a data operator alone will seem a weaker player and, we believe, their place should be together with a fixed or mobile operator, since there is an interesting complementarity potential.

Data operators should continue to grow, but their room may start to get smaller as fixed operators evolve and mobile operators start to look at data

MOBILE

The mobile market has been the main growth driver of the telecommunication sector in Angola for the last decade. From just 140,000 subscribers in 2002, it increased to 12.5 million in 2012, an impressive CAGR 2002-2012 of 56.7%. The mobile sector has been able to take advantage of the weak wireline infrastructure and the relatively lower investments needed to expand its coverage and offer modern services and features.

As the market gets more mature, growth has slowed down over the past years, but we believe that it will take some time before it starts to stabilize. We think that the mobile penetration rate in Angola does not show us the whole picture and the market should keep growing fast in the coming years. In addition, several opportunities, related with data and mobile broadband, lie ahead that should boost Angola mobile market growth.

The Angolan mobile market is disputed by two operators: Movicel and Unitel.

Movicel was created in 2003 as a subsidiary of Angola Telecom, the incumbent operator. It started operating with Code Division Multiple Access (CDMA) technology, which to some extent can explain its poor market performance, given that GSM has been widely adopted by mobile operators and equipment vendors and became the worldwide industry standard. This meant more expensive equipment for Movicel and its customers, as well as disadvantages for its customers that wanted to travel abroad. During July 2009 the company was privatized by US$ 200 million. Current shareholder structure is composed by: Portmill Investimentos (40%), Modus Comunicare (19%), IPAN (19%), Lambda (6%), Novatel (4%) and the Angolan State, through Angola Telecom and ENCTA, kept a 20% stake. In November 2010 Movicel started the transition to GSM/UMTS and by April 2012 it became the first operator to launch 4G in Angola.

Unitel was founded in 1998 and started operating, through GSM, in 2001. After one year in the market it was already market leader. Unitel is owned by Mercury (a subsidiary of Sonangol), Africatel (75% owned by Portugal Telecom and 25% by Helius), Geni and Vidatel, each holding a 25% stake.

ANGOLAN MOBILE SUBSCRIBERS (MILLION)
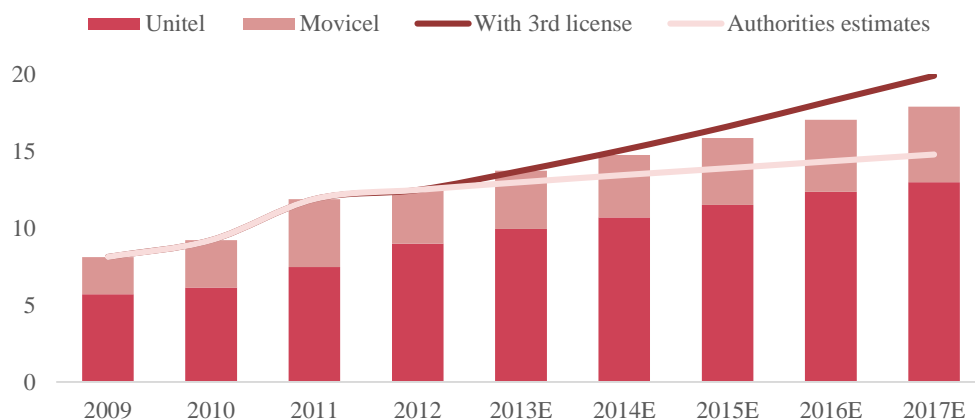
Source: Angolan authorities (National Development Plan) and Eaglestone Securities.

Unitel has been dominating the Angolan market since 2002, and it ended 2012 with a market share of around 72%. We believe that the current situation will continue roughly unchanged in the coming years, unless the competitive landscape changes. In the "National Development Plan 2012-2017" Angolan authorities expect the growth pace to slow down and stabilize between 3% and 4% per year for the coming years. However, looking at Angola's characteristics and economic prospects we believe that the authorities' figures stand on the conservative side. According to our estimates Angola could reach 17.9 million mobile subscribers in 2017E, against authorities' expectations of 14.7 million.

Our more optimistic view about the Angolan mobile market is explained by the strong growth of the last couple of years and mainly because we believe that the Angolan market has underperformed against its peers if we compare the GDP per capita against mobile penetration rate.

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The Angolan market should continue to grow at a fast pace, around 7.5% in the coming years, and close the gap between its mobile penetration rate and the trend line of its peers group. According to our estimates, in 2017E, Angola should have a mobile penetration rate of 81. If we take into account that IMF expects GDP per Capita PPP to stand at c. US$ 7,242 in 2017E, Angola's mobile penetration rate will continue below today's trend line, meaning that our estimate might still be a bit conservative.

If Angolan authorities allow a third mobile operator, market growth would accelerate in the coming years to c. 10.0%. A third mobile operator would push competition, making mobile services more affordable, boosting the mobile penetration rate. We believe that if a third operator enters the market during 2014, Angola could reach 19.9 million mobile subscribers by 2017E, implying a penetration rate of 90.

A third operator would accelerate market growth that could reach 19.9 million subscribers by 2017

MOBILE PENETRATION RATE AND GDP PER CAPITA PPP
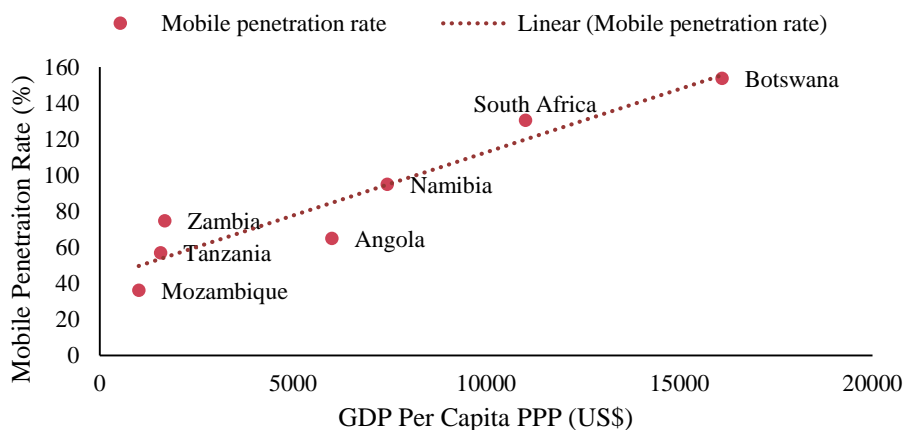
Source: World Bank and Eaglestone Securities.

In Angola, like in most of its peer countries, the poor infrastructure of the wireline is the greatest reason behind the mobile sector's success. Despite the government's efforts and considerable investments in the country's fixed telecommunication network, mainly after the civil war, the lack of coverage and poor reliability remains a problem in numerous regions.

The relatively lower investment needed to deploy a mobile network, as well as the lower costs and the fact that terminal equipment is bought by the customer, made the mobile network a good substitute of the fixed network and allowed it to grow quickly. Even issues related with the lack of adequate electricity supply, vandalism and theft of the deployed infrastructure are easier to mitigate for a mobile operator than for a fixed operator.

Despite the already relatively high subscriber base of 12.2 million connections, which implies a penetration rate of 65, in 2012, we believe this market still has a lot of potential and expect it to keep growing. We believe that the current market statistics are not showing us the whole picture and can be misleading because the number of subscribers (or SIM cards) is not the same as the number of users. Also, it is necessary to keep in mind that Angola, like most African countries, has very favorable demographic conditions with a very young and growing population.

There is a considerable difference between the number of SIM cards and mobile users

According to the GSM Association (GSMA), there were 502 million connections in Sub-Saharan Africa in June 2013, but only 253 million "unique mobile subscribers". More specifically for Angola there were, in 2012, 5.2 million unique subscribers against 12.5 million connections, which means a penetration rate of just 34.5%. This figures compares with a global average of 50% and 80% in the European Union. The number of unique subscribers in SSA should register a CAGR 2012-2017 of c. 8%, being the fastest growing region in the coming years.

