

# The scramble for Africa

Ewan Sutherland

<http://www.3wan.net/>

## 1. Introduction

At one time the idea that cellular wireless telephony in Africa could be lucrative would have been regarded as madness – it was seen as politically risky and unprofitable, lying very much on the margins. Yet today, mobile telephony is becoming ubiquitous on the continent, with several large and still growing groups struggling to carve out space on the map and in spectrum allocations in order to ensure their continuing rapid growth. At the same time, they are trying to diversify into fixed networks, into Internet access, into television and even into banking.

The original Scramble for Africa was a transition from the informal imperialism of the European powers – through military influence and economic dominance – into direct rule. It saw a proliferation of conflicting claims to territory in the period between the 1880s and the Great War. The competition amongst Great Britain, France and Germany led to the Berlin Conference (1884-85) though this failed to establish definitively the competing claims. Ultimately these disputes became one of the origins the Great War. It was finally unwound in the 1960s and 1970s as the countries created in the Scramble were given their independence.

Today, the great powers are the mobile network operators, actively competing for their share of Africa. The leaders are the following:

- Celtel (MTC Group)
- Etisalat (Etisalat and Moov brands)
- France Telecom (Orange brand)
- Millicom (Tigo brand)
- MTN (MTN and Areeba brands)
- Orascom
- Vodafone (Vodafone, Vodacom and Safaricom brands)

Of these the Europeans are: France Telecom, Millicom and the Vodafone Group. MTC and Etisalat are from the Arabian Gulf while Orascom is from Egypt. MTN is a publicly quoted company on the Johannesburg Stock Exchange (JSE). A crucial question is the extent to which this can be called African, with only modest amounts of capital being generated in the continent. To compound the problem, the equipment, both handsets and infrastructure, come from Europe, North America and China.

The overall penetration rate, combining fixed and mobile, especially in Sub-Saharan Africa, is still relatively low, around 10 per cent and almost entirely composed of cellular wireless customers. Of these customers, well over 90 per cent are pre-paid. Fixed lines, with rare exceptions, are irrelevant both for voice and broadband. There are a small number of countries that starting from a very low base have failed, seemingly for political reasons, to adopt reforms and have languished as a result, notably Eritrea and Ethiopia.

That there are political risks in operating in Africa was reinforced by the decision of the Government of Robert Mugabe to revoke one of the cellular licenses in Zimbabwe.<sup>1</sup> Telecel had been assigned a license in 1997 with 60 per cent foreign ownership which it had undertaken to reduce. The failure to reduce the foreign holdings ultimately led to the loss of the license, though finding someone willing to invest hard currency in the Zimbabwean economy is impossible challenge. In Gabon there have been problems about privatization and in Benin about the imposition of new and greatly increased license fees. However, these have been the exceptions, rather than the rule.

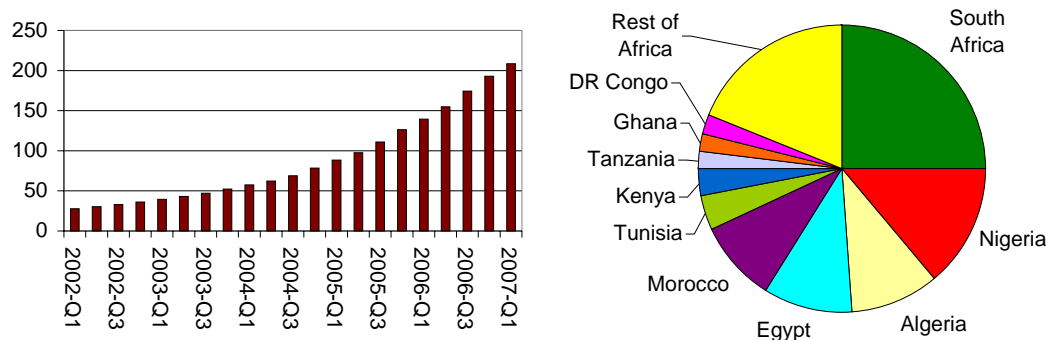
This paper considers the economic setting of Africa in terms of the funding for infrastructure. It then reviews the activities of the operators bulleted above, together with a shorter analysis of a number of smaller operators. The regulatory issues are then drawn out, followed by conclusions and issues for further research.

## 2. Economics and politics

Analyses of the state of Africa are commonplace, with differing degrees of optimism. Ayittey argues that a new post-independence generation is finally able to bring creativity and an entrepreneurial spirit to addressing the problems of the continent.<sup>2</sup> The Commission for Africa sought to synthesize views on what has worked and what has failed.<sup>3</sup> It asserted that it was a moral duty to assist Africa. While noting the weaknesses in accountability and capacity it described the need to establish economic environments that encouraged investment. As with many recent reports it saw hope in the upsurge in mobile telephony, even arguing that with 20 per cent teledensity totalitarian regimes would “find it hard to retain power”.

After years of stagnation in telecommunications and long waiting lists, the arrival of competitive and relatively affordable offers of mobile telephony allowed the market to grow solidly throughout this decade, reaching around 200 million customers (see figure 1). This is above twenty per cent, with estimates of the population covered by GSM signals of the order or 40 to 50 per cent. This confirmed the views that demand had been unmet for decades.

**Figure 1** *Mobile telecommunications in Africa*<sup>4</sup>



Even with some over-reporting of customer numbers, with several countries being too high to be accepted at face value, there is no dispute that there is the strong underlying growth.

<sup>1</sup> Zimbabwe: Telecel Subscribers Panic. *The Herald* (Harare) 11 August 2007.

<sup>2</sup> George Ayittey (2005) *Africa unchained: the blueprint for Africa's future* (New York, Palgrave Macmillan).

<sup>3</sup> <http://www.commissionforafrica.org/>

<sup>4</sup> ITU Telecommunications Indicators Database.

Much of this is accounted for in a relatively small number of countries that attract the greatest interest from operators. There is a need for more careful and thorough assessments of real use, through surveys of individuals to confirm the supply-side estimates.

There has been a sharp increase in competition in mobile telecommunications, with the number of monopolies declining to 11 in 2006.<sup>5</sup> Reaching four or five operators in a national market is rare, with South Africa stuck at three, Algeria also with three (since 2004), Egypt reaching three only in 2007 and Morocco still with two operators. The situation in access to international gateways is much less optimistic, with incumbent operators continuing to hold onto control in many more countries. With small numbers of operators there are heightened risks of collusion and the probability of much higher prices.

The levels of growth achieved and required in the future require considerable sums of finance. One estimate was that Sub-Saharan Africa would require annual investments of US\$ 2.8 billions for maintenance and US\$ 3.8 billions for new capacity, respectively 0.82 and 0.61 per cent of GDP.<sup>6</sup> This does not allow for 3G or for broadband Internet access.

As the World Bank has noted, the traditional International Financial Institutions (IFIs) have reduced their activities, with private financing taking an increasing role.<sup>7</sup> With operators becoming more established they are able to use retained earnings to fund their further expansion.

The Secretary-General of the International Telecommunication Union, Hamadoun Touré, has called for a Marshall Plan for African ICT infrastructure.<sup>8</sup> Whether African countries would wish to accept the sorts of conditionality that went with the Marshall Plan is open to serious doubt, given their reluctance to sanction peer review. As early as 1997, the World Bank contrasted the ITU view of a capital shortage with a criticism of the inefficient use of capital, the constraints on participation of private investors and corruption.<sup>9</sup>

The European Recovery Programme (ERP) was proposed in 1947 by George Marshall, the then US Secretary of State, to rebuild and to strengthen the countries of Europe after World War II. It was offered on the same terms to all countries, but on behalf of the countries in the Soviet sphere of influence, Molotov rejected the Marshall Plan calling it dollar imperialism.<sup>10</sup> It required countries to make political reforms, to eliminate tariff barriers and to participate in institutions to coordinate their economies. In the four years from July 1947 some US\$ 13 billion in economic and technical assistance were provided to the members of the Organization for European Economic Co-operation (OEEC), the predecessor of the Organization for Economic Co-operation and Development (OECD).<sup>11</sup>

Touré has described the very large number of projects currently filling the infrastructure void:<sup>12</sup>

- Afritel sub-regional projects (SRII)
- Boucle de Nord

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<sup>5</sup> ITU Telecommunications Regulatory Database.

<sup>6</sup> Mariane Fay and Tito Yepes (2003) Investing in infrastructure: what is needed from 2000 to 2010? World Bank Policy Research Working Paper 3102. (Washington DC, World Bank).

<sup>7</sup> Global ICT Department (2005) Financing information and communication infrastructure needs in the developing world. Working Paper no. 65 (Washington DC, World Bank).

<sup>8</sup> ITU Press Release for the Connect Africa Summit to be held in Kigali in October 2007. 11 July 2007.

<sup>9</sup> Mohammed Mustafa, Bruce Laidlaw and Mark Brand (1997) Telecommunication policies in Sub-Saharan Africa (Washington DC, World Bank).

<sup>10</sup> The Soviet Bloc eventually formed Council for Mutual Economic Assistance (Comecon or CMEA) and the Warsaw Pact to counter NATO.

<sup>11</sup> <http://www.oecd.org/>

<sup>12</sup> Hamadoun Touré (2007) Competitiveness and information and communication technologies in Africa. (Davos, World Economic Forum).

- Boucle de Sud
- COM-7 (Southern Africa railways)
- East African Backhaul System (EABS)
- East Africa Submarine System (EASSy)
- East African Digital Transmission Project (EADTP)
- FLAG
- GLO-1 (Globacom)
- Infinity West African cable
- Infraco
- NEPAD SPV
- NIGAL (Nigeria-Algeria oil pipeline)
- The East African Marine Systems (TEAMS)
- West African Festoon System

In a most peculiar twist, the South African government appears intent on refusing to allow a private cable to land, while it uses government funds to support a rival cable.

Without dramatic reforms to liberalize access to this capacity, it will take decades for demand to rise. The bottlenecks are the cable landing stations, leased lines to the landing stations and inefficient, bureaucratic incumbent operators. The limits on demand mean that bankruptcy seems inevitable as happened to Global Crossing, Teleglobe and Tyco.

