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Helping our clients evaluate,
manage and mitigate risk

The expanding markets for telecoms services in weak or destabilised regions offers great potential for increasing revenues and profitability to the telecoms sector but those opportunities carry significant risks. At the same time even the most firmly entrenched telecoms giants must find ways to adapt to new technologies or risk losing their entrenched positions.



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This newsletter focuses on the opportunities emerging in telecommunications for clients all over the world and the challenges which they face in realising those opportunities.

We are very grateful to Sir Christopher Bland, the chairman of BT, who has kindly provided his invaluable thoughts on the future of communications, trade and globalisation. His comments are complimented by in-depth analyses of Africa's expanding mobile market, telecommunications in Central Asia and the security aspects associated with reconstructing telecommunications infrastructure in a post-conflict environment.

I hope you enjoy the articles.

Bill Waite
Group Chief Executive

IN THIS ISSUE:

- 2 The connected world - a forecast
- 3 Risks and rewards in Africa's expanding mobile market
- 4 Telecommunications in post-Soviet Central Asia
- 6 Telecommunications in a post-conflict environment

THE RISK ADVISORY GROUP
MAY 2006



The connected world - a forecast

Sir Christopher Bland, BT plc

Forecasting is a dangerous activity. Whenever I think about the future, I remember what I was told by a senior British economist: "By all means give a number, or a date, but never both together." Nevertheless, here are some forecasts for the future of communications.

Broadband

As wireless access hubs replace fixed-line DSL modems, the broadband line will no longer be tied to the household PC. Devices entirely separate from the PC will make increasing and innovative use of the available bandwidth in the home. According to Infonetics Research, IPTV, or TV over broadband, will be a \$40 billion industry by 2009, offering personalised programming by combining the experience of TV with the flexibility of the web.

At BT we are preparing to offer a TV-over-broadband pay-per-view service later this year. It will include an extensive library of movies, access to the last seven days of broadcasts, an emphasis on interactive service, instant messaging, video telephony and online games.

Voice Over IP

The widespread adoption of broadband and IP will establish VoIP or Voice over Internet Protocol service as the domestic voice standard, replacing circuit switching in corporate communications today. This presents the industry with the opportunity to create innovative service bundles and the challenge of migrating the business model away from transaction-based charging.

Convergence

In the telecommunications world of tomorrow, convergence is everything. Communications are converging with IT, networks are converging with the services that run over them, devices as well as fixed and mobile networks are converging.

The mobile phone is already the convergent device of choice. Who would have thought three years ago that mobile phones would today offer built-in lenses with image resolution better than early digital cameras, that they would have sufficient memory to process and play many hours of digital music or record short video clips? In tomorrow's connected world, the mobile device will handle multi-media communications as smoothly as a Blackberry deals with email text today, and will act as your credit card, scanner and personal authentication system.

"The Connected World is going through a period of rapid dramatic change."

Fusion and Wireless

Convergence will find a way to minimise costs as well as maximise convenience. BT is already marketing a service, BT Fusion, which operates over both mobile and fixed networks, using a mobile network when no fixed one is available and switching via Bluetooth to the fixed line when within range of a broadband home hub. This service offers landline rates and superior call quality. One device, one number, one phone bill.

WiFi

WiFi, too, will evolve. With an extended range and device hand-over between hotspots in development, a local mobility network, constructed at a fraction of the cost of today's 2G infrastructure, becomes possible. When WiMax arrives, with a range in kilometres rather than metres, and interoperability with WiFi, the local mobility network will become regional. It is clear that this has the potential to be a highly disruptive technology.

Blue Sky Applications

IP hubs are only building blocks. The real magic comes from assembling them in different ways to create new experiences and new services. So what lies on the further horizon in five or ten years?

Instead of typing our credit card numbers into our computer, we will insert our mobile phone into a home hub that acts as a chip and pin system. We will regularly watch TV or listen to the radio over our mobile phones. We will be able to point a mobile phone at an advertisement to find out more details on the product, and then order and pay for it. We will be able to point it at a picture in a gallery to hear about the artist. We will summon a taxi with one or two key strokes on a mobile – because the network will find the nearest approved taxi and tell him our location.