According to GSMA there are in Angola 5.2 million unique subscribers

One reason for the difference between the number of SIMs and unique subscribers is the fact that Angolan's are very price sensitive and try to optimize the cost associated with different price plans. Most mobile users in Angola try to take advantage of the best price plan available for particular types of calls (for instance, one for "on-net" and another for "off-net" calls), meaning that each user holds more than one SIM card. Additionally, it is not clear when the cards are deactivated,

which can lead to a big number of SIM cards being considered despite the fact of not being used anymore.

Another reason is related with the geographic coverage of each operator. Since neither Movicel nor Unitel have the Angolan territory 100% covered, some subscribers also have the need to have more than one SIM to be able to reach all their contacts.

It is important to bear in mind that in Angola the cost of telecommunications is relatively high. This makes consumers very sensitive to prices, and supports our theory about how subscribers try to minimize their expenditures by adopting multiple SIMs. Looking at 2012 figures, Unitel's ARPU stood at c. US$ 20.7 that compares against SSA and world average of US$ 13.6 and US$ 25, respectively. In particular, Unitel's ARPU weight over Angola's Gross National Income (GNI) per capita stood at 4.6%, within the 3% to 5% observed in other developing markets, but still far from the values below 1% observed in Europe and the US.

Angolan consumers are very sensitive to prices

The next wave of growth will probably be fueled by lower income population and subscribers from rural areas, which will carry lower ARPUs. This kind of growth will have to be addressed carefully and some incentives might be needed. More competition and licensing a third operator may be key factors to force the current operators to be more aggressive, instead of maintaining the *status quo*, and to make mobile services available to everyone.

A third operator may be fundamental to increase market aggressiveness

The business case to expand coverage is not obvious for the existing operators: they will have to make further investments to reach lower ARPU subscribers in areas with much lower population densities. The potential return of these investments is lower, more uncertain and, consequently, riskier, meaning that operators will tend to avoid or delay them. However, nationwide coverage, crucial for the socio-economic development of those populations and of the country, is one of the priorities of the Angolan government.

UNITEL REVENUES AND EBITDA (US$ MILLION)
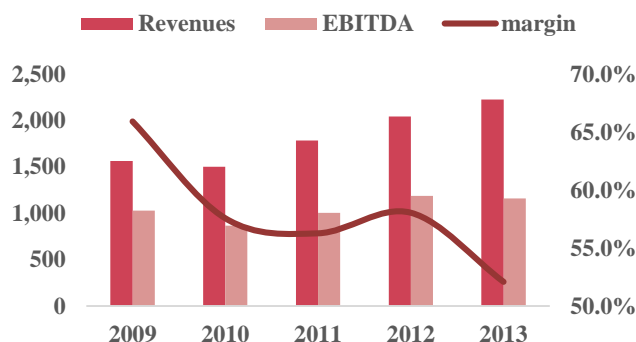
Source: Portugal Telecom's Form 20-F.

UNITEL SUBSCRIBERS ('000) AND ARPU (US$)
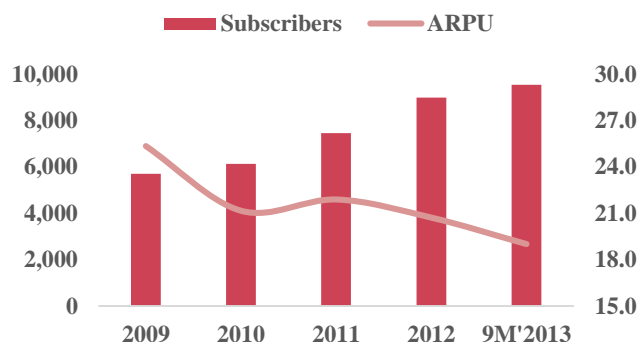
Source: Portugal Telecom's Form 20-F and Eaglestone.

For the investment in rural areas to become more appealing authorities' decisions and attitude will be decisive. First, it will be important to make the services more affordable to those populations, which can be achieved by further competition, fiscal incentives and through regulation. We believe that further competition and regulation are the most preferable measures, since fiscal incentives can create uncertainty and lead to market distortions. Creating new and innovative tariffs will probably be key to allow lower income people to use mobile services on one side and increase the minutes of usage of traditional customers on the other. Although this can lead to ARPU dilution, the overall effect can still be positive to operators due to higher scale.

Services must be more affordable to disadvantageous population

The vast majority of mobile subscribers in Angola use prepaid price plans. There are not official figures for the market, but it is known that around 98% of Unitel's subscribers have prepaid price plans. The existing top-up options range from AOA 900 to AOA 9,000 for Unitel's customers and between AOA 400 and AOA 8,800 for Movicel's. Taking into account the economic profile of Angolan consumers, rethinking the existing top-up options may also be an interesting option.

Second, favorable conditions for operators' investments should also be met. Simple and clear regulation and legislation, infrastructures, like roads and electricity, should be adequate and fiscal incentives to investment should be implemented (in contrast to incentives to consumption). Tower

It is necessary to create favorable conditions to operator's investments

sharing may also be an interesting opportunity for operators, mainly in regions with low population densities, allowing to reduce the investments and costs associated with these towers.

Mobile broadband is another major growth driver for Angolan operators in the coming years. Like it happened with voice services, due to the limited coverage and poor conditions of fixed line networks, mobile broadband is very well positioned to become the most popular way for the Angolan population to access Internet, whether by mobile handsets, tablets or through USB dongles. According to estimates of GSMA, the number of mobile broadband connections in Sub Saharan Africa is expected to increase from 34.5 million in 2012 to 160 million in 2016.

Mobile broadband is well positioned to be the most popular way to access Internet in Angola

The challenges of mobile broadband are the need to increase its uptake and assure that all the population will have access to it. For the uptake to increase it is necessary to assure the affordability of the service and equipment for subscribers and that the service provided has the quality demanded. For this purpose, further deployment of 3G is necessary and 4G in the richer areas of the country.

To increase the coverage of mobile broadband, mainly in low income regions, the role of the regulatory authority is crucial. A key issue is to provide low frequency spectrum to mobile operators at reasonable prices. Low frequency spectrum is more cost efficient for operators, it has more coverage than higher frequencies, and consequently demands less investment. However, governments have shown a tendency to push spectrum prices up leading operators to set higher retail prices, which can compromise the overall objective of reaching lower income population, so it is crucial that authorities align spectrum costs with potential return on investment.

To increase mobile broadband coverage the role of the regulator will be important as low frequency spectrum may be key

While the entire telecommunications universe in Angola seems, in our opinion, a world of opportunities, the mobile segment is probably the one where opportunities will materialize sooner. Despite the high penetration rate, we believe there still is plenty of room to keep growing and other opportunities arise, like data services and mobile broadband.

We believe there still is plenty of room for mobile market to grow

However, these opportunities come with several challenges. Authorities seem committed with the sector and acknowledge the benefits it can bring to the socioeconomic development of Angola, but now is time to act. In our opinion, it is necessary to: (i) reinforce the powers of the regulatory authority and assure its independence; (ii) open the market to further competition; and (iii) release spectrum to operators, mainly the one that will be released from the digital dividend, and aligning spectrum costs with expected returns.

About Unitel it is also important to elaborate a bit on the current shareholder structure, source of considerable news flow. Portugal Telecom entered Unitel's shareholder structure in December 2000 and it played an important role in Unitel by bringing know-how to the company. However, in August 2007 Portugal Telecom sold a 25% stake in its holding company Africatel, which aggregates Sub-Saharan African assets of Portugal Telecom, to Helios Investment Partners. According to rumors, remaining shareholders of Unitel were never consulted about this operation and the relationship with Portugal Telecom became very tense since then.

Portugal Telecom and Unitel's remaining shareholders relationship degraded after PT sold 25% of its stake in Unitel to Helios

Recently, in light of the Portugal Telecom and Oi merger, Portugal Telecom identified the current situation in Africatel as a risk. According to Portugal Telecom's consent solicitation: "PT Ventures has not received dividends since November 2012, and it has not received dividends with respect to Unitel's 2011 and 2012 fiscal years. As of 30 September 2013, 31 December 2012 and 31 December 2011, PT Ventures had €243.5 million, €245.7 million and €134.7 million of accounts receivable, respectively, from Unitel (including €210.2 million, €215.1 million and €121.7 million of dividends receivable, respectively)". Portugal Telecom also claims that it "faces challenges in exercising its rights under, and receiving the benefits of, the Unitel shareholders' agreement and the shares it holds" and that the current situation could worsen if other shareholders of Unitel allege that the merger triggers the right of first refusal.