The evidence below of trans-national operators makes clear that there is considerable demand for international capacity and the financial resources to pay for it, whether self-provided or purchased from third parties. The problems have been the many governmental obstacles to obtaining access to the existing capacity and constructing new capacity.

The ITU has identified countries emerging from wars and armed conflicts as having special requirements for support in their development of ICTs.<sup>13</sup> The attraction of investment and infrastructure is especially difficult in such circumstances.

**Table 1** *Mobile teledensity in countries emerging from wars and armed conflicts*

	2000	2001	2002	2003	2004	2005
Burundi	0.24	0.45	0.74	0.90	1.42	2.03
DR Congo	0.03	0.29	1.06	1.89	3.49	4.77
Eritrea	-	-	-	-	0.47	0.92
Ethiopia	0.03	0.04	0.07	0.14	0.25	0.53
Guinea	0.56	0.73	1.18	1.44	1.99	2.36
Guinea Bissau	-	-	-	0.10	3.19	5.01
Liberia	-	0.06	0.06	1.40	2.71	4.87
Rwanda	0.50	0.82	1.01	1.56	1.64	3.21
Sierra Leone	0.25	0.55	1.35	2.28	2.28	2.21
Somalia	-	0.87	1.01	1.67	4.17	6.08

To these should be added the regions of Darfur and Southern Sudan.<sup>14</sup>

In the economics of mobile telephony, the question of network externalities places an important role.<sup>15</sup> On one level it is an argument used by operators for high termination rates

<sup>13</sup> <http://www.itu.int/ITU-D/ldc/special-needs.html>

<sup>14</sup> Ericsson supported work to install a network in Juba.

[http://www.ericsson.com/ericsson/corporate\\_responsibility/cr06/community/helptosudan.shtml](http://www.ericsson.com/ericsson/corporate_responsibility/cr06/community/helptosudan.shtml)

on domestic markets and by operators and some governments seeking high international settlement rates.<sup>16</sup> [How does it work for internet?]

The issue of the economic benefits of telephony in Africa has been re-examined at the instigation of the GSM Association, presumably to support the case for more mobile telephony.<sup>17</sup> Much of the benefit arises from the supply of a basic telephone service, meeting the requirements of those who were on waiting lists or had never even hoped to be on a waiting list.

There is little, if any, quantitative evidence produced to show effects arising from the “mobility” of the phone, that is its characteristic of being able to go from one cell to another. There is considerable anecdotal evidence, with many plausible stories of the benefits obtained from using some or all of the characteristics of mobility. Equally, there is a strong preference among consumers for a device that is both portable and personal.

In much of Africa the constraints on supply have been lessened to the point where real and latent demand have together allowed the market to grow. The immediate future seems to be one of continued growth, as operators exploit cheaper and more effective technologies and business practices to reach out to poorer customers and those living in less densely populated areas. The surprise is that the operators have not yet reached the limits of their ability to supply economically – eventually they must reach a point where demand is constrained.

### 3. Celtel – MTC

The MTC Groups of Kuwait has become a widely spread and highly diversified mobile operators. With its acquisition of Celtel, it gained an extensive footprint in Africa (see table 2).

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<sup>15</sup> Atsushi Iimi (2007) Price structure and network externalities in the telecommunications industry: evidence from Sub-Saharan Africa. World Bank Policy Research Working Paper 4200. Washington DC, World Bank.

<sup>16</sup> There has been a rapporteur’s group on this topic for some years in ITU-T Study Group 2.

<sup>17</sup> L Waverman, M Meschi and M Fuss (2005) The impact of telecoms on economics growth in developing countries. The Vodafone Policy Paper Series, No 3 (Bracknell, Vodafone Group).

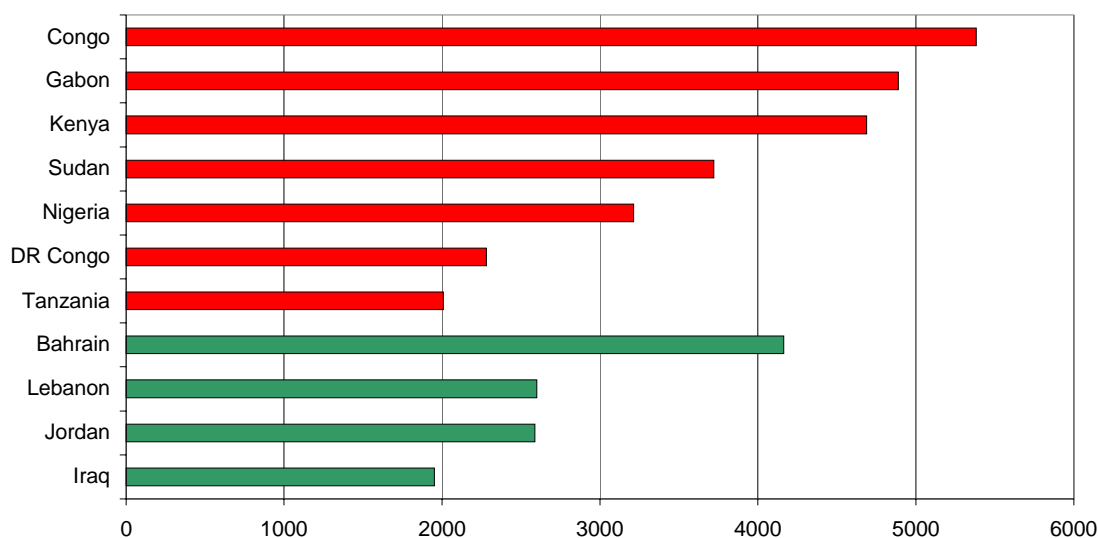
See also Lars Röllner and Len Waverman (2001) Telecommunications infrastructure and economic development: a simultaneous approach. *American Economic Review* 91 (4) 909-923.

**Table 2** *MTC customers and markets – 2007 first half*

<i>Customers</i>	<i> Holding</i>	<i> Customers</i>	<i> Growth</i>	<i> ARPU</i>	<i> Market Share</i>	<i> Rank</i>	<i> Penetration</i>
Iraq	30%	3,601,000	73%	\$13	39%	1	38%
Jordan	96.5%	1,941,000	(4%)	\$19	46%	1	75%
Kuwait	100%	1,518,000	7%	\$71	58%	1	104%
Lebanon	*	598,000	12%	n/a	50%	-	29%
Bahrain	56.25%	257,000	27%	\$37	34%	2	153%
Nigeria	65%	7,967,000	44%	\$12	25%	3	26%
Sudan	100%	3,224,000	64%	\$21	52%	1	12%
Kenya	60%	2,392,000	13%	\$7	31%	2	25%
DRC	98.5%	1,944,000	35%	\$12	46%	1	9%
Tanzania	60%	1,912,000	64%	\$11	39%	2	18%
Zambia	88.8%	1,610,000	67%	\$12	79%	1	16%
Congo Braz.	90%	821,000	78%	\$20	73%	1	30%
Gabon	90%	581,000	34%	\$33	63%	1	62%
Uganda	100%	897,000	168%	\$9	28%		
Burkina Faso	100%	710,000	85%	\$12	58%		
Niger	80%	510,000	69%	\$15	73%		
Chad	100%	469,000	69%	\$17	67%		
Malawi	100%	469,000	64%	\$11	59%		
Madagascar	100%	404,000	55%	\$9	33%		
Sierra Leone	100%	320,000	64%	\$13	45%		
MTC Group	-	32,145,000	42%	-	-		

\* A management contract

Celtel reports the market shares in each of its markets, in order to assess alongside its ranking, the prospects for growth. This allows the calculation of the market concentration, albeit that the assumption has to be made that the market is separate from fixed telephony and that market shares there are irrelevant. The HHI values range from over 5,000 down to 2,000 (see figure 2).

**Figure 2** *Market concentrations in selected countries*

Celtel has been a leader in the abolition of international roaming charges for its customers, pre-paid and post-paid.<sup>18</sup> Initially in East Africa and then in a swathe cut across the continent (see figure 3) it has made incoming calls free, charges outgoing calls at the same rate as in the home country and sells top-up cards usable regardless of the country. It did so because few of its customers could or would pay the rates charged to Europeans and Americans and because it could generate more revenue on their networks by keeping customer on-net, rather than have them switch to a rival operator on crossing a border. Celtel also sought to use its contiguous footprint as a competitive weapon against rivals who had to scramble to assemble ad hoc coalitions to compete.

**Figure 3**      *One nation footprint without roaming charges*



In mid-2007, the International Financing Corporation (IFC) led a consortium with African banks making a loan to Celtel of US\$ 320 millions.<sup>19</sup> The money was to be used to build networks in rural areas and other regions without cellular service in:

- Democratic Republic of Congo
- Madagascar
- Malawi
- Sierra Leone
- Uganda

As the penetration rates in Table 1 show, organic growth can continue for a considerable time, including rural areas. Further acquisitions are possible, but the opportunities are diminishing and the prices are often high.

#### 4. Etisalat

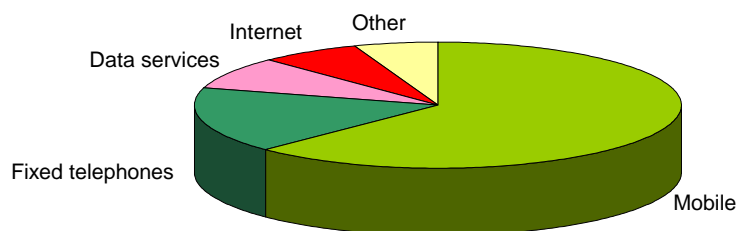
Etisalat (Emirates Telecommunications Corporation), formerly Emirtel, began as the monopoly telecommunications provider in the United Arab Emirates (UAE) in 1976.<sup>20</sup> In 1982, it was the first operator in the Arabian Gulf to introduce a mobile phone service. It was an early adopter of GSM technology, launching a service in 1994 and then launching a 3G/UMTS service in 2003.