Conclusion

The Connected World is going through a period of rapid and dramatic change. Communications, trade and globalisation are bringing all of us closer together and giving us more in common.

Thomas Friedman, in his admirable book "The World is Flat", replaced his Golden Arches Theory of Conflict Prevention, "No two countries that both had a McDonald's had ever subsequently fought a war against each other" with his new Dell Theory, "No two countries that are both part of a major supply chain, like Dell's, will ever fight a war against each other as long as they are both part of the same global supply chain". Let us hope he is right.

Sir Christopher Bland is the chairman of BT plc.



Risks and rewards in Africa's expanding mobile market

Lucy Norton, *The Risk Advisory Group*

In the last five years the telecoms sector has established itself as a leading consumer market in developing countries. The cellular mobile market has led the way in terms of growth. The sector is leapfrogging the more capital-intensive fixed sector to become the primary means of making a phone call. And nowhere has this communications revolution been more spectacular than in Africa. According to figures provided by the International Telecommunications Union annual growth rates in sub-Saharan Africa have remained around the 50 percent mark for the past few years. From just 1.5 million mobile subscribers at the end of 1996, the continent—which has a population of around 700 million - now boasts over 100 million users, a penetration rate of around 15 percent.

Importantly, growth has not been restricted to the richest countries like South Africa, which has relatively high and even household income levels. Even in the poorest and most troubled countries mobile services have been able to thrive thanks to the huge demand for reliable communications. The Democratic Republic of Congo (DRC) is a good example. Since the first cellular networks were launched at the end of 2000 the market has grown to number more than 2.5 million subscribers. Meanwhile, Sudan counted over 2 million mobile subscribers at the end of last year and major investment is planned for 2006. According to market research firm Informa, the number of mobile subscribers in East and Central Africa – i.e. the region stretching from Sudan in the North to Tanzania in the South and Cameroon in the West - is expected to increase by 187 percent by 2010.

Foreign investment has been a critical driver for the rapid telecoms expansion that has swept across Africa. International giants Vodafone and Orange both have significant interests in the region. Orange is present in Egypt, Botswana, Cameroon and Cote d'Ivoire. Meanwhile, Vodafone has operations in Egypt and also Tanzania, DRC, Mozambique and South Africa through its affiliate Vodacom. These operations are not only off-setting slowing subscriber growth at home they are also highly profitable. Both Orange and Vodafone can boast EBITDA (earnings before interest, tax, depreciation and amortisation) margins of over 50 percent in Egypt, compared with European levels of below 40 percent.



“Many companies have had their investments and reputations threatened by political instability and corruption”

However, conducting business in Africa is never risk free; especially in a sector where the returns are high. Many companies have had their investments and reputations threatened by political instability and corruption. In 2001, US operator Westel had its assets in Cote d'Ivoire seized by a rival businessman following a violent change of government. Allegations of corruption against the Communications Commission in Kenya also seem to be halting the entry of a third operator into the market. Finally, Egyptian firm Orascom Telecom is fighting a

move by President Mugabe's nephew to assume a larger stake in its Zimbabwean business Telecel. Members of the operator's management have since been charged with transgressing the country's foreign exchange controls and Telecel faces losing its licence.

But despite the risks, investor interest in the African telecoms sector remains strong, as do the prospects for future growth. The region is expected to add at least another 200 million mobile subscribers over the next 5 years. At that rate, the continent will contribute one fifth of the 1 billion additional users the industry expects in the next 3-5 years. The other key contributors will be India and China. And as equipment giants such as Motorola and Nokia look for more ways to lower the price of handsets, growth could be more rapid still.

It is this bright predicted future for the continent that is encouraging household name companies such as Vodafone to increase their exposure to the region to off-set slowing growth at home. Last year the operator upped its stake in its regional subsidiary Vodacom, which is present in South Africa, Lesotho, Tanzania, DRC and Mozambique. Vodacom is also considering further regional expansion. Meanwhile, state-owned Norwegian operator Telenor is pursuing opportunities in both Kenya and Egypt.