Portugal Telecom claims to have € 210.2 million of dividends receivables from Unitel in September 2013

Meanwhile, Unitel released a statement claiming that the dividends have not been paid due to an irregularity. According to Unitel, the company registered as shareholder of Unitel is Portugal Telecom SGPS International and the request for dividends came from PT Ventures (a company owned by Africatel). Until this situation is regularized Unitel is unable to pay the dividends.

According to Unitel the dividends cannot be paid due to a technical irregularity

According to the latest news flow, never confirmed or denied by the companies, Unitel's remaining shareholders have informed Portugal Telecom that it is their understanding that the company has violated the shareholder agreement and want to negotiate the acquisition of Portugal Telecom's stake in the short term. Unitel's remaining shareholders claim that their right of first refusal has not been respected, since the merger between Portugal Telecom and Oi represent a transfer of Unitel's

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shares held by Portugal Telecom. The shareholders agreement states that "a breach of a material obligation by any shareholder permits the other shareholders to purchase that shareholder's stake at net asset value. Disputes under the shareholders' agreement are decided by arbitration."

We believe that the situation between Portugal Telecom and Unitel's remaining shareholders is complex and eventually irreversible. In our opinion, the most likely scenario is the exit of Portugal Telecom from Unitel's shareholding structure. The question now is by how much and to whom will Portugal Telecom sell its stake. The total Enterprise Value of Unitel could easily be between US$ 7.1 billion and US$ 9.5 billion, using a 6.0x and a 8.0x EV/EBITDA in line with the region's multiples for telecommunication companies. But it is not clear if Portugal Telecom will be able to take the fair value of Unitel given the current situation, the non-existence of a liquid market, the fact that it is a non-controlling stake and the right of first refusal to the remaining shareholders.

We believe Portugal Telecom will leave Unitel's shareholding structure, although it is not clear if it will be able to take out its fair value

PAY-TV

The Pay-TV market in Angola has three main players: (i) DStv; (ii) TV Cabo Angola; and (iii) Zap. Despite the lack of public information about sector and company KPIs, it is known that the Angola Pay-TV market is expanding at a very positive pace and all three companies operating in Angola have a very positive view about the prospects of this market.

DStv was the first Pay-TV operator to enter in the Angolan market in 1998. DStv is a product of Multichoice, fully owned by Naspers, and is present in Angola through Jembas, its representative. DStv is distributed by Direct-to-Home (DTH), covering the whole country. Multichoice is one of the most relevant Pay-TV operators in Sub-Saharan Africa and offers a large array of channels, some of them produced in Africa and dedicated to African content.

DStv is one of the most relevant Pay-TV players in Sub-Saharan Africa

TV Cabo Angola was the second player to start operating in the Angolan market and the first Pay-TV cable operator. Deployment of its network started by 2002 and operations began in 2006, being the only Triple-Play operator in Angola. TV Cabo Angola is owned in equal parts by Angola Telecom and Visabeira. It is present mainly in Luanda, but also in Benguela and Lobito.

Zap began operating in 2010, through DTH, in Angola and nowadays is also present in Mozambique. Zap is a joint venture between Mrs. Isabel dos Santos (70% stake) and Portuguese telecommunications company Zon Optimus (30% stake). Zap's offer is characterized by a strong presence of Portuguese content, including the exclusive distribution of Sport TV and Benfica TV that transmit all the games of the Portuguese football championship and cup. Zap's channel packages are also available through TV Cabo Angola. In 2013, Zap revenues and EBITDA stood at € 149 million and €45 million, respectively, and it had around 800,000 customers (including the relatively smaller operation in Mozambique).

Zap has exclusive distribution rights of the Portuguese football championship and cup and around 800,000 customers

DStv has a very strong presence in Africa and it has a leadership position in most of the countries where it operates due to first mover advantage, economies of scale from operating in the whole region and strong presence of African content. DStv operates only through DTH and this left room for TV Cabo Angola to start deploying its hybrid fiber-coaxial (HFC) network in Luanda, offering not only Pay-TV but also 2-Play and 3-Play products.

DStv and Zap are distributed through DTH and TV Cabo through HFC and FTTH

Despite the presence of two Pay-TV operators, the environment was never truly competitive between DStv and TV Cabo due to their services' different characteristics and, mainly, TV Cabo's smaller footprint. Since the beginning of its operations, TV Cabo knew the difficulties to deploy and roll-out a physical infrastructure in Angola and in Luanda in particular, which meant that the deployment process has always been conducted and planned very carefully, thus relatively slow.

TV Cabo uses Angola Telecom's backbone, but then it has to deploy its own last mile and street cabinets. The deployment can be a lengthy, complicated and expensive process since Angola still lacks regulation about duct deployment and infrastructure sharing, meaning that every operator has to build its own ducts. It must also be taken into account that a HFC network has active elements that must be powered, thus TV Cabo must also deploy power generators to assure the proper functioning of its network.

In 2011, TV Cabo expanded to Benguela where it opted to deploy a FTTH network. The FTTH network has several technical advantages over HFC being one of the most important the possibility of being a passive network, meaning that it does not need power supply between the operator's and the customer's premises. Additionally, FTTH is a technology with a longer life expectancy than HFC, lower latency and maintenance costs, although for the end user the usability experience is very similar if not undistinguishable. There is no public information about how many households TV Cabo covers. Nevertheless, it is known that Visabeira wanted to pass c. 100,000 households in Luanda and we believe the current coverage should be close to this figure.

Despite the investments made by TV Cabo and its growth, penetration levels should be close to 50% according to the latest public information available. DStv never tried to compete with TV Cabo since it could not offer the same services and because the impact on the remaining subscriber base of any price war would be worse than losing customers within the limited coverage of TV Cabo.

Limited competition with TV Cabo due to its different products and limited footprint

Only when Zap entered the market, in 2010, true competition began. By using DTH to distribute its service Zap had nationwide coverage and, unlike what happened when TV Cabo started operating, all DStv's customers were exposed to competition. Until 2010 DStv's services were regarded as expensive and targeting only the high end of the market. In March 2009 DStv's channel packages had prices between US$ 30 and US$ 66 (per month).

Competitive dynamics only began when Zap entered the market in 2010

When it entered the market Zap decided to target not only the high-end of the market, but also the medium-end since it was a growing segment and the company felt there was demand for a more accessible product. Taking advantage of its shareholding relationship with Zon, Zap was able to assure important content, like popular entertainment channels, and the exclusive broadcast rights of the Portuguese football league (through SportTV Africa and Benfica TV) that is probably the most appreciated sports competition in Angola.

By the end of the first quarter of 2010, Zap had two channel packages with prices between US$ 30 and US$ 53 (note: prices converted from Angolan Kwanzas to US Dollars using exchange rate of 31/12/2010 for comparability purposes). Despite the similar price between the two cheapest packages of DStv and Zap the former had 35 channels and the latter 50.

Reflecting the evolution of the sector we know that Zap had around 800,000 customers in Angola and Mozambique by 2013. Even though there is no country breakdown, we know that Angola is Zap's main market by far. Today, Zap's packages are priced between AOA 1,550 (US$ 15.8) and AOA 6,200 (US$ 63.3), while DStv's packages are priced between AOA 1,300 (US$ 13.3) and AOA 7,900 (US$ 80.6). Prices decreased around 50% in the cheapest packages since 2010. Although there are no official figures released by the companies, nor the regulator, Zap is nowadays regarded as the market leader in Angola and, according to some news flow, with almost double of the market share of DStv. The reason for this success seems to rely not only in the sports content but also in "Zap Novelas", a TV channel produced by Zap dedicated to Portuguese spoken soap operas, the most seen TV channel in Angola.