Revenues for 2006 were AED 16.3 billions, up from AED 12.9 billions the previous year, with much of the business and especially the growth coming from cellular wireless (see figure 4). Its growth has been based on acquiring green-field licenses and by taking stakes in existing operators. Etisalat owns 27 per cent of Thuraya Satellite Telecommunication Company, another firm based in the UAE, offering combined GSM and GMPSC services in Europe, Africa and Asia.

<sup>18</sup> Ewan Sutherland (2008) The regulation of international mobile roaming charges. *Forthcoming*.

<sup>19</sup> Celtel gets \$320m for African expansion. *ITWeb!* 13 June 2007.

<sup>20</sup> <http://www.etisalat.ae/> see also <http://www.zawya.com/cm/quote.cfm/ricETISALAT.ADSM>

**Figure 4** *Etisalat business*<sup>21</sup>

In 2006 Etisalat was ranked 278<sup>th</sup> in the Financial Times 500, but fell to 444<sup>th</sup> in 2007.<sup>22</sup>

The mobile activities of Etisalat are in the Middle East, Asia and Africa (see table 3). A number of new networks were launched in late 2006 and early 2007, which should see significant growth in 2007.

**Table 3** *Etisalat mobile activities*<sup>23</sup>

Country	Brand	Holding	Customers
Afghanistan	Etisalat	100%	-
Pakistan	PTCL	25%	10,000,000
Saudi Arabia	Mobily	35%	6,000,000
UAE	Etisalat	100%	5,500,000
Egypt	Etisalat Misr	66%	-
Sudan	Canar	37%	-
Tanzania	Zantel	34%	-
West Africa	Atlantique/Moov	50%	2,000,000

Etisalat acquired 26 per cent of Pakistan Telecommunication Company Limited (PTCL), the fixed incumbent and a mobile operator, from the Government of Pakistan. It provides PTCL technical and management services in return for 3.5 per cent of the gross consolidated revenues. In May 2006 it was awarded the 4th nationwide GSM by the Afghanistan Telecommunications Regulatory Authority (ATRA). Etisalat Afghanistan is expected to be operational in 2007.<sup>24</sup>

Etisalat holds 35 per cent of Mobily,<sup>25</sup> the second mobile operator in Saudi Arabia, with the remaining share being held by a range of private interests and quoted on the Saudi Stock Exchange.<sup>26</sup> By the end of 2006 it had acquired more than 6 million customers, in a market of 27 million people, though still with a total mobile teledensity of only 24 per cent.<sup>27</sup>

<sup>21</sup> Etisalat (2007) Annual Report 2006. (Dubai, Etisalat).

<sup>22</sup> <http://www.ft.com/reports/ft5002007/>

<sup>23</sup> Etisalat 2006 Annual report.

<sup>24</sup> <http://www.etisalat.af/>

<sup>25</sup> <http://www.mobily.com.sa/>

<sup>26</sup> <http://www.zawya.com/cm/profile.cfm/cid1002491/ric7020.SSE>

<sup>27</sup> Calculating teledensities for countries in the Arabian Gulf are complicated by having to allow for large numbers of resident aliens.

Egypt had two relatively successful GSM operators, Mobinil (France Telecom) and Vodafone Egypt to which it wanted to add a third, offering it UMTS spectrum on a fifteen year license. After intensive bidding, the winner was Etisalat Misr, a consortium comprising Etisalat, Egypt Post, National Bank of Egypt and the Commercial International Bank (CIB).<sup>28</sup>

The license payment, the winning bid, was EGP 16.7 billions (€2.2 Bn) paid immediately on signing the agreement. Additionally, Etisalat Misr would pay 6 per cent of its revenues annually to the National Telecommunication Regulatory Authority (NTRA). While the Egyptian market is large, relatively concentrated in the Nile Valley and there are still many people who do not have a mobile phone, the sum paid and the substantial cost to be paid for the construction the network suggest this may not be an easy investment to be recouped.

The new network was planned to be live in March 2007, but was delayed until 1<sup>st</sup> May 2007, initially covering Cairo, Alexandria, Hurghada and Sharm El Sheikh. The ambitious target was to have million customers within 3 years.

Etisalat is already offering 3.5G/HSDPA services directly on phones and on computers via a phone or a USB modem. Pricing plans range from 100 Megabytes per month for EGP 29 to 5 Gigabytes per month for EGP 549, with additional Megabytes costing EGP 1.<sup>29</sup>

In Sudan, Etisalat has 37 per cent of “Canar” plus a renewable management agreement to implement, operate and maintain networks.<sup>30</sup> Canar claims to be the first operator in Africa to deploy an NGN network, covering Greater Khartoum and five major cities. During December 2006, Canar launched a cdma2000 EV-DO network, under the brand of “Canar Go”.

Zanzibar Telecom Limited (Zantel) has been operating since mid-1999 with its own international gateway.<sup>31</sup> In addition to Etisalat (34%), the ownership comprises government of Zanzibar (18%), Kinbary Investment (24%) and Meeco International (24%). In 2005 Zantel expanded its operations to mainland Tanzania, allowing it to triple the size of the business. Etisalat has a management services agreement.

In April 2005, Etisalat acquired 50 percent of Atlantique Telecom,<sup>32</sup> together with a management contract, which had six GSM networks in West and Central Africa:

- Benin<sup>33</sup>
- Burkina Faso<sup>34</sup>
- Togo<sup>35</sup>
- Niger<sup>36</sup>
- Gabon<sup>37</sup>
- Central African Republic<sup>38</sup>

It added a license for Côte d’Ivoire with the network coming into services in July 2006 under the brand “MOOV” which is being adopted by all its networks.<sup>39</sup> Its subscriber base

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<sup>28</sup> <http://www.etisalat.com.eg/> see also <http://www.zawya.com/cm/profile.cfm?companyid=1004760>

<sup>29</sup> <http://www.etisalat.com.eg/english/personal/services/highspeedinternet.html/#price>

<sup>30</sup> <http://www.canar.sd/>

<sup>31</sup> <http://www.zantel.com/>

<sup>32</sup> <http://www.atlantiquetelecom.com/>

<sup>33</sup> <http://www.moov.bj/>

<sup>34</sup> <http://www.moov.com/bf/index.htm> and <http://www.moov.bf>

<sup>35</sup> <http://www.moov.tg/>

<sup>36</sup> <http://www.moov.com/ne/index.htm>

<sup>37</sup> <http://www.moov.ga/>

<sup>38</sup> <http://www.moov.com/cf/index.htm>

<sup>39</sup> <http://www.moov.com/index.htm>

rose from under 400,000 in 2005 to over 1.3 million by the end of 2006. It has a ten year management service agreement with Atlantique Telecom for which it is paid €2 million per annum.

The NRA in Benin in July 2007 took the highly unusual step of ordering Atlantique Telecom and MTN to accept new licenses with initial one-off payments of CFA Fr 30 billions (about US\$ 50 millions) each. This followed the election the previous year of Thomas Yayi Boni as President of Benin.<sup>40</sup> He created *l'Autorité transitoire de régulation des postes et télécommunications* (ATRPT) which reviewed the previous governance of the sector, evidently taking the view that it had been grossly deficient, that licenses had been sold at very low prices and the fees not paid in full.<sup>41</sup>

There were estimated to be 450,000 customers of Moov and 514,000 of Areeba, so that the fees proposed would have been about US\$ 100 per customer or the ARPU for a full year. Understandably, the operators balked at this. The employees appealed to the President, fearing for the loss of their jobs.

The nature of the request, its short notice and the excessive sum, make this regulatory action far more than a “windfall tax” and closer to blackmail. Clearly, any operator would now have to allow for future financial demands by this or a subsequent government.

Globacom, trading as Glo Mobile, and the second mobile operator in neighbouring Nigeria evidently paid and was assigned a license in August 2007.<sup>42</sup>

One of the ironies of its activities is that, until February 2007, Etisalat was a monopolist at home not facing any entrants to its home market. It has been expanding rapidly into a variety of countries from the Atlantic Ocean to the Himalayas, mainly in Muslim countries. It is not merely acquiring licenses and operations, but also obtaining significant revenues by providing management services.

The reporting requirements and practices in the Arabian Gulf allow Etisalat a degree of vagueness that precludes many insights into businesses that are under more conventional obligations.

## 5. France Telecom – Orange

France Telecom is the incumbent or *opérateur historique* in France. With that has come a role in providing telecommunications to former French colonies in Africa and elsewhere, providing services in overseas *départements*, such as La Réunion. [France Cables et Radio (FCR).]

Orange began in the United Kingdom as part of the aggressive entry into the mobile telecommunications business by Hutchison Whampoa Limited (HWL) of Hong Kong. After a series of acquisitions it was itself acquired by the France Telecom Group.

The Orange brand has been expanded by France Telecom to include all its mobile and corporate telecommunication offers in France and abroad. Mobile operations have gradually been rebranded as Orange, for example, Ivory Coast and Cameroon in 2002, then Botswana and Madagascar in 2003. The group strengths include the ability to build once and deploy in all markets and to make purchases of content and services globally.

In analyzing the emerging markets, France Telecom saw itself as well positioned to capture growth opportunities in Eastern Europe, the Middle East and Africa, thus contribute

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<sup>40</sup> <http://www.yayiboni.com/>

<sup>41</sup> Martial Kounou (2007) BENIN : le courage d'un homme. Cotonou, Gouvernement de la République du Bénin. [http://www.gouv.bj/affiche\\_actualites1.php?numero\\_article=691](http://www.gouv.bj/affiche_actualites1.php?numero_article=691)

<sup>42</sup> Benin grants mobile license to Nigeria's Globacom. *Reuters*. 14 August 2007.

strongly to growth of the group.<sup>43</sup> Compound Annual Growth Rates (CAGR) were forecast to be four to eight per cent, as against less than one per cent in Western Europe and North America. Success was to be based on its proven ability to operate in challenging environments.

From a relatively late start and without expensive acquisitions, France Telecom has built up a respectable presence (see table 4). However, it will have to find many more licenses in Africa or in South-East Asia to achieve a sufficient scale in emerging markets and to generate the growth required for the group.