Vodafone's expansive efforts in Africa of late are evidence of fact that although reputational risks are a pertinent issue, they are not an insuperable barrier to success. Indeed, the high risk nature of the environment can serve to bolster the value of successful projects by limiting the competition. That said, due diligence is essential to ensure that corporate performance and reputation remain intact. The African business environment requires political awareness, considered local partner selection and strong internal controls.

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Telecommunications in post-Soviet Central Asia

Evgeny Tarasov, The Risk Advisory Group

Revenue from telecommunication services in Uzbekistan, according to official data, was about \$300 million in 2005. Revenue grew by 32% from the previous year and the growth figure for the first quarter of 2006 was over 36% year on year. Based on these official statistics, some estimate that the size of the market will be well over \$400 million in 2006. According to some estimates, the number of cellular subscribers grows at a pace of 50,000 (about 0.18% of the total population) per month in Uzbekistan. Given a very low starting level, this pace is likely to continue for quite some time.

The other four countries in the region (Kazakhstan, Tajikistan, Kyrgyzstan and Turkmenistan) were on the same track, although Turkmenistan has many features which differentiates it from the others. Tajikistan, for example, had just 50,000 mobile subscriptions in 2003, while in early 2006 this figure grew to over 400,000.

Kazakhstan is of particular interest as the largest market. Despite all reservations concerning differences in how statistics work in the respective countries, Kazakhstan is simply several years ahead. With a population of just over 15 million, Kazakhstan is approaching 6 million cellular subscriptions; as in other post-Soviet countries, cellular services account for 40-50% of all telecoms services. The other four countries have a combined population of about 45 million and only 2 million subscriptions.

Does this mean that Kazakhstan is going to have fewer years of very fast telecoms growth than others? Probably, although it is clearly two or three years behind Russia, where growth rates are still high.



Russia is inevitably a benchmark for all of Central Asia, for several reasons. Firstly, Russian cellular companies are the main players. Another is cultural: a significant contribution to the recent growth in the Russian telecoms market has come from the provinces, some of which are culturally quite similar to parts of Central Asia. In the first quarter of 2006, Kazakhstan reported 30% year on year growth in telecommunication services. Based on available data, the total volume of this market in Kazakhstan in 2005 was \$1.5 billion or more. Kazakhstan has an opportunity to outperform Russia and its Central Asian neighbours in quality and depth of services and use these advantages to support

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growth. Additionally, Kazakhstan is opening its third GSM licence, which will boost competition and investment. It is also about to lift restrictions preventing foreign companies from controlling long distance and nation-wide fixed operators.

Kyrgyzstan offered an even better confirmation of the Central Asian trends for telecoms growth. The telecommunications sector grew by more than 20% in 2005 despite the fact that its economy contracted in 2005 by 0.6%, mainly due to politics, but also because of some unfortunate changes in commodities markets.

High oil and commodity prices formed the basis for exceptional economic results for the region as a whole. However, GDP growth in Kazakhstan (9.4%), Uzbekistan (7%) and Tajikistan (8.5%) was clearly lagging behind the rise in the telecommunications sector. Turkmenistan with its unconfirmed numbers (16% according to external observers, and over 20% according to the country's political leadership) is another story, but its telecoms market is too small to influence the region's indicators.

How long will the post-Soviet Central Asian market enjoy this fast growth? In Russia, where observers started to refer to the cellular market as saturated in 2005, an average growth rate of over 30% has been sustained since 2000. In 2006, a cellular slow down is expected to drag the annual telecommunications growth rate down to less than 20%. Telecommunication services in Russia grew from an estimated \$7 to \$10 billion in 2000 to an estimated \$22 to \$25 billion in 2005. In Central Asia, the \$2-2.5 billion market of 2005 is set to gain an additional \$1 billion or more in 2006. While the regional market is only one-tenth of the Russian market by revenue, the Central Asian population is only 2.5 times smaller than the Russian population. It would appear that prognoses which predict at least five to seven years of sustained fast growth for the Central Asian telecoms market – other things being equal – may even be conservative.