Since 2010 the prices of the most accessible packages went down by around 50%

PAY-TV PACKAGES				
Operator	Package	# Channels	Price (OAO)	Price (US$)
Zap	Mini	35	1,550	15.8
Zap	Max	80	3,100	31.6
Zap	Premium	100	6,200	63.3
DStv	Fácil	49	1,300	13.3
DStv	Grande	71	3,200	32.7
DStv	Bué	102	7,000	71.5
DStv	Premium	129	7,900	80.6
TV Cabo	HD	12	1,100	11.2
TV Cabo	Mini	49	1,550	15.8
TV Cabo	Max	100	3,100	31.6
TV Cabo	Grande	69	3,200	32.7
TV Cabo	Premium	135	6,200	63.3
TV Cabo	Inglês	122	8,100	82.7

Source: Company data and Eaglestone Securities

On the other hand, TV Cabo has been able to keep its distance from the Pay-TV battle by focusing its products on 2-Play and 3-Play offers. Plain TV packages in TV Cabo go from AOA 1,100 (US$ 11.2) and AOA 8,100 (US$ 82.7). Regarding 3-Play packages, they are priced between AOA 7,800 (US$ 79.6), with 42 channels and 512Kb bandwidth, to AOA 36,700 (US$ 374.6) with 100 channels and 4Mb bandwidth.

TV Cabo focus on 2-Play and 3-Play products

As the market gets more mature and the middle class grows in Angola, mainly in Luanda, we believe that Zap could consider to start deploying fiber and that would be a natural move to further explore the business potential of the Pay-TV segment with 2-Play and 3-Play offers, also taking advantage of the extensive know how of Zon Optimus. Like TV Cabo, the roll out should be done very carefully, thus relatively slowly, and only in the medium term it should be expectable to see a competitive dynamic between Zap and TV Cabo. However, it should be kept in mind that contents are key in Angola and Zap sells its TV packages to TV Cabo, thus if competition starts to heat up

Zap might start to deploy its own FTTH network in Luanda

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TV Cabo may find itself in a complicated position given that one of its main suppliers can become its main competitor.

One interesting perspective when looking at TV Cabo and Zap has to do with possible M&A movements in the medium to long term. As the telecommunications sector grows, demand for convergent solutions will start to materialize and mergers between complementary players arises as a logical step, especially if we take into account that Zap and TV Cabo already have close relationships with other segment operators at shareholding level. A merger would allow saving time, would bring benefits in terms of acquiring and negotiating contents and would be more logical from a market standpoint since we do not believe there is room for more than three Pay-TV players in Angola.

M&A involving Zap or TV Cabo seem logical given their complementarity with other segment operators

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BROADBAND AND DATA

Broadband and data services are seen as a priority for the Angolan authorities, to support the country's socioeconomic development, and should register a very impressive growth in the coming years. At a first stage its demand should continue growing as it becomes more affordable, as economic growth will increase disposable income, thus increasing demand. At a second stage due to the authorities' efforts to make it more affordable and more accessible to everyone.

Broadband and data services should register an impressive growth in the coming years

Africa and Sub-Saharan Africa should be the fastest growing region for the coming years in terms of broadband and data services. According to Cisco Visual Networking Index, the IP traffic for the Middle East and Africa will increase from 701 petabytes (PB) per month in 2012 to 3,465 PB in 2017, a CAGR 2012-2017 of 38%. Consumer and Enterprise IP traffic are expected to register a CAGR 2012-2017 of 42% and 29%, respectively. Even more impressive is the CAGR 2012-2017 of 77% for mobile data traffic. "Middle East and Africa" is the region where traffic will grow the most. Several GSMA studies also highlight that Sub Saharan Africa will be the region where mobile connections and smartphone penetration will grow the fastest.

IP traffic for Middle East and Africa will register a CAGR 2012-2017 of 38% and Sub-Saharan Africa will be the region where smartphone penetration will grow most

The economic impact of Internet access and broadband are quantified by some studies of GSMA. Evidence shows that a further 10% penetration in mobile subscriptions had a positive impact on GDP between 0.4% in Seychelles and 5.1% in Rwanda. GSMA estimates that doubling mobile data usage leads to an impact of around 0.51% in GDP, while a 10% substitution from 2G to 3G affects GDP by 0.15%. It is important to bear in mind that these impacts are not only coming from the supply side, but also from productivity gains, from the ecosystem and second order effects.

The potential arising from broadband and data is substantial. Data services potentiate entrepreneurship and innovation, allow productivity gains by making easier to exchange information and to access services that otherwise would not be accessible to the population. Mainly, it will make population access to government services easier and allow the emergence of Machine-to-Machine (M2M) services.

Data services potentiate entrepreneurship, innovation and allow productivity gains

The substantial difference between access to mobile phone compared with other basic services, like electricity or financial services, in Angola may create interesting opportunities to telecommunications operators and other players of ICT's ecosystem. The most obvious opportunities lie in banking, healthcare, education and agriculture sectors, where cost effective solutions may bring further development to rural and low income regions, at the same time that it boosts subscriber and data revenues growth.

There is a considerable gap between the number of people with access to mobile phones and access to financial services in Angola, creating an opportunity for mobile money (mMoney) and other mobile financial services. Estimates are that only 25% of the Angolan population has a bank account and in some low-income regions the access to financial services is not possible at all. Through mMoney it is possible to do cash transactions, such as payments or transfers in a digital way, which is more convenient and more secure, pushing greater financial inclusion. M-Pesa is probably the best example of success, introduced by Safaricom in Kenya, a mobile payment system based on accounts held by the operator, which has interface with several banking institutions and already accounts for 18% of Safaricom's revenues (1H'2014).

The gap between the number of people with access to mobile phones and access to financial services in Angola, creating an opportunity to mobile money and other financial services

**SAFARICOM DATA AND M-PESA REVENUES (KSH MILLIONS)**
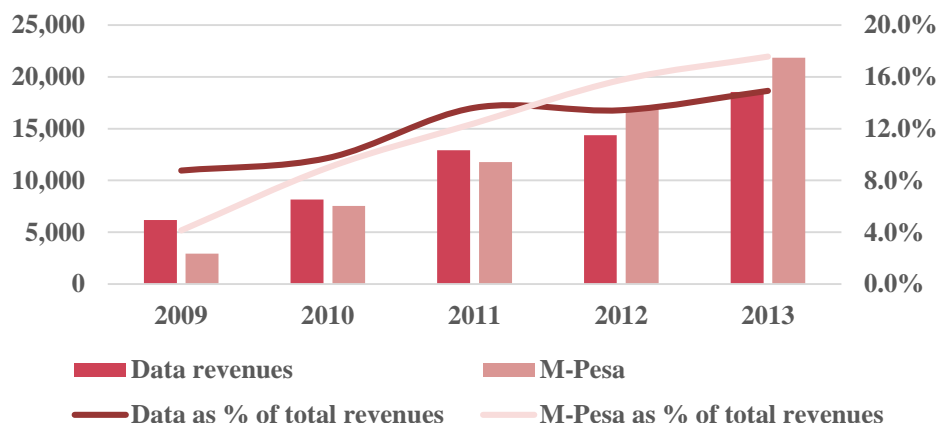
Source: Safaricom and Eaglestone.

In agriculture many farmers cannot access relevant information about production, plagues or demand for each product. Mobile tools like Esoko, already used in 15 African countries, have allowed farmers to easily access the agricultural market information service (providing up to date prices, weather forecasts and alerts, crop productions levels and much more). In Ghana, farmers that use Esoko have seen their revenues increase by 10% on average. In education, mobile applications make the distribution of new educational content easier, improve teacher training and address shortage of teachers in several regions. In healthcare, several applications were created with the purpose of collecting information about patients in rural areas, allowing real-time diagnoses, surveillance and data collection. There are several examples of applications and services that can have a considerable impact in terms of access to information, thus closing the gap between the poorest and the most developed regions of the country.