**Table 4** *France Telecom Group in Africa (2005)*<sup>44</sup>

	<i>Mobile teledensity</i>	<i>Rank</i>	<i>revenues</i>	<i>population</i>	<i>GDP growth</i>
Madagascar	5%	1	32	19	5.1%
Mali	11%	1	-	14	6.1%
Cameroon	17%	2	165	17	2.4%
Côte d'Ivoire <sup>45</sup>	22%	1	208	17	1.0%
Egypt	24%	1	603	76	4.9%
Senegal	28%	1	-	11	6.1%
Botswana	55%	2	40	2	5.5%
Mauritius					

Revenues are for 2004 in € millions.

France Telecom has stressed that it sought to expand in Africa by organic growth and not by acquisition.<sup>46</sup> The implication was that the prices to buy existing operators were too high, while there were alternative opportunities.

In March 2007, Sonatel, for France Telecom acquired the third mobile telecommunication license in Guinea Bissau and purchased a similar license in Guinea.<sup>47</sup> The following month, France Telecom acquired mobile and Internet licenses in the Central African Republic. It planned to launch networks in these countries by the end of 2007.

France Telecom controls Sonatel, the incumbent telecommunications operator in Senegal, through a 42.3 per cent holding. Sonatel provided fixed-line telephony services on 311,000 lines at the end of 2006.

France Telecom indirectly holds 40% of Mauritius Telecom, the incumbent operator in Mauritius. Mauritius Telecom had approximately 405,000 lines at the end of 2006. [Mobile?]

Mobile television is an area where significant growth is being forecast by Orange, primarily in developed countries.<sup>48</sup> However, it is already offered in Egypt, Jordan and the Dominican Republic. In 2007, OrangeWorld in France was one of the world largest live television and Video on Demand (VoD) portals, offering sixty live channels and 3,000 short videos, a further 500 being added each week.

The intention is to offer customers instant access, while on the move – never missing a programme – and allowing individual viewing in the home. The mobile handset would be the third screen, alongside the television and the personal computer, supported by

<sup>43</sup> Sanjiv Ahuja (2006) Investor day: emerging markets. Paris, France Telecom.

<sup>44</sup> Sanjiv Ahuja & Brigitte Bourgoïn (2005) Orange International. Presentation on 23rd March 2005.

<sup>45</sup> France Telecom owns a 51% shareholding in Côte d'Ivoire Télécom.

<sup>46</sup> Interview with Marc Rennard - Orange eyes growth in Africa, not in talks. *Reuters*. 16 May 2007.

<sup>47</sup> Previously held by Spacetel.

<sup>48</sup> Hervé Payan (2007) Mobile TV strategy and update. Presentation on 5<sup>th</sup> April 2007. Paris, France Telecom Group.

considerable improvements, especially in graphic resolution, by 2010-2012 for mid-range handsets (€200). The aim was to match the “zapping” of remote controllers to change channels. Television is seen as an effective way to increase 3G usage, though popular channels would be off-loaded onto DVB-H.

Mobile television was expected to facilitate customer acquisition and to improve ARPU from:

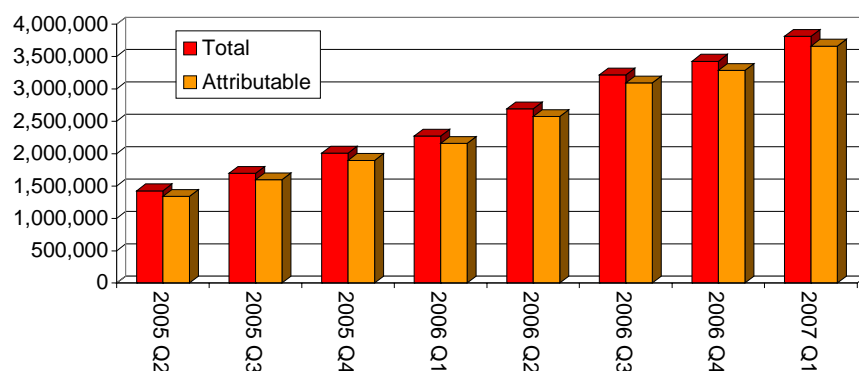
- subscriptions
- usage
- advertising

While the presence of France Telecom in Africa is less complete or coherent than some other operators it has made significant strides in a relatively short period of time. Its strategy of acquiring licenses and building new networks is one that will take time to show rewards. However, Africa can deliver significant growth for the France Telecom group in customer numbers and revenues and allows it to leverage its linguistic strength.

## 6. Millicom

In the financial years 2002 to 2006, Africa rose from being 11 per cent of the customers to being 26 per cent, while the proportion of the revenues has risen from 16 per cent to 20 per cent. The growth is solid, quarter by quarter (see figure 5). Some of the customers are non-attributable since Millicom does not own all the equity in all its operations and must account for this in customer numbers.

**Figure 5** *Growth of Millicom customers in Africa*<sup>49</sup>



**Table 5** *Millicom revenues in Africa (US\$ 000s)*<sup>50</sup>

	2002	2003	2004	2005	2006	2007
Revenue	62,011	83,967	149,802	204,397	312,105	0
EBITDA	14,690	35,188	65,879	88,167	122,572	0

Millicom has been active in moving from the Tango brand to Tigo in Africa and globally.

<sup>49</sup> Data provided by Millicom on the investors' page of its web site entitled “Financial data by cluster”.

<sup>50</sup> Millicom annual reports.

In early 2006, Millicom announced that it had sought advice on disposing of the firm, there apparently being investors interested in purchasing it. China Mobile emerged as the leading but found the proposed price of US\$ 5.3 billion, following the MTN acquisition of Investcom, to be too high. Eventually, it acquired from Millicom its interests in Pakistan, its first operations outside China.

The high value of telecommunication assets in emerging markets has discouraged China Mobile:

We will focus on emerging markets. Unfortunately, it is a bad time for buyers in emerging markets because [telecoms assets] are very expensive." Wang Jianzhou, Chief Executive, China Mobile.<sup>51</sup>

Millicom continued its remaining business as a standalone operation.

## 7. MTN

MTN began its existence in 1994, shortly after becoming a public company and later listing on the Johannesburg Stock Exchange (JSE).<sup>52</sup>

In the late 1990s, MTN International began its expansion acquiring licenses in Uganda, Rwanda and Swaziland. A crucial development was the acquisition of GSM 900 and 1800 licenses in Nigeria, for US\$285 million, allowing operations to begin in August 2001. Its presence in Nigeria is now almost as large as in South Africa, but with greater potential for expansion.

MTN reported forty million customers at the end of 2006 spread across Africa and the Middle East (see Table 6). The ARPU figures vary considerably from only US\$ 1 in Yemen to US\$ 23 in South Africa. MTN offers a 3G/HSDPA service in South Africa which it clearly intends to roll-out to other markets once it has developed appropriate pricing and marketing strategies.

**Table 6** MTN customers and ARPU as at 31 December 2006<sup>53</sup>

South & East Africa			West & Central Africa			Middle East & N. Africa		
		\$			\$			\$
South Africa	12,483,000	23	Nigeria	12,281,000	18	Sudan	1,066,000	16
Swaziland	268,000	20	Ghana	2,585,000	17	Iran	154,000	9
Botswana	600,000	19	Cameroon	1,783,000	15	Afghanistan	218,000	14
Zambia	187,000	19	Côte d'Ivoire	1,625,000	18	Syria	2,237,000	17
Uganda	1,595,000	12	Congo Brazzaville	280,000	20	Yemen	1,161,000	1
Rwanda	384,000	17	Liberia	218,000	18	Cyprus	76,000	3
			Benin	476,000	21			
			Guinea Conakry	276,000	17			
			Guinea Bissau	98,000	12			
<b>Total</b>	<b>15,517,000</b>		<b>Total</b>	<b>19,622,000</b>		<b>Total</b>	<b>4,912,000</b>	

M-Cell acquired CiTEC in May 2002, a tier-one South Africa ISP, renaming it MTN Network Solutions. This provides value added services, including VPNs, to corporate customers.

The acquisition of Investcom, even at the price of ZAR 33.5 billion, greatly extended its reach, making it the largest player on the continent and a significant player on a global

<sup>51</sup> Valuations deter China Mobile. *Financial Times*. 17 August 2007.

<sup>52</sup> <http://finance.google.com/finance?q=JNB:MTN>

<sup>53</sup> MTN Group Limited (2007) Final audited results for the year ended 31 December 2006.

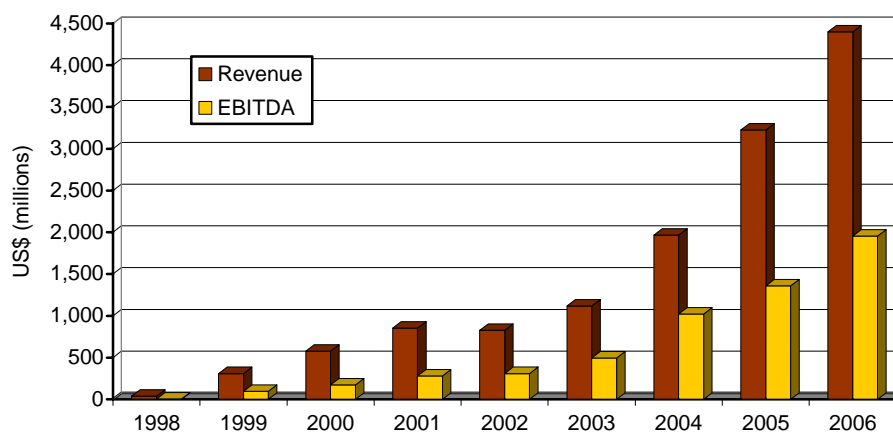
level. It has strong prospects for organic growth and, once it has fully integrated the Investcom Areeba networks, will be able to consider further acquisitions. Its purchasing power and the ability to try new business ideas and to deploy them is almost unmatched in developing countries.

## 8. Orascom

Weather Investments (Italy) is a holding company, owning 100 per cent of the Wind Group (Italy) and Wind Hellas (formerly TIM Hellas), plus 50 per cent plus one share of Orascom Telecom Holdings (OTH). The remaining shares in OTH are listed on the Cairo and London Stock Exchanges. Weather Investments is privately controlled by the Sawiris family which holds 97 per cent of its stock.