The main beneficiaries of this growth are those who are already feasting on handsome profits: such as the Russian cellular companies, VypelCom and Mobile TeleSystems (MTS), MCT Corp of the US, which has strong operations in Uzbekistan and Tajikistan, and TeliaSonera, which is the largest operator in Kazakhstan through a majority-owned subsidiary. Local elites of the Central Asian countries will also benefit because of their position either to demand a large slice of profits directly as Turkmenistan did, participate as non-strategic shareholders like Tajikistan, or to generate good downstream revenue (e.g. from appropriating advertising budgets of the operators) as seems to be the case in Kazakhstan.



Second-tier winners are smaller operators which are active in particular country markets (e.g. Russia's MegaFon, which is partially owned by TeliaSonera and which runs a dynamic operator in Tajikistan. MegaFon's presence as a regional player, however, is still too small). There are existing niche players, such as internet providers in Kazakhstan, and potential newcomers to non-cellular segments of the market. Naturally there are growing opportunities for traditional suppliers of telecommunication equipment who partner with operators.

"It may be that the Central Asian market is regarded more seriously than claimed."

Below is some statistical data illustrating the market's potential. Please note that some of the figures are based on the author's own estimates as various media sources contain contradictory information.

In terms of competition, both Uzbekistan and Tajikistan are potentially highly competitive markets as there are more players in these two than in the three other countries, although this will be clearer when the penetration rate for the cellular market becomes more material. The two main mo-

biles players in Kazakhstan are likely to be affected by animosity between their respective parents, TeliaSonera and Altimo, over the continuing stand-off for a stake in MegaFon in Russia. If a third player enters the fray, the situation will be even more intriguing. It is also believed that VypelCom has effectively thrown MTS out of Kyrgyzstan's market; the related dispute is ongoing. The two companies are facing off again for more competition in Uzbekistan, where MTS controls the largest operator. Not to be out done, however, VypelCom has recently acquired the second and fourth largest mobile companies. It is notable that neither admits that Central Asia is strategic for them as both are contemplating high-level global expansion in prime markets such as South East Asia, India and elsewhere. They also said that of the post-Soviet countries, Azerbaijan, Armenia and Belarus are more attractive. It may be, however, that the Central Asian market which has the potential to turnover \$10 billion by 2010, is in fact regarded more seriously than claimed. It will also be interesting to see if completely new players enter the scene, although given recent Russian events, such a scenario seems unlikely.

Country	Population, million	GDP growth in 2005	Fixed telephone lines, 2004, million	Cellular subscriptions, 2006, million	Internet users, 2005, million
Kazakhstan	15.2	9.4%	2.5	5.8	1.0 +
Kyrgyzstan	5.2	-0.6%	0.4	0.25	0.5
Tajikistan	7.3	8.5%	0.25	0.4	0.02
Turkmenistan	5.0	16-20%	0.4	0.05	0.04
Uzbekistan	27.3	7.0%	1.7	1.3	1.0 +

Sources: CIA Factbook; Interfax; Prime Tass; CNews; national statistical agencies; Global Insight; Sotovik.

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Telecommunications in a post-conflict environment

Andy Worrall, Janusian Security Risk Management

As post-conflict markets open up, telecoms companies are often at the leading edge of foreign investment. Scalable and portable systems allow wireless telecoms providers to deliver acceptable levels coverage within weeks or days of market entry. High demand for services normally assists in very rapidly generating profitable revenues. But the attractions of early market entry also carry risk, not least those arising from physical threats to the personnel responsible for establishing and administering networks.

Most reputable telecoms companies respond to the risks of post-conflict operations by engaging a security provider. But the security marketplace is more crowded than ever, with local, regional and international security companies offering different standards, costs and methods of operations. How do you settle on one, and what are the pitfalls?