Machine to Machine (M2M) services should also register a considerable uptake in the coming years. As network coverage improves, it will become possible to replace some manual tasks by automatized processes, leading to productivity gains. Examples of M2M usage can be seen in agriculture, with machines being controlled remotely and automatically, or to control infrastructure status (for example in the electricity grid, road or train network). According to GSMA estimates, in 2012 there were 26 million M2M connections in Sub Saharan Africa, a figure that should go up to the c. 150 million by 2020.

In 2012 there were 26 million M2M connections in Sub Saharan Africa, a figure that should go up to the c. 150 million by 2020

MTN DATA REVENUES (ZAR MILLIONS)
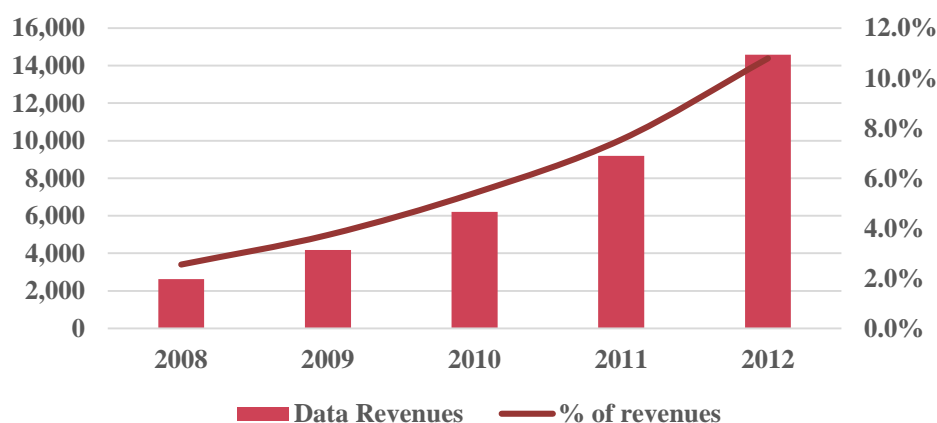
Source: MTN and Eaglestone.

Favorable regulation and policy to the development of new services allow operators, or other ecosystem players, to reach new customers, support socioeconomic development and enables the

creation of technology clusters. In other African countries several innovation hubs have been created, attracting start-ups, investors, equipment vendors, ITC companies and even academic institutions.

It is also important to stress that most of these services are available not only as mobile applications, which would demand smartphones, but most of the times also through 2G and feature phones. Until smartphones become more affordable, it is necessary that these services are also available to simpler phones to assure its success.

COMPETITION

Further market liberalization and competition is another hot topic in Angola nowadays. Especially after the Minister of Commerce, Mrs. Rosa Pacavira, stated that the government could "increase the liberalization of the commerce and services' market this year, allowing new companies to step in various sectors, of which the fixed and mobile telecommunications networks" in the beginning of the year. The Angolan authorities' intention to increase competition is not new and is clearly stated in its Telecommunications Whitepaper, nevertheless the time frame was totally unknown until the latest statements of the Minister of Commerce.

New companies could be allowed to operate in the fixed and mobile networks

Also Mr. Eduardo Sebastião, national director of telecommunications in the Ministry of Telecommunications and Information Technology, said in an interview, in October 2013, that the fixed network operators will be allowed to compete with mobile operators in both mobile and fixed segments. The statement of Mr. Eduardo Sebastião is in line with the strategy presented in the Telecommunications White Paper of having convergent licensing instead of specific service licenses. However, Mr. Eduardo Sebastião also added that: "It's still being analyzed to see if companies will pay a fee for the frequency spectrum or for a universal license. We still need to work on the legislation so it's too early to say when it will be implemented… We encourage international companies to join with local companies and we're ready for investors to set up operations now."

Fixed operators will be allowed to compete with mobile operators, according to the national director of telecommunications

In our opinion, competition is very important for the Angolan ICT market to develop and for its services to become gradually available to everyone. One key concern about the market evolution is the need to make services affordable and available in rural areas. Competition would push operators to acquire new customers, which in turn would lead to price reductions and more investment to reach new customers. In most of the markets competition has been the most important factor to drive prices down.

Competition would push operators to acquire new customers and to invest more

Despite the pressure that competition may pose to current operators, expanding coverage and reducing prices would lead to growing scale and increased service usage. Further competition and targeting low-income population will probably demand the creation of new and innovative price plans that would be able to attract those customers and would protect the ARPU associated with high-end customers and current customers, avoiding cannibalization. It is important to bear in mind that those customers are searching for totally different type of services, for instance 2G vs. 3G or 4G.

Comparing with other Sub-Saharan African countries, Angola has few mobile operators, just 2 against an average of 3.8 per country (2012). And despite increased competition, revenues in Sub Saharan Africa have grown around 18% per year from 2000 to 2011. In fact, most of the countries have between three and six operators, with some operators present in several countries, allowing them to capitalize their experience and scale. The most relevant operators in the region are MTN (South Africa), Vodafone (United Kingdom) and Airtel (India).

Angola has 2 mobile operators against Sub-Saharan Africa average of 3.8 mobile operators per country

MOBILE NETWORK OPERATORS PER COUNTRY
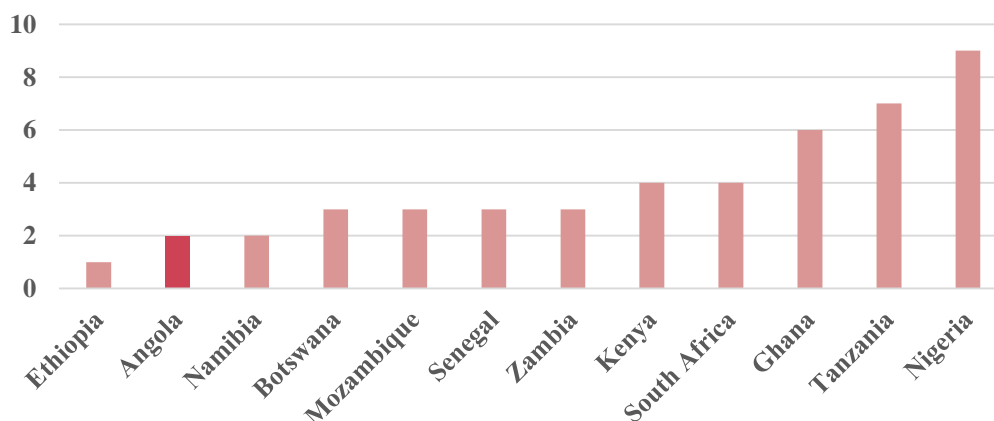
Source: GSMA Intelligence and Eaglestone.

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Although we believe that a new mobile entrant would benefit the Angolan market, it is important that authorities assure the right balance between competition and sustainability. Too much competition can also harm the sustainability of the market by not assuring the right and necessary levels of scale to achieve the country's objectives. Fragmented markets will damage operators' profitability and expected returns on investments, thus raising problems of network coverage and quality.

Recently Angola Telecom's Chief Strategy Officer, Mr. James Wilde, said that the company was left without a revenue stream when Movicel was privatized and that Angola Telecom needs "a mobile license to survive". Having this in mind and the recent statement that fixed operators may be allowed to compete with mobile operators, it is possible that Angola Telecom may soon be the third mobile operator in Angola. However, it is not clear what Angola Telecom will do with its stake in Movicel, in case it becomes the third operator, and whether it will seek a partner with expertise in the sector.

Angola Telecom may soon be the third mobile operator in Angola

We believe that it is a matter of time until a third license is granted in Angola, to whom, when and the conditions associated with the license are still unknown. A new operator would probably step up competition, especially if it is an industry big name with financial firepower, and accelerate even further the mobile segment's development.

REGULATION

For a sustainable and strong development of the ICT industry in Angola, regulation is, in our opinion, the most important subject. Regulation will always be a controversial topic, where dominant operators tend to defend the "status quo" while alternative operators will push for an active regulator. In a country where the telecommunications sector is developing so quickly the challenge is even bigger.