OTH has shown solid growth over the last decade (see figure 6).

**Figure 6** *The growth of Orascom Telecom Holdings<sup>54</sup>*



As with other large operators this growth is now very widely spread (see table 7). In addition, OTH also holds 19.3 per cent of Hutchison Telecom International Ltd (HTIL).

**Table 7** *Orascom Telecom Holdings at the end of 2006*

country	brand	holding	customers*	share*	rank	revenues	EBITDA
Algeria	Djezzy	96.8%	10,531,000	63.8%	1	1,513	991
Egypt	Mobinil <sup>55</sup>	33.0%	9,267,000	52.1%	1	512	255
Tunisia	Tunisiana	50.0%	3,069,000	46.5%	2	218	102
Pakistan	Mobilink	88.7%	22,492,000	46.3%	1	1,107	407
Bangladesh	Banglalink	100.0%	3,276,000	15.3%	3	94	(29)
Iraq	Iraqna	100.0%	2,904,000	32.8%	1	520	239

\* updated to end of 2007 Q1.

<sup>54</sup> Investor Presentation, Orascom Telecom Holding, March 2007.

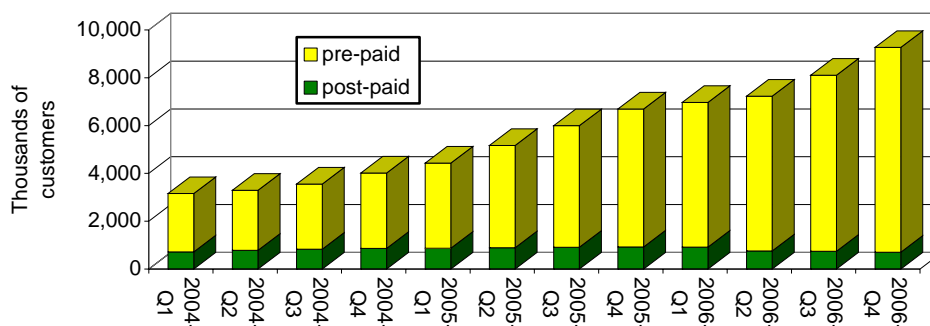
<sup>55</sup> The brand name used in Egypt is "Mobinil", however the operating company is ECMS. ECMS is owned in three parts: 30.7% is held by the public, 18.37% by ETH and 51% by Mobinil. Mobinil is owned jointly by France Telecom 71.25% and Orascom Telecom Holdings 28.75%. The net effect being the ETH holds 33.03% and France Telecom hold 36.3% of ECMS.

The government of Algeria had decided in 1999 to begin a process of reform, by opening the market, in first instance by admitted a second mobile network operator. Orascom was considered lucky to obtain the second license in Algeria at a time when many operators were rethinking their strategies and worrying about the high costs of licenses and network construction.<sup>56</sup> Nonetheless it paid US\$ 737 millions against the second bidder FT Orange which offered only US\$ 422 millions. Mobilis, later renamed Djezzy, began its operations in February 2002, achieving considerable growth against an incumbent operator that, unlike its Moroccan neighbour, was insufficiently prepared for competition.<sup>57</sup> A third operator, Wataniya, entered the Algerian market in August 2004.

Orascom is presently disputing before the Council of State,<sup>58</sup> decision by the Algerian regulator<sup>59</sup> to declare Djezzy a dominant operator.

In Egypt, Mobinil with only a GSM license now faces competition from Vodafone Egypt and Etisalat Misr which also have 3G licenses. This should prove to be an interesting difference in strategies. Competition already appears to be eroding post-paid subscribers and likely to be accelerated by the introduction of number portability (see figure 7).

**Figure 7** *The growth of Mobinil<sup>60</sup>*



Like others, Orascom has a strategy for profitable growth requiring it to reduce costs, to increase usage of its networks, to sustain its leading positions and to develop profitable revenue streams.

## 9. Vodafone

The origins of Vodafone lie in the desire of the government of the United Kingdom to create a second operator to compete with the fixed incumbent, which was limited to being a partner in Cellnet. Vodafone quickly moved into a range of countries as market liberalization made spectrum licenses available and also made a sequence of increasingly expensive and aggressive acquisitions, notably the contested takeover of Mannesmann Mobilfunk of Germany.

Today, Vodafone is the largest operator in the world by revenues, some £31 billions in 2007 (see figure 8). In numbers of customers, China Mobile is larger, although Vodafone has been buoyed up by its acquisition from Hutchison of Essar in India.

<sup>56</sup> Paul Nomba Um (2002) A policy note on telecommunications reform in Algeria. (Washington DC, World Bank).

<sup>57</sup> <http://www.mobilis.dz/>

<sup>58</sup> <http://www.conseil-etat-dz.org/>

<sup>59</sup> <http://www.arpt.dz/>

<sup>60</sup> Mobinil (2007) Investor presentation. March, 2007.

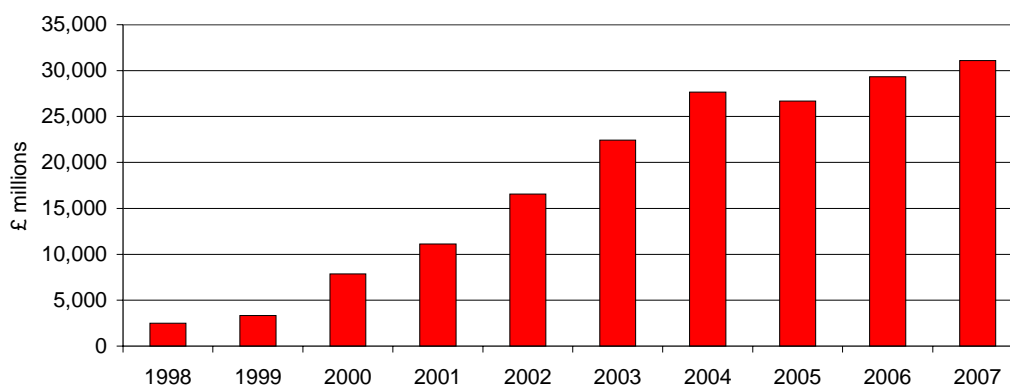
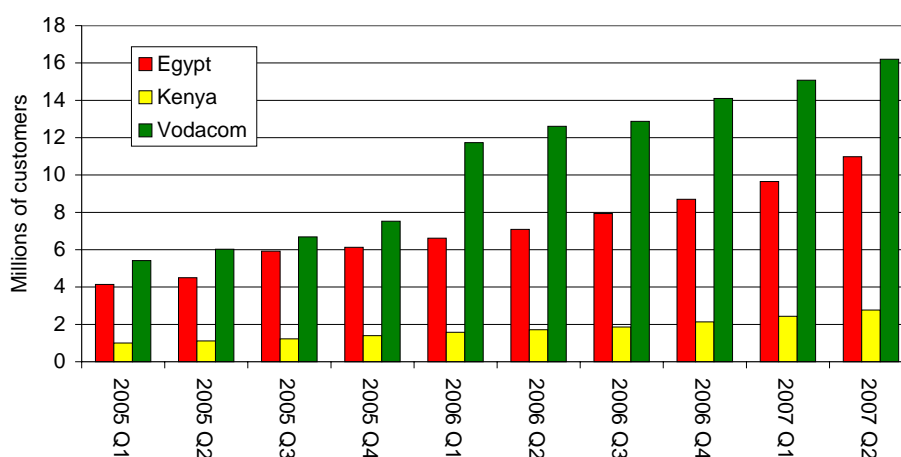
**Figure 8** *Vodafone Group revenues<sup>61</sup>*

Figure 9 shows the growth of Vodafone in Africa. The numbers for Vodacom are one half of the customers, being the share owned by Vodafone, they include the activities in five countries (see also table 6).

**Figure 9** *The growth of Vodafone in Africa<sup>62</sup>*

Vodacom is now a 50:50 joint venture between Telkom, the South African fixed incumbent and Vodafone, the two having bought out a third party. According to government policies, the Vodacom South Africa, though not the other parts, is expected to have a substantial Black Economic Empowerment (BEE) partner, which at present it lacks.

The relationship between Vodafone and Telkom, nominally equally owners of Vodacom has been the subject of considerable speculation in the press and the financial markets. Telkom in the period from mid-2006 to mid-2007 lost all of its c-level executives, with some going to Vodacom. Clearly, this level of disruption in senior management has made the relationship with Vodafone more difficult.

One course of tension arose from the decision to divide Africa along the Equator, with Vodacom confined below that line, expanding into neighbouring countries (see table 8). Vodacom tried to enter the Nigerian market but withdrew for undisclosed reasons. It now

<sup>61</sup> Consolidated Income Statement for the years ended 31 March.

<sup>62</sup> Vodafone Group plc. Mobile telecommunications businesses. Key performance indicators as at 30 June 2007.

finds further purchases too expensive and has been less dynamic than France Telecom and Etisalat in obtaining green field licenses.

**Table 8** *The Vodacom Group*<sup>63</sup>

<i>Country</i>	<i> Holding</i>	<i> Revenues</i>	<i> Growth</i>	<i> EBITDA</i>	<i> ARPU</i>	<i> Customers</i>
South Africa	100%	37,007	19.1%	12,963	125	23,000,000
Tanzania	100%	1,729	31.8%	584	52	3,200,000
DR Congo	100%	1,914	43.5%	603	77	2,600,000
Mozambique	98%	158	70.3%	(69)	28	988,000
Lesotho	88%	227	33.5%	97	75	279,000
Total		41,146	20.9%	14,227	111	30,200,000

Revenues and EBITDA are in millions of Rand, ARPU in Rand per month.

For many years the Vodafone Group held itself to be above copper networks, everything could be done better with GSM, then with UMTS. In a u-turn in 2006, Vodafone began to deploy bundles for consumers that included fixed broadband, using unbundled local loops from incumbent operators. In Africa, this is not a practicable option, there being few such lines and no regulations permitting access.

In South Africa, Vodacom ought logically to have offered a bundle with ADSL, since it is a joint venture of Vodafone and Telkom. Instead, it has begun to offer WIMAX, with GSM. It is competing against the Telkom ADSL offer with HSDPA and winning.