Legal and compliance issues

A primary concern in selecting a security vendor should be whether it is a legally established company with the necessary permissions to work in the country concerned. Many countries have strict licensing requirements for private security companies and apply them aggressively. Using a non-approved company could bring more trouble than benefit. As well as the risk of losing one's security protection overnight following a police raid, unlicensed providers carry the risk that their insurances may not be valid.

It may be important to consider a security provider's attitude to human rights issues, and the guidance communicated to its security operatives on these. As a minimum, ask to inspect the Rules of Engagement the company has in place. In particular, ensure that the Rules of Engagement match those in place in the host country. There are serious risks for anyone whose security provider is accused of using force inappropriately.

Political Risks

Operating in post-conflict environments may bring a level of scrutiny on a company that it would not otherwise receive. It is usually prudent to inform your own government officials if you plan to work in high risk or post-conflict conditions, in order to ensure that your company's actions are not in conflict with established policy. Furthermore, it is important to consider the impact upon other customer relationships prior to entering into new business in potentially controversial markets.

Security Risks

Unsurprisingly, post-conflict environments are almost always

highly unstable and prone to sporadic outbreaks of violence. Peace and stability are normally only relative to the preceding conflict, and patchily distributed. It is commonplace for fighting to linger in regions within countries considered to be in post conflict phase, and secondary problems such as organised criminality, banditry and terrorism are likely. Mines and unexploded ordnance can be an additional challenge in the aftermath of conflict.

Given the need for telecoms engineers to maintain networks over large distances, sometimes in remote locations it is not unusual for them to operate in areas that are not fully pacified or are riddled with violent criminality. Quite apart from the potentially substantial physical risk to personnel, inability to access certain areas may result in uneven network coverage, and may place any rollout or maintenance operation in jeopardy. Instability and violence may place the venture in jeopardy, without ever being directly targeted at the telecoms provider.

That said, there are many reasons why telecoms companies and their employees are targeted by hostile parties in post-conflict environments. Terrorists groups may see any external foreign investment as a legitimate target or any company

“Kidnap gangs may perceive engineers and other staff as a lucrative source of income or influence.”

that is improving infrastructure as a participant in the conflict. Kidnap gangs may perceive engineers and other staff as a lucrative source of income or influence. Criminals may seek to run protection

rackets or deter access to strategically critical sites without payments being made. Once operations are up and running, mobile telephones, SIM cards and cash are commodities that will be in high demand, and at risk from violent robbery. Even for non-retail operations, cabling, electronic equipment, vehicles and installation tools are attractive targets for theft. Their loss may not be of financial significance, but may cause significant knock-on effects for network resilience and contractual schedules.

Protective Measures

Modern telecoms engineering firms and regional service providers have acted as pioneers across the former Soviet Union, parts of Sub-Saharan Africa, the Balkans, Iraq and parts of Afghanistan; rolling out mobile and data services in remote and hostile places. In doing so, they have established considerable experience in managing the associated risks. Of course some telecoms companies take risk management more seriously than others, but there are lessons to be learned about successful mitigation strategies. In its work



with telecommunications providers in environments such as Iraq and Afghanistan, Janusian (TRAG's security and political risk practice) has learned some lessons of its own.

Protective strategies vary from environment to environment, but a general set of recommendations would include:

- Seek to establish locally recruited engineering and security capabilities. This will assist in developing a low key security strategy that emphasises evasion over confrontation
- Local recruits should be paid fairly and respected as members of the team
- Develop local intelligence networks to identify key security and risk management issues on a daily basis
- Establish at least one Security Operations Centre to co-ordinate and management movements, security activities and emergency responses

- Where necessary engage with local security threats to dissipate conflict issues
- Assume that delays over-runs, and gaps in coverage will occur
- Select a security company that understands your sector and the environment in which you will be working
- We suggest a detailed political risk review and threat assessment before a significant investment is made

Telecoms providers have demonstrated time and time again that it is possible to operate on the very edge of acceptable risk in order to reap the rewards of early market entry to difficult environments. However, more active risk management strategies are possible, and are highly effective.

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