Regulation is, in our opinion, the most important subject for the ICT industry in Angola

As stated in the Telecommunications Whitepaper, the national regulatory authority, Instituto Angolano das Comunicações (INACOM), must be independent and autonomous within its competences and the government should assure that INACOM has the necessary powers and means to enforce the fulfillment of its rules and decisions. However, nowadays in Angola there is not a clear view of the autonomy of INACOM as most of the decisions seem to be heavily influenced by political decisions or to come directly from the Ministry of Telecommunications and Information Technology.

There is not a clear view of the autonomy of INACOM

The regulator should also start providing information about the market, key statistics, updated news flow about regulation and the latest updates in terms of measures and decisions. Finding reliable information about the Angolan market is not always easy, having a negative impact in terms of attracting foreign investment and easiness to make business. According to Angolan authorities' publications the development of monitoring tools is seen as a priority, to be possible to assess the success of its investments and evolution of the sector. Given the will to attract foreign investment and to make Angola an ICT reference in Africa, the country would benefit from an easier access to data. In this context, the regulator would be the most suited entity to provide this kind of information.

Development of monitoring tools is seen as a priority and the regulator would be the most suited entity to provide this information.

Regulation can do a lot to increase the sector's affordability and increase service coverage. Furthermore, regulation can enhance competition so that it brings the expected benefits without jeopardizing the right levels of expected return on investment or deteriorating operator's financials to levels that will discourage future investments.

The possibility of a new entrant in the mobile market should be one of the most important subjects for the regulator nowadays. Looking at Angolan socioeconomic and geographic characteristics, we think there is a business case for at least a third operator and eventually a fourth. However, like we mentioned in the previous section, "Competition", some recent statements can easily lead to a scenario of six mobile operators against the current scenario of just two operators, which we believe is too much for a market like Angola with a population of c. 21 million people. The regulator should make clear its vision about competition for the mobile segment and in which conditions it will consider licensing an additional operator, otherwise existing operators will tend to postpone investments fearing a crowded market.

We think there is a business case for a third mobile operator, but the regulator state clear its vision about competition and in which conditions it will consider licensing an additional operator

Additionally, under the scope of the regulator is the spectrum management, which is especially relevant when Angola is getting ready to the analogue switch off process. Digital broadcasting allows a better use of frequencies currently used by analogue transmissions, with six digital channels using the equivalent spectrum to one analog channel, better quality and extra features. The transition to digital will allow freeing up frequencies to other usages, the so called "digital dividend", like mobile broadband.

The initial plan of Angolan authorities consisted in completing the switch-off to digital broadcasting by 2015, according to the Telecommunications White Paper and ITU's assessment report. However, recent news flow claims that the process is a bit delayed and the 2015 target is now unlikely to be fulfilled. David Russel, Multichoice's director for Angolan operations, has stated that the analogue switch off should take place by 2016 or 2017.

The analogue switch-off is delayed and should take place by 2016 or 2017

The analogue switch off is a relatively complex process that requires significant cooperation and coordination between several entities across the value chain and region. One of the most relevant aspects regarding the digital dividend is the spectrum harmonization across Sub-Saharan Africa, which is also one of the most lengthy. Harmonization of frequencies across Sub Saharan Africa will avoid more expensive solutions to operators, consequently consumers, as equipment and devices can be mass-produced, roaming will be easier and cross border interferences will be reduced.

Given the expected increase of data traffic in Angola, the fact that mobile broadband will continue to be the most popular way to access internet and the socio-economic benefits that it provides, we

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would expect the licensing of the digital dividend (700MHz and 800MHz band) exclusively to mobile broadband. The government's intentions about these bands and how they intend to award them is totally unknown for now.

The infrastructures are also a subject demanding urgent action from the regulator and Angolan authorities, since there is no regulation about telecommunication infrastructures. It would be very important for the development of the sector to legislate and assure that new construction already supports and is prepared to receive the installation of telecommunication infrastructures, making the deployments easier, quicker and less expensive. Transport infrastructures, like highways or rail networks, can also play an important role by offering connectivity or ducts, making easier to connect wider geographic areas. Also in terms of ducts, it is necessary to regulate its deployment, sharing obligations and duct's access costs. The access to competitor's ducts would avoid duplicating investments, allow quicker deployment of new networks, expanding coverage and less costs for the operators, thus for subscribers.

Legislation about telecommunication infrastructure is needed, to avoid duplicated investments and quicker deployments

We believe that regulation is probably one of the subjects where there is more work to be done in order to assure the correct development of the sector. It is a subject with a wide area of influence, being related with all remaining topics and determinant for the success of the sector, so it should be one of the top priorities of Angolan authorities and action should be taken as soon as possible. A strong and autonomous regulator will be able to take out uncertainty about the future of the sector, by providing predictability and visibility about its goals and measures, which is crucial to attract investment for the sector.

The regulator can provide predictability and visibility, crucial to attract investment

SUBMARINE CABLES

One of the most interesting and high-tech projects in Angola is the South Atlantic Cable System (SACS), a 6,000km submarine telecommunication cable that will link Luanda to Fortaleza, in Brazil, with a leg connecting to the archipelago of Fernando de Noronha. The project is especially relevant because it will be one of the first transatlantic systems in the Southern hemisphere, connecting Africa and South America, and it will be funded by Angola Cables.

SACS will be one of the first cables to connect Africa and South America

Angola Cables was formed in 2009 and is owned by: Angola Telecom (51%); Unitel (31%); MSTelcom (9%); Movicel (6%); and Startel (3%). Angola Cables controls the management of the Angolan participation (11.4%) in the West Africa Submarine System (WACS), a 14,000km submarine telecommunications cable that connects Yzerfontein (South Africa) to Highbridge (United Kingdom) with 14 landing points, of which one in Sangano (Angola), with a 5.12 Tbit/s initial capacity.

The African submarine telecommunications cable system has seen a fast development over the last years, as demand for bandwidth and connectivity grows in Africa, due to economic and international trade growth. By 2009, the only submarine telecommunications cable was the South Atlantic 3 (SAT3), linking Portugal to South Africa, with 12 landing points of which one in Cacuaco (Angola). In South Africa, the SAT3 connected with South Africa Far East (SAFE) submarine cable, which connected South Africa to Malaysia. The SAT3/SAFE submarine cable was deployed in 2001 and was operating with a 120 Gbps capacity by 2009.

The African submarine telecommunications cable system has seen a fast development over the last years

AFRICAN SUBMARINE TELECOMMUNICATION CABLES (JANUARY 2009)

Source: Stephen Song manypossibilities.net.

The fast growth of the African continent, the lack of alternatives to the SAT3/SAFE cable and its limited connectivity, forced most African countries to continue to rely on expensive and slow satellite connections, either as main international link or for redundancy. Even in connected countries bandwidth costs continued to be extremely expensive when compared with Europe or the US.

Prospects of further economic growth in the African continent and demand for bandwidth created a considerable expansion of submarine telecommunication cables.

AFRICAN SUBMARINE TELECOMMUNICATION CABLES (NOVEMBER 2012)