Vodacom has allied itself with iBurst, a Wimax operator, in order to offer triple play, rather than with Telkom which has an ADSL offer. It was also seeking further spectrum to improve such offers. Rather than used leased lines from Telkom, Vodacom has begun to construct its own network infrastructure as recent liberalization permitted.

In South Africa Vodacom has been relatively successful with its mobile data offer of GPRS, EDGE and HSDPA. Although expensive by African standards, it offers an alternative to the ADSL service from Telkom that many customers consider preferable. Business and professional users can purchase the service, for example, 1GigaByte per month for ZAR 349 or 10 GB for ZAR 2,049, further MB cost 1.20 and 1.00 respectively. Indeed the growth seems to have made the cellular data offer the preferred option for rich customers.

Vodafone acquired a 3G license in Egypt and has launched its service there. It is not clear what sort of offers it will develop to provide affordable services, beyond a niche mobile IP access service.

One of the early African investments by Vodafone was in Kenya, where it operates under the Safaricom brand, with the addition of a Vodafone logo. However, at some point five per cent of the shareholding of Safaricom was assigned to Mobitelea Ventures, a company not listed in Kenya and whose owners remain a mystery.

## 10. Other operators

There are a number of other smaller players in Africa, including:

- Econet
- HiTs Africa
- Portugal Telecom

<sup>63</sup> Vodacom Group (2007) Annual report 2007.

- Tunisie Telecom
- Vivendi
- Wataniya

Econet Wireless Holdings Limited (EWHL) is a holding company for several cellular network operations, provision of Internet access and transaction processing services.<sup>64</sup> It has had one of the most troubled and litigious courses of any mobile network in the world. A joint venture with the Allied Technologies Group (Altech) ended in acrimony.

Econet Wireless (Private) Limited is its main cellular operation, with a license in Zimbabwe.<sup>65</sup> It had a subscriber base of 634,000 at 28 February 2007 up from 457,000 the previous year.

Operations in Zimbabwe have been extremely difficult for Econet, being forced to suspend plans to increase its customer base. All three mobile network operators – Econet, NetOne and Telecel – had been forced to reduce their tariffs drastically in July 2007, following a government decision aimed at tackling hyperinflation, probably in excess of 4,000% this year. It cut rates from between ZWD 7,000 and 10,000 per minute to between ZWD 500 and ZWD 800 a minute. It also faced very severe obligations to provide wire-tapping facilities to the secret police. Such dramatic price reductions and problems in obtaining hard currency make running a mobile network extremely difficult.

Econet also operates in:

- Burundi<sup>66</sup>
- Kenya
- Lesotho (Econet Ezi-Cel<sup>67</sup>)
- Nigeria (65% of V-Mobile)

The ownership of V-Mobile has been disputed extensively, including a hearing in an English High Court, following an arbitration award in favour of Econet.<sup>68</sup> For the present, Econet appears to be the winner.

Econet holds the third license in Kenya but has been in dispute with both its partner the Kenya National Federation of Cooperatives (KNFC) and the government. In July 2007, it claimed to have a valid license and intended to begin operations as Econet Kenya.

Econet Wireless together with the Hautaki Trust, representing Maori interests, obtained a cellular license in New Zealand. However, despite the passage of several years no network had been constructed. The company was reconstructed with capital investment from two international private equity funds GEMS and CVP and renamed NZ Communications Ltd. The interest of Econet was reduced to 10 per cent. NZ Communications then signed a major contract Huawei for equipment to construct a network in time to avoid losing its license.

Econet also operates YourFone and Through Data. YourFone provides a community phone service in both cities and agricultural centers. Data Control and Systems (1996) (Pvt) Ltd., provides Internet service for corporate and individual dial-up customers. It also provides financial transaction switching, point-of-sale and value-added services through Transaction Processing Systems (Pvt) Ltd.

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<sup>64</sup> <http://www.econetwireless.com/>

<sup>65</sup> <http://www.econet.co.zw/>

<sup>66</sup> <http://www.econet.bi/>

<sup>67</sup> <http://www.telecom.co.ls/>

<sup>68</sup> Vee Networks Limited v Econet Wireless International Ltd. High Court (England), Queen's Bench Division: Colman J.: [2004] EWHC 2909 (Comm): 14 December 2004.

HiTs Telecom is a company based in Saudi Arabia which created HiTs Africa to develop its activities there. It has a US\$ 1 billion investment plan to establish eight operators by 2009 and two more in 2010 offering GSM, 3G, WIMAX, fixed and international services.<sup>69</sup>

HiTs Africa initially acquired a unified service license in Uganda in March 2007. Then in April 2007 it bought a 45 per cent stake in LiberCell, the second mobile operator in Liberia, with an option to increase this to 75 per cent. Like other operators it is in discussions to acquire licenses in other countries, including Tanzania and the Democratic Republic of Congo.

Portugal Telecom, like France Telecom, has strong relationships with its former colonies (see table 9).<sup>70</sup> In 2007, it creates "Africa Holding" as a vehicle for its investments in Africa and in order increase the value of its assets, selectively to expand the footprint and to "strengthen the relationship network and know-how in the region."

**Table 9** *Portugal Telecom – Africa Holding*<sup>71</sup>

<i>country</i>	<i>operator</i>	<i>activity</i>	<i>holding</i>	<i>customers</i>
Angola	Unitel*	mobile	25%	2,049,000
Angola	Multitel	data	40%	-
Botswana	Mascom	mobile	management contract	
Cape Verde	CVT	integrated	40%	182,000
Guinea-Bissau	Guinétel	mobile	55%	-
Guinea-Bissau	Guiné Telecom	fixed	40%	-
Namibia	MTC	mobile	34%	610,000
Mozambique	Teledata	data	50%	-
São Tomé et Príncipe	CST*	integrated	51%	26,000

\* A management control contract.

A minority stake of 22 per cent of Africa Holding is held by Helios Investors LP (Helios), a fund advised by Helios Investment Partners LLP.<sup>72</sup> Helios is an African private equity firm, founded in 2004 by Babatunde Soyoye and Temitope Lawani.

Portugal Telecom is also a partner in Meditel, the second mobile operator in Morocco.<sup>73</sup> It is a joint venture between:

- Banque Marocaine du Commerce Extérieur
- Holdco S.A.
- Telefónica de España (32.18%)
- Portugal Telecom

Tunisie Telecom is the incumbent operator in Tunisia.<sup>74</sup> Like others, it has sought to expand abroad, taking a majority stake in Mattel, one of the mobile operators in Mauritania. In May 2006, Tecom-Dubai Investment Group acquired 35% stake in Tunisie Telecom for US\$ 2.25 billions, outbidding Vivendi. Tecom has a 20 percent stake in du, the second telecom operator in Dubai and a direct competitor with Etisalat.

<sup>69</sup> Saudis Unveil \$1B Plan for Africa. *Light Reading*, 15 June 2007.

<sup>70</sup> <http://ir.telecom.pt/>

<sup>71</sup> Portugal Telecom (2007) PT announces strategic partnership for sub-Saharan Africa. Press release 13 August 2007.

<sup>72</sup> <http://www.heliosinvestment.com/>

<sup>73</sup> <http://www.meditel.ma/>

<sup>74</sup> <http://www.tunisie-telecom.tn/>

Vivendi<sup>75</sup> owns 51 percent of Maroc Telecom, also known as *Itissalat Al-Maghrib* (IAM).<sup>76</sup> Initially, it had acquired 35 per cent in 2001 from the government of Morocco, then a further 16 per cent in 2004. The other telecommunications interests of Vivendi are limited to 56 per cent of SFR, a leading French mobile operator, and 40 per cent of Neuf Cegetel the second fixed-line operator in France.

Maroc Telecom was created in 1998 at the splitting of *l'Office National des Postes et Télécommunications* (ONPT), with the regulatory functions being assigned to *l'Agence Nationale de Réglementation des Télécommunications* (ANRT).<sup>77</sup> Maroc Telecom is listed on both the Casablanca Stock Exchange and the NYSE Euronext.<sup>78</sup>

The introduction of a second mobile network operator in Morocco spurred Maroc Telecom both to expand abroad and to improve its performance at home.<sup>79</sup> Today, the revenues of Maroc Telecom are almost exactly equal from fixed and mobile, the latter having some 463,000 post-paid and 11.2 million pre-paid domestic customers, with an ARPU of MAD 107 per month. Net sales are predominantly from Morocco (95.9%), with continuing strong growth.<sup>80</sup> The expansion southward has brought relatively modest numbers of customers, but considerable potential for growth (see table 10).

**Table 10** *Maroc Telecom mobile interests*

<i>country</i>	<i>brand</i>	<i>status</i>	<i>customers</i>	<i>market share</i>	<i>penetration</i>
Burkina Faso	Telmob	MNO	463,000	36.0%	7.5%
France-Belgium	Mobisud	MVNO	41,000	-	-
Gabon	Libertis	MNO	263,000	32.0%	54.4%
Mauritania	Mauritel	MNO	767,000	33.6%	33.6%
Morocco	Maroc Telecom, Jawal & Mobisud	MNO	11,700,000	66.4%	57.8%

Maroc Telecom has wholly owned MVNO operations in Belgium and France, primarily aimed at Moroccans living abroad, offering calls and text messages to North Africa at national rates.<sup>81</sup> It describes these as “points of presence to catch international traffic”.<sup>82</sup> Mobisud is also being promoted in Morocco as a pre-paid brand for younger customers with music clips and ring-tones, alongside the Jawal pre-paid brand.

In Mauritania it acquired 80 per cent of Compagnie Mauritanienne de Communications in 2001 and through this owns 41.6 per cent of Mauritel and Mauritel Mobiles.<sup>83</sup> In December 2006, Maroc Telecom acquired 51 per cent of Onatel, the incumbent operator in Burkina Faso.<sup>84</sup>

In February 2007, Maroc Telecom won the government tender for the privatization of Gabon Telecom, paying €61 millions for 51 per cent of the stock:

<sup>75</sup> <http://www.vivendi.com/>

<sup>76</sup> <http://www.iam.ma/>

<sup>77</sup> <http://www.anrt.net.ma/>

<sup>78</sup> <http://www.euronext.com/trader/summarizedmarket/stocks-2593-EN-MA0000011488.html?selectedMep=1&idInstrument=92564>

<sup>79</sup> World Bank (2004) Morocco: developing competition in telecommunications (Washington DC, World Bank).

<sup>80</sup> Maroc Telecom (2007) 2007 First half results. Presentation made on 2<sup>nd</sup> August 2007.

<sup>81</sup> <http://www.mobisud.be/> and <http://www.mobisud.fr/>

<sup>82</sup> Maroc Telecom (2007) 2007 First half results. Presentation made on 2<sup>nd</sup> August 2007.

<sup>83</sup> <http://www.mauritel.mr/>

<sup>84</sup> <http://www.onatel.bf/>

We are happy that Maroc Telecom has been chosen as a strategic partner of Gabon Telecom. Without waiting, we are going to implement a restructuring and development plan that will help this operator to become a jewel of the Gabonese economy and a model for the region, able to offer the best services at the best prices to the population and to companies of this country.<sup>85</sup>

Gabon Telecom was claimed to have had revenues of €137 millions for 2006. At the end of 2006 Libertis had 250,000 mobile customers, a market share of about 30 per cent, the other operators being Moov (Etisalat) and Celtel (MTC). These numbers are now in considerable doubt, with Maroc Telecom uncovering significant problems.

There was strong opposition to the privatisation by some politicians and the local press, both in principle and to the insensitive handling of the restructuring.

In July 2007, the Constitutional Court suspended the privatization in response to a plea by the workforce.<sup>86</sup> It seems unlikely that Maroc Telecom can easily or quickly extricate itself from this position either by gaining control or leaving.

The Wataniya Telecom or the National Mobile Telecommunications Company K.S.C., based in Kuwait, has extensive operations in Africa and the Middle East (see table 11). Total revenues of KD 428 millions represented about US\$ 1,510 millions. It is 51 per cent owned and controlled by Q-Tel of Qatar.<sup>87</sup>

**Table 11** *The Wataniya group in Africa and the Middle East* <sup>88</sup>

	<i> Holding</i>	<i> Brand</i>	<i> Customers</i>	<i> Revenue</i>	<i> % EBIDTA</i>	<i> Net profit</i>
Iraq <sup>89</sup>	40%	AsiaCell	2,739,891	104.9	58%	49.7
Kuwait	100%	Wataniya	1,068,679	178.5	48%	64.7
Saudi Arabia*	47%	Bravo	68,191	(8.6)	-	-
Algeria	71%	Nedjma	2,991,024	73.9	20%	(16.8)
Maldives	65%	Wataniya	55,362	4.1	-14%	(3.5)
Tunisia	50%	Tunisiana	3,069,314	67.1	49%	8.8
Total			9,992,461	428.4	45%	94.3

\* shown as proportion based on equity share.

In September 2006, Wataniya International won the bid to build and operate a second mobile network in Palestine. Wataniya Palestine is a 57:43 partnership with the Palestine Investment Fund (PIF). Tunisiana is a joint venture with Orascom (see above).

<sup>85</sup> Mr. Abdeslam Ahizoune, Chairman of Maroc Telecom Management Board. Quoted in the Vivendi press release of 12 February 2007.

<sup>86</sup> Gabon Telecom : La cour constitutionnelle suspend la privation de Gabon Telecom et Libertis. *Gabon Eco* 25 July 2007.

<sup>87</sup> <http://www.qtel.com.qa/>

<sup>88</sup> Wataniya Telecom (2007) Annual report 2006 (Kuwait, Wataniya Telecom).

<sup>89</sup> The regulatory authorities in Iraq did not renew Asia-Cell's GSM license after 31 December 2006. As a result the majority shareholder of Asia-Cell has filed for voluntary liquidation of the Grand Court of the Cayman Islands. The parent company's Board of Directors resolved to discontinue operations in Asia-Cell, Iraq. The court has appointed PricewaterhouseCoopers as a liquidator. The directors believe that the parent company will recover completely its investment in and advances to Asia-Cell and has not recognised any impairment loss.

## 11. Small Island Developing States

A marginal case for mobile telecommunications can be found in the Small Island Developing States (SIDS). The absence of economies of scale, the high costs of inter-island links and of links to the outside world, combined with low levels of income and greater susceptibility to economic shocks combine to accentuate problems found elsewhere in Africa (see table 12). In terms of the global operators: Portugal Telecom has a 40 percent stake in CVT and 51 per cent of CST (respectively Cape Verde and São Tomé), while Cable and Wireless owns an operator in the Seychelles.

**Table 12** *ICT indicators for African SIDS<sup>90</sup>*

<i>Country</i>	<i>population</i>	<i>GNI</i>	<i>fixed</i>	<i>mobile</i>	<i>Internet</i>
Cape Verde	0.5	1,930	14.1	16.1	4.9
Comoros	0.6	650	2.8	2.7	3.3
Mauritius	1.0	5,250	28.9	57.4	14.6
São Tomé et Príncipe	0.2	440	4.6	7.7	13.1
Seychelles	0.1	8,180	25.3	67.5	18.9

Teledensities are per 100 population, population in millions, GNI Atlas in US\$ M.

The effective operation of markets requires real or the plausible threat of market entry which is difficult to achieve in SIDS. Even sustaining revenues and a modest level of growth is difficult. There has been some recent consolation comes from Iceland which has become a leader in the OECD broadband rankings, despite any economies of scale.<sup>91</sup>

The operation of a regulatory system places a heavy burden on governments. The opportunity costs of deploying skilled personnel on regulation has to be weighed against their use in more productive activities.

Despite the economic and physical challenges, Mauritius and Seychelles have succeeded in achieving rapid growth in mobile telephony, with impressive teledensities (see figure 10). They have, respectively, two and three operators, with Emtel in Mauritius operating a 3G/UMTS service.<sup>92</sup> Both benefit from large numbers of tourists, generating considerable roaming revenues for the operators. Comoros and São Tomé et Príncipe have shown much slower growth, with considerable delays in getting this underway. Each has to make do with a single operator.<sup>93</sup>

<sup>90</sup> World Bank, ICT indicators at a glance.

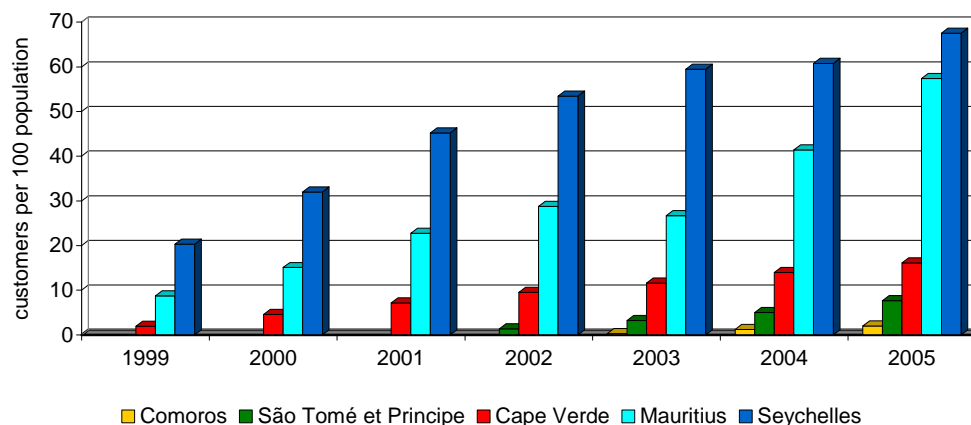
<sup>91</sup> [http://www.oecd.org/document/7/0,3343,en\\_2649\\_34225\\_38446855\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/7/0,3343,en_2649_34225_38446855_1_1_1_1,00.html)

<sup>92</sup> Mauritius: Cellplus Mobile Communications Ltd and Emtel Ltd.

Seychelles: Cable & Wireless, MediaTech International Limited and Telecom (Seychelles) Ltd (AIRTEL).

<sup>93</sup> Comoros: Societe Nationale des Telecommunications (Comores Telecom).

São Tomé and Príncipe: Companhia Santomense de Telecomunicacoes SARL (CSTmovel).

**Figure 10** *The growth of mobile telephony in African SIDS<sup>94</sup>*

The Cape Verde Islands are somewhat different, showing modest growth, at level not untypical for Africa. They have the advantage of lying on some important undersea cable routes and benefit from tourist roaming revenues.<sup>95</sup>

Smaller states, not only SIDS, receive less attention from the big operators which can contribute little to their customer growth strategies and may require special attention.

## 12. Policy and regulation

An obvious result of the high degree of consolidation and of operators sharing content, ideas, practices, services, systems and technologies within continental and trans-continental groups is that regional and national institutions, both ministries and regulators, will have to develop their own comparable competences. They must be able to engage highly sophisticated operators on a wide range of fast-moving issues which they must be able to assess and evaluate against national priorities. The capability and competence of the staff of the regulatory authorities require to be brought to world class level, drawing on experience within Africa and elsewhere. It requires a substantial statistical base and support from independent research.

The work in the Economic Community Of West African States (ECOWAS) to create a common regulatory framework is the beginnings of transnational efforts to address the problems. The guidelines provide a framework for regulation.<sup>96</sup> However, implementation of these and their regular revision to keep up to date with developments remain significant challenges.

The risks of bad and inappropriate regulation to economic performance could be considerable.

The role of institutions in ensuring the growth of mobile telephony is an issue of considerable interest. Factors to which importance has been attributed include adherence to the rule of law, the existence of an independent regulator, privatization of the incumbent operator and WTO commitments. Some of these are very difficult to quantify as variables for statistical and micro-economic analysis, not the least difficult being "independence".

<sup>94</sup> ITU Least Developed Countries Indicators.

<sup>95</sup> Cape Verde Islands: CVMovel, S.A., and T+ Telecomunicações S.A.

<sup>96</sup> West African Common Market Project: Harmonization of Policies Governing the ICT Market in the UEMOA-ECOWAS Space Final Guidelines adopted by the 3rd WATRA OGM, 9 September 2005.