African Undersea Cables (Nov 2012)
http://manypossibilities.net/african-undersea-cables
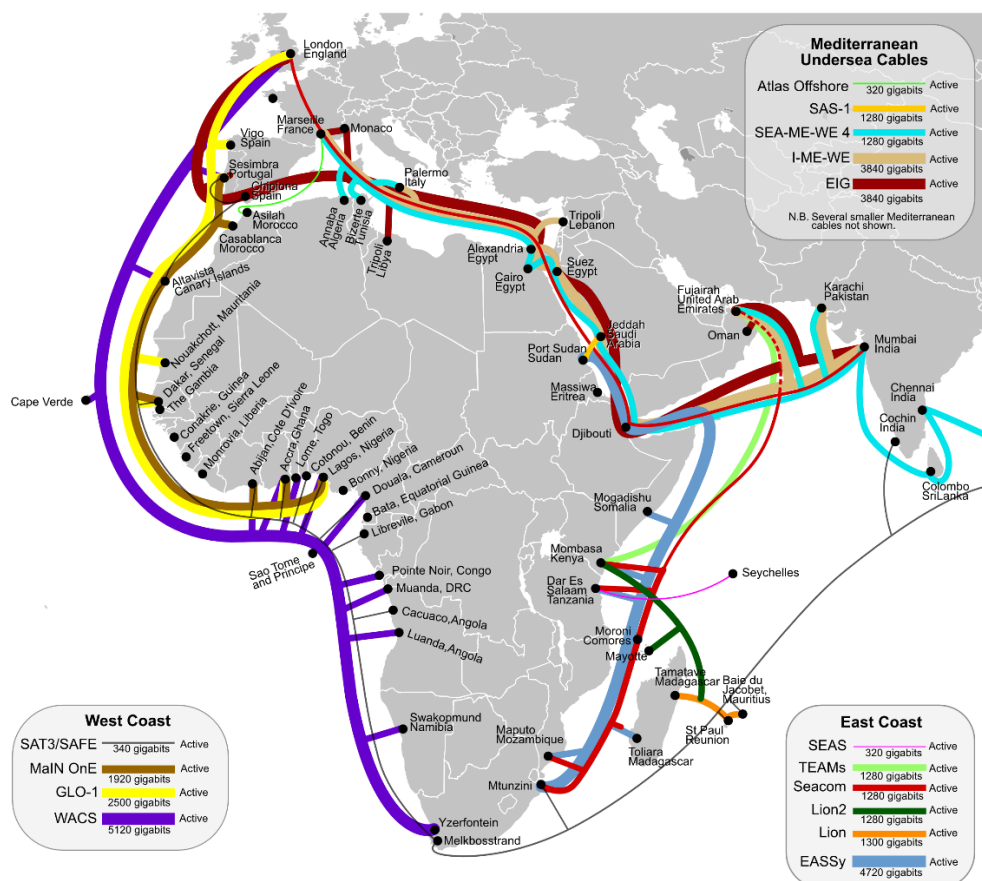
Source: Stephen Song manypossibilities.net.

As shown above, the WACS cable system is the most important cable connecting Europe to West Africa, and is the only one that links all western coast and the one with more bandwidth. In December 2012, the first stage of the Africa Coast to Europe (ACE) cable entered in service, the link between France and São Tomé and Príncipe, and during 2014 the connection to South Africa should be concluded, providing a bandwidth of 5.12 Tbps.

As multiple connections between Africa and Europe are being deployed and becoming available the spotlight is now turning to the American continent. Several projects have been announced to connect the African continent to South America and provide an alternative to current North Atlantic submarine cable systems.

Several projects have been announced to connect the African continent to South America

The most notorious projects announced are the following: (i) BRICS cable, a 34,000km cable connecting Vladivostock to Miami, with 8 landing points of which one in Cape Town, with 12.8 Tbps capacity; (ii) The South Atlantic Express (SAex), connecting Fortaleza to Mtunzini (South Africa), with 5 landing points of which one in Luanda; (iii) WASACE, a submarine cable system consisting of four sections (connecting France to the USA, Brazil to Nigeria, Brazil to North America and Nigeria via Angola to South Africa); and (iv) South Atlantic Cable System (SACS),

a 6,165 km cable connecting Luanda to Fortaleza, with a leg connecting to archipelago Fernando de Noronha.

AFRICAN SUBMARINE TELECOMMUNICATION CABLES (2015E)

African Undersea Cables (2015)
http://manypossibilities.net/african-undersea-cables
Version 35
Nov 2013
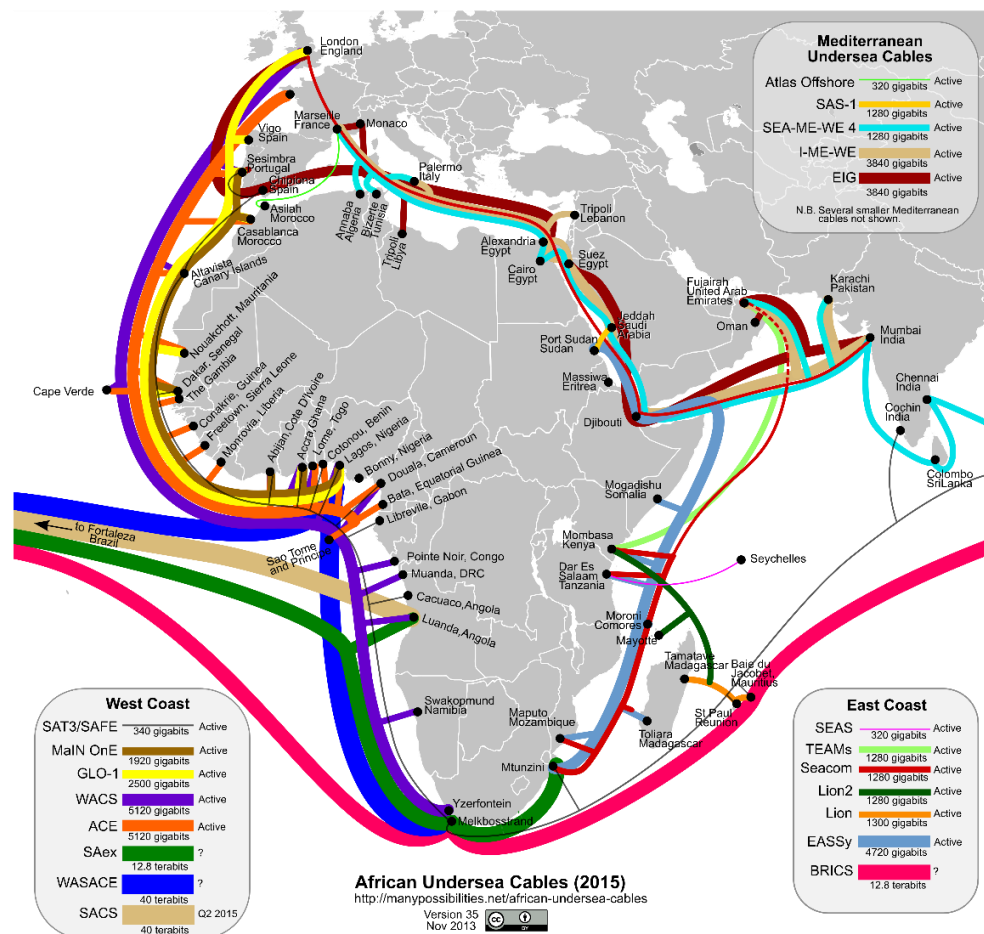
Source: Stephen Song manypossibilities.net.

One interesting aspect of future deployments is the fact that Angola will have a landing point in all cables, except the BRICS. The fact that almost all West African submarine cables connect to Angola show that the country is seen as one of the most relevant players of the African continent. This shows that authorities are being successful in positioning Angola as an ICT and economic reference.

The SACS cable is a project of Angola Cables and should be the second South Atlantic connection to be available. WASACE should start to operate before FIFA's World Cup 2014. The SACS cable should have a capacity of c. 40 Tbps and estimated construction costs amount to US$ 278 million. Although Telebras is involved in the project, it will only provide the landing points in Brazilian soil. According to the latest news flow, the construction should begin during the first quarter of 2014 and should be concluded by mid-2015.

It is important to highlight that there is no news flow about the WASACE, BRICS and SAex cables, which could mean that these projects are not on schedule or that they are not going ahead. The BRICS and SAex websites went offline and the WASACE website has not been updated for two years. The SACS is the only South Atlantic submarine cable that we know is on schedule and moving forward, meaning that it may be the first South Atlantic connection, thus having an important first mover's advantage.

The SACS indicates a close relationship between the Angolan and the Brazilian governments and should also lead to closer business relationship between both countries. It will be interesting to

Angola will have a landing point in almost all cables, showing its importance in Africa

The SACS project will cost US$ 278 million and should be concluded by mid-2015

The SACS cable is on schedule and may be the first South Atlantic connection

keep a close look at the competitive environment between the South Atlantic cables as in the medium term we should go from none to four and, despite the first mover advantage that should benefit WASACE, price should be one of the most important aspects as soon as more than one cable is deployed. Having said this, we believe that the success and potential return of these planned cables will be highly dependent of how traffic in the region will evolve. We recall that Cisco estimates that IP traffic for Middle East and Africa will almost fivefold between 2012 and 2017 and the capacity these cable will provide will lead to lower prices, thus increased usage and data business solutions.