One recent study examined a panel of thirty low and middle-income countries for the period 1990 to 2004.<sup>97</sup> This suggested a relatively weak link between mobile teledensities and the existence of a regulator, and no influence from factors such as the existence of a law or independent funding for the NRA.

The case for licensing of additional GSM operators appears to be incontestable in all countries. It reduces the possibilities of collusion and raises the costs of such coordination. Increased competition lowers prices for consumers and increases the quality of service, including network coverage. In the event of too many operators then the well established tools for merger control can be used.

In the medium term it will be necessary to emulate the European Union by removing the obligation to use GSM technologies on the 900 and 1800 MHz bands and to allow operators to make commercial decisions about moving to the use of 3G or, conceivably, 4G technologies. It is not for regulators to decide when the point has been reached when operators should switch or to constrain them from doing so. By allowing flexibility with lower frequency bands it allows scope for additional operators using the higher bands.

The licensing of spectrum for Wimax is more complex, since difficult decisions have to be made about the extent to which GSM operators are allowed these licenses. With existing network infrastructure and marketing systems they are well placed for rapid deployment of a Wimax service. The concern is that they would exclude rivals with business models based on cheaper and more affordable VoIP over Wimax.

Similar issues apply to the opening of spectrum for mobile television services, once that becomes a plausible proposition. It also raises complex issues about content regulation, which are often the competence of a separate agency.

Pricing and affordability have been significant concerns, with all governments committed to ensure the widest possible access.<sup>98</sup> A recent study of a large set of pricing data in Africa sheds some light on practices and the policy implications.<sup>99</sup> It argues strongly for a relaxation of retail price controls, to allow greater flexibility by operators so that they can deploy a range of pricing approaches used in other markets. However, it warns over the dangers of operators being allowed to raise each other's prices by means of higher mobile termination rates.

Interconnection rates need to be kept at low levels, to ensure affordability, though this is bitterly opposed by mobile operators. A solution to disputes over mobile termination rates, either by an economic model or by moving to bill and keep is essential to avoid protracted and wasteful regulatory processes.

Opening access to international capacity is essential and will be vitally important to reduce costs in most of Africa for international telephony and the Internet.

The efforts by some operators to move into banking raises concerns in terms of competition. If banking is too closely linked to a market with only three or four players, then it may allow leveraging of power from spectrum licenses into banking and finance. Much greater analysis of the implications of this form of convergence is essential. At its best, this could provide services for the "unbanked", at its worst, it could foreclose markets and endanger existing lenders of finance.

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<sup>97</sup> Federica Maiorano and Jon Stern (2007) Institutions and telecommunications infrastructure in low and middle income countries: the case of mobile telephony. Related publication 07-13 (Washington DC, AEI-Brookings Joint Center for Regulatory Studies).

<sup>98</sup> See, for example, the ICASA proceeding into affordability of mobile services in South Africa.

<sup>99</sup> Atsushi Iimi (2007) Price structure and network externalities in the telecommunications industry: evidence from sub-Saharan Africa. Policy Research Working Paper 4200. (Washington DC, World Bank).

It also requires coordination, again both regionally and nationally, amongst competition authorities, telecommunications and banking regulators.

### 13. Conclusion

Despite all the perceived risks, Africa has proved to be a very successful location for mobile network operators. They are investing substantial sums, building networks and making profits, though much of that profit is being repatriated and most of the investment is being spent on equipment from Chinese and global manufacturers. Nonetheless, the economic effects of the use of mobile phones, the retail distribution networks and the employment and training of staff create benefits for individuals and for national economies.

The sector is neither African in the sense of companies coming predominantly from the continent, nor in the sense of geography, it is grouped with the countries of the Arabian Gulf, the Levant and even Central Asia. Operators willing to do business in Africa are also looking for licenses in Afghanistan and Iraq.

Africa is not the safest place to do business as operators in Benin and Zimbabwe have found to their cost, through the threatened revocation of licenses. With a diversified portfolio, the larger operators are able to spread their political and economic risks. Smaller operators are more susceptible to risks and pressures from governments. Operators can now trade countries, buying into and selling out of national markets, depending on their perceptions of the costs and risks.

Consolidation in the sector is moving towards a modest number of operators able to work on a substantial scale: regional, continental or wider. These operators are pushing to obtain sufficient spectrum to operate services in contiguous or at least similar countries. They use a multiplicity of national operations to develop, test and apply new business ideas, to find ways to cut costs and to reduce churn. They use a common network platform, with applications being developed once and applied in all markets. Their larger footprints are also beneficial in acquiring content on advantageous terms. Bigger players are, in general, doing better than their smaller rivals.

MTC/Celtel has been leading the way in abandoning roaming charges. The borders created in the original scramble for Africa were often ignored by local people in their daily lives. Now mobile operators are recognizing this by offering seamless trans-national services. It is still in its early stages and should be watched closely, for lessons for other parts of the world. One test will be whether MTC follows this example in the Arab nations, where regulators and ministers have been seeking to reduce roaming charges.

An obvious difference from the original scramble for Africa is the very strong presence of operators from the Arabian Gulf – this is not a purely European game, even if there is some vestigial colonial influence through France Telecom and Portugal Telecom. Funding from the Arabian Gulf has played and will continue to play a significant role in network deployment. The only significant sources of African funding are the Johannesburg Stock Exchange (JSE) and the private sources of Orascom. While Asian operators are not present, barring a fleeting interest from China Mobile, both Huawei and ZTE are very important suppliers of equipment. The obvious omission is the presence of interests from the Americas.

The vast majority of Africans are and seem destined to remain relatively poor. A great many do not have the levels of income needed to generate significant ARPUs for the MNOs. Consequently MNOs have been forced to expand the number of customers to whom they can make offers of “affordable” services and to try to widen their sources of revenues.

Affordability remains a serious concern of governments, with many countries concerned to increase the number of potential customers able to use services. The evidence is clear, that

by ensuring an adequate number of market players, with the possibility of further market entry, then it is possible to reduce and eliminate retail price controls. The earlier operators are added, the easier it is, with entry into relatively saturated markets being expensive and not necessarily successful.

In theory, some countries should be reaching the limits of the economic provision of cellular services by markets and require subsidies to extend to the more remote locations and the very poor. Yet there is little evidence that growth has reached a plateau. Even in countries with the most phones there is continuing growth – with operators making cheaper offers to customers. For the present, the case for subsidies is very weak

The liberalization of access to international and especially to undersea capacity has been badly delayed with the result that prices for international calls, for International Private Leased Circuits (IPLCs) and for Internet access have remained far too high for far too long. No case has been made for retaining a monopoly and instances of liberalization have lowered prices, increased affordability and driven up demand. It interposes a grossly inefficient intermediary between two sets of competitive markets to no good purpose.

Despite a lot of fuss, 3G is relevant only to a very small number of people in Africa, a vanishingly small fraction of the population. The only substantial consumer numbers are in South Africa where HSDPA has become an effective alternative to a severely capped offer of ADSL, but at a price affordable only by the elite.

The much more mundane issue of electricity and the lack of reliable supplies hits mobile operators directly in a great many countries. Some are reduced to running their networks from trucks carrying diesel to supply generators.

Perhaps the biggest challenge for mobile operators is to make the transition to Internet access. The very high costs of IPLCs and the lack of competitive IP exchanges makes the cost of access to the Internet backbone more expensive. Mobile operators will never open their networks to ISPs, leaving them to find the capital and technical expertise to build alternative wireless network or to die. Given the highly concentrated nature of cellular wireless markets, their extension to include or the absorption of Internet access markets requires close attention to ensure adequate levels of competition.

The few countries that have opted out, by retaining a state monopoly provider, require both to be monitored to see how they perform and, ideally, to be persuaded that market liberalization will relieve them of one problem. The reasons why they decline to follow the positive examples need to be made explicit.

## 14. Research issues

There is still too little research being conducted on ICTs in Africa, despite the range of interesting issues. In part, this reflects a deeper problem of a lack of capacity and funding in the universities. Support is required to expand the nascent research base.<sup>100</sup> Moreover, there is a risk that the independence is compromised by funding from operators.

The issue of Foreign Direct Investment (FDI) requires further attention. While operators claim to be investing large sums, most of this money is passed directly to manufacturers on other continents. Some of the “deals” through foreign aid require analysis to determine the cost-effectiveness of the solutions being offered to the countries accepting them. A detailed analysis of the cash flows is required to determine the net effects of the investments.

Consolidation may be being driven by financial interests with some spectacular prices paid. These may not be justified by the profitability achieved by operators. The extent of

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<sup>100</sup> See Research ICT Africa at <http://www.researchictafrica.net/>

economies of scale need to be more clearly identified and quantified. The converse of this would be to examine how smaller operators might be able to develop strategies that allow them to survive in the gaps left by the big players.

The tools to analyze affordability are still very weak, requiring more detailed analysis of cases and the generation of data sets. Equally, the tools to drive down prices are not sufficiently well investigated. Work in this area, especially on global best practice, would be very beneficial.

The other major concern is the extension of coverage to rural areas, often conflated with complex and opaque schemes for cross-subsidies. The Chilean school of reverse auctions and subsidized rural termination rates has given rise to very serious concerns about when they might be applicable. Ways to measure the extent to which operators are reaching the limits of market provision are a priority. Thereafter, means to provide coverage that does not distort competition and is equitable are required. Ideally, this should avoid complex and potentially corrupt bureaucratic solutions.

For the operators, the greatest issues concern their migration to new services and how they can use the 3G, NGN and mobile television technologies in Africa to develop business models that offer long term returns. Successful models for these are scarce enough in developed countries.

## 15. Exchange rates

The following conversion rates were used:<sup>101</sup>

	<i>Abbrev.</i>	€	US\$
CFA Francs Franc BCEAO	CFA	0.001524	0.002045
Egyptian Pound	EGP	0.131	0.179
Moroccan Dirham	MAD	0.090	0.122
South Africa Rand	ZAR	0.101	0.138
UAE Dirham	AED	0.200	0.272

<sup>101</sup> <http://www.oanda.com/>