The deployment of the SACS cable will give even more projection to Angola as a key ICT player in the region, however to finance the project and assure the proper return will also be a challenge to Angola Cables and Angolan authorities.

THE ROAD AHEAD

Despite the fast growing pace of the Angolan economy, and the development of the telecommunications industry in the country, there is still a long road ahead and considerable challenges to tackle. Angolan authorities have always stated that the ICT industry is a priority and its Telecommunications Whitepaper is an interesting strategic plan where most of the challenges are identified, but now it's time to start addressing them.

Regulation should be the starting point. We believe Angola and the sector would benefit with a strong regulator in order to make the rules of the game clear and to enforce the fulfillment of its rules and decisions. Predictability and visibility are key, not only to attract foreign investment but also for existing and local operators, for further investment and to develop the sector.

Only after the regulator assumed its role we think the remaining challenges can be dealt with properly. All of them are, in one way or the other, related with the regulator authority. In fact, we believe that the regulator alone can put the sector halfway of solving some of its problems. Other hot topics like development of broadband, through additional spectrum for instance, or the need to increase competition, need a regulator authority to assure that these processes are well driven and achieve the authorities' objectives.

After regulation, competition seems the most relevant issue. Competition has been a hot topic in Angola in the past years with some news flow about the topic in Angola newspapers and because of Unitel's dominant position in the mobile segment. Although we believe that there is room for a third mobile operator and that an additional operator could boost market growth, the competition should also be discussed across segments. The market would benefit by having stronger wireline operators, with bigger geographic coverage and competitive products. Competition should not be analyzed around just one of the segments, but across segments.

On the other hand, the weak wireline operators created favorable conditions to the development of alternative operators like Internet Service Providers through VSAT, WiMax or, in the near future, LTE. The business case of these players is interesting and they may be able to continue growing in the short to medium term, but we have some concerns about their long term prospects as mobile players can replicate their business model without major difficulties. And if wireline network starts to develop, the room for these players will also start to become smaller.

Taking into account our long term view for the Angolan market and the authorities' known strategy, we believe the Angolan market may be getting ready for some M&A action. It is known that authorities want to push integrated licensing, instead of licenses for each segment, and if we look at the market there are operators with a considerable complementarity and synergies, not to mention shareholding relationships.

Angola Telecom, which is going through a major restructuring process, wants to become more aggressive and is considering using other technologies, besides traditional wireline, to be able to reach new customers. Among all available solutions that it has on the table, acquiring an existing WiMax operators could make sense, instead of starting a greenfield operation, and the company already owns 30% of Multitel. Increasing the partnership with TV Cabo, where it has a 50% stake, could also make sense to take advantage of the existing deployed infrastructure instead of duplicating investments. Several examples exist, like MSTelcom and Net One, or even Unitel and Zap.

Angola Telecom also stated that it wants and needs a mobile license to survive, while the company holds an 18% stake in the mobile operator Movicel. It seems logical that Angola Telecom would sell its stake if it gets a third license, but the company never commented what it will do with this stake. If Angola Telecom decides to sell, it may be an interesting opportunity for an international player to enter in the Angolan market. Otherwise, Movicel shareholding relationship with Angola Telecom may be complicated. It is also important to bear in mind that all mobile operators would then have close relationships with fixed operators, except Movicel.

Recent statements have suggested that MSTelcom could also receive a mobile operator license. If the company decides to explore this business, it could explore further its 51% stake in NetOne and turn it in a mobile operator taking advantage of its existing network and existing customer base.

If Unitel decides to explore the fixed business, Zap can also be a logical partner given its know-how in Pay-TV and its important content.

Despite its fast growing pace there are considerable challenges ahead

The sector would benefit with a strong regulator

Competition should be discussed across segments, the market would benefit of having stronger wireline operators

Market may be getting ready to some M&A, there is considerable complementarity between some operators

It is not known what Angola Telecom will do with its 18% stake in Movicel if it obtains a mobile license

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And these are only some obvious examples of possible M&A scenarios that could take place in Angola. The existence of numerous operators in specific segments that may explore synergies with other operators make us expect some consolidation in the short to medium term. If not, it seems obvious that some of these players will not have room in the Angolan market. In some cases the shareholding relationship exists, the complementarity and synergies seem obvious, so by the end of the day these can be "win-win" situations.

M&A would allow exploring synergies and take advantage of existing shareholding relationships

Despite the considerable growth that the telecommunications sector has witnessed in Angola during the last decade, there is still a lot to do and a lot of potential in this market. A growing economy, favorable demographics and a big appetite for connectivity justify our positive stance. We believe Angolan authorities are taking the right steps and defined the correct guidelines, but some action is needed fast. Our main concern is regulation, each day without proper regulation in terms of infrastructure can translate into duplicated investments and unnecessary costs. And regulation touches every other topic in the sector. All in all, we believe that there are several opportunities ahead in the Angolan market, but the road ahead can be long.

There is a lot of potential in the Angolan market and several opportunities ahead

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ANNEX – UNITEL FINANCIALS

UNITEL FINANCIALS								MILLION US$
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Subscribers ('000)	2,049.0	3,307.0	4,571.6	5,700.0	6,128.0	7,454.0	8,980.0	9,537.0 [1]
of which prepaid	*n.a.*	*n.a.*	*99.6%*	*99.6%*	*99.5%*	*99.5%*	*99.0%*	*98.5%* [1]
ARPU (US$)	33.33	27.73	26.85	25.34	21.16	21.89	20.72	19.01 [1]
Revenues	649.32	890.93	1,269.62	1,562.26	1,501.98	1,784.27	2,042.96	2,225.10
EBITDA	433.90	536.00	770.30	1,029.60	864.70	1,004.00	1,186.00	1,159.17
margin	*66.8%*	*60.2%*	*60.7%*	*65.9%*	*57.6%*	*56.3%*	*58.1%*	*52.1%*
EBIT	381.48	465.93	685.49	833.79	686.68	798.73	975.16	898.59
Earnings before taxes	414.26	503.96	721.53	851.79	773.53	866.94	964.50	923.83
Net Income	414.26	503.96	721.53	851.79	773.53	866.94	964.50	631.11
Current Assets	433.95	639.33	841.84	1,067.63	1,146.73	1,444.90	1,619.96	2,368.33
Non-Current Assets	431.98	429.71	1,038.49	1,222.35	1,322.57	1,280.44	1,482.21	1,827.72
Tangible Assets	430.26	428.23	559.32	709.50	810.54	931.87	1,056.44	990.33
Other non-current	1.71	1.47	479.16	512.85	512.03	348.58	425.77	837.39
Total Assets	865.93	1,069.04	1,880.33	2,289.98	2,469.30	2,725.34	3,102.17	4,196.05
Current liabilities	174.50	109.38	544.57	731.10	1,494.27	768.96	1,072.28	2,220.90
Non-current liabilities	75.20	100.99	75.57	46.96	20.71	134.95	100.01	212.52
Total Liabilities	249.70	210.36	620.14	778.07	1,514.98	903.92	1,172.29	2,433.42
Total Shareholders Equity	616.22	858.68	1,260.18	1,511.91	954.31	1,821.42	1,929.89	1,762.63

1 - As of September 2013
Source: Portugal Telecom's Form 20-F and Eaglestone Securities.

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Disclosures

Eaglestone was founded in December 2011 with the aim to be a committed partner for the development of businesses located primarily in Sub-Saharan Africa and to support the development of renewable energy projects on a global basis.

The company has three business activities- financial advisory services, asset management and brokerage- and currently has offices in Amsterdam, New York, Cape Town London, Lisbon, Luanda and Maputo.

Eaglestone is committed to operating and behaving according to the highest standards of corporate governance. Its subsidiary in the United Kingdom is authorized and regulated by the Financial Services Authority. The first of its six Luxembourg based funds has received approval from la Commission de Surveillance du Secteur Financier.

Eaglestone operates with a clear vision and mission to act on behalf of and in the best interests of all its stakeholders, whether they are investors, employees or users of its